#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
						Ref. document: WG-SRM "SORA Main Body"			
1	The operator manual proposed structure and content (through the main body and Annexes) may be relevant for smaller operators conducting low-complexity operations but it would not be suitable for larger operators like Swoop Aero with more complex operations that are close to airlines operations. We would suggest remaining flexible and less directive with the structure and content of the operator manual.							Accepted	Operator Manual is no longer used in this way and has been used to reflect the intent of this comment.
2			14	170	The Final Ground Risk Class is also determined for both the area at risk (section 2.3.3)	We suggest removing "also determined for" as it implies that the GRC has to be determined multiple times and replace with "used to determine".	The Final Ground Risk Class is used to determine both the area at risk (section 2.3.3), as an input	Accepted	Text has been removed and reformulated.
3			19	346	if a UA loses flight control and crashes or if a flight termination sequence is executed	Flight termination sequence may include a contingency landing site and this would not constitute a loss of control.	if a UA loses flight control and crashes or if an **unplanned** flight termination sequence is executed	Accepted	Text amended.
4			22	422	achieved by means of testing **or by proof of experience.**	We suggest either clarifying who's "proof of experience" is required (e.g. operator's, the manufacturer's, etc.) or replacing with "operational data".	achieved by means of testing or **operational data.**	Accepted	Text updated accordingly.
5			23	450	The operator is responsible for safe operation of the UAS	Grammar/typo	The operator is responsible for **the** safe operation of the UAS	Accepted	Text updated.
6			23	453-456	The competent authority may identify geographical zones where for safety, security, privacy, environmental or other reason, a flight authorisation may be requested for each flight. Such flight authorisation is different from the operational approval and independent of the category of the operation.	This sentence focuses on the competent authority and does not define a role or responsibility for the Operator.	We suggest moving it to paragraph E.	Accepted	Text updated.
7			24	487	Annex J, when published, has additional information on ANSP roles, responsibilities, and interactions with applicants	If Annex J has not been published, it should not be referenced. Additionally, we do not tacitly endorse any of the unpublished annex content without a thorough review.	We suggest removing the reference to Annex J or expressly mentioning that it has not been published yet (i.e. work in progress).	Accepted	Text updated.
8			24	490 - 491	These services may support an operator's compliance with their safety obligation and risk analysis as described in Annex H	If Annex H has not been published, it should not be referenced. Additionally, we do not tacitly endorse any of the unpublished annex content without a thorough review.	We suggest removing the reference to Annex H or expressly mentioning that it has not been published yet (i.e. work in progress).	Accepted	Text updated.
9			27	546	Before starting the SORA process, following aspects should be verified:	Grammar/typo	Before starting the SORA process, **the** following aspects should be verified:	Accepted	Text updated.
10			27	557	should minimise the risk of further iterations **in the UAS design**, in the envisaged operations	Clarify how UAS design iterations relate to the SORA process or remove the reference to "UAS design".	-	Accepted	This section has been reworded.
11			27	570-571	It is recommended that the applicant gets in contact as early as possible with the competent authority in order to present the available information and reach	Grammar/rewording	It is recommended that the applicant contacts the competent authority as early as possible in order to present the available information and reach	Accepted	This section has been reworded taking into consideration this comment
12			29	599-600	The risk assessment might be presented to the competent authority using the form in Annex A, section 3	If the "risk assessment" is the same as the "SORA safety case" (s2.2.3 (a) iii.), we suggest being consistent with the terminology and using the same wording across the document to avoid confusion for the reader. Annex A does not include Section 3.	We suggest amending as per our comment.	Accepted	Terminology has been aligned, and references to Annex A have been corrected.
13			29	601	With **all these objectives** satisfied by the applicant,	The reference to "objectives" may be confusing. Please clarify what those are (if they actually exist), or replace with "previous points" or "the above" or direct references to what you are referring to in order to avoid confusion.	We suggest amending as per our comment.	Accepted	Text updated.
14			29	621	The structure of the operator manual should allow the identification of the	Grammar/typo	The structure of the operator manual should allow **for** the identification of the	Acknowledged	Text updated.
15				643 - 647	The management of changes should be described in the operator manual and the following categories should be identified: i. Changes requiring prior approval by competent authority, ii. Changes not requiring prior approval by competent authority.	We think that this is sufficiently covered at a regulator's level. Requirements for version control/managing changes differ from one jurisdiction to another, therefore we believe the SORA does not need to cover or specify how to do this.	We suggest removing it.	Accepted	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.
16			31	683	In such a case, the authority may ask a refinement of the definition of the ground risk buffer,	Grammar/typo	In such a case, the authority may ask **for** a refinement of the definition of the ground risk buffer,	Accepted	Change incorporated in the original text and then restructured.
17			32	711	The assurance that **there will be uninvolved persons** in the area of operation is under full responsibility of the operator.	Operator is responsible to keep uninvolved persons clear of controlled ground area.	The assurance that **there will not be uninvolved persons** in the area of operation is under the full responsibility of the operator.	Accepted	Change incorporated in the original text and then restructured.
18			32	734	calculate the actual critical area applying a mathematical model defined in Annex.	Grammar/typo	calculate the actual critical area **by** applying a mathematical model defined in Annex **X**.	Accepted	Change incorporated in the original text and then restructured.

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19			33	739 - 789	Entire section section 2.3.2.	The Adjacent Area and Adjacent Airspace are both designed as safety assurance in the unlikely event of a drone fly-away. The process defined in section 2.3.2 places a significant workload on operators. The justification in the explanatory notes for the adjacent areas seems to contradict the requirements of the ground risk buffer that "if an operation loses control in a way that the UA exits the Operational Volume, it shall be contained to end its flight inside the Ground Risk Buffer. The appropriate size of the Ground Risk Buffer is based on the individual risk of an operation and is driven by the identified containment requirement of the SORA". In other words, if the Ground Risk Buffer is applied correctly, an Adjacent Area should not be required. We believe that the required safety levels, ground risk (less than 1E-6 fatalities per hour faced by overflown populations) and air risk (less than 1E-7 mid-air collisions per flight hour) are already comprehensively covered by the Ground Risk Buffer and contingency volume. This has been repetitively proven by the industry since the implementation of SORA v2.0. The additional requirements created by the adjacent area and airspace may be superfluous to the safety standard requirements of the SORA for larger operators like Swoop Aero and thus constitute an unnecessary burden for larger operators/applicants. In addition, the required size of the adjacent area is excessive and the examples provided in the explanatory notes only consider operations in an area, not point-to-point or route operations. "Section 2.4.2.2 (a) The adjacent airspace size models the reasonably probable airspace where a UA may fly after a loss of control situation." The current method of determining adjacent areas assumes a UA that has lost control to make a 90-degree turn then cruises for 3 minutes - this seems to be an improbable scenario in practice. An example of a long-distance (100km) point-to-point operation would be beneficial to avoid confusion for	Remove or amend as per comment. Suggested wording for 762 (section 1.2): Identify locations intended for non-sheltered assemblies of people 1km beyond the outer limits of the operational volume during the time of operation.	Partially accepted	Comment A on air risk: Yes, when "low" containment would be set as a minimum, air risk would not need to be considered at all. For simplifaction we have completly removed considerations for airspace containment by making "low" the minimum. However, some countries requested to make available the option of "no" containment, since they have huge areas, where no containment would be required. It is at the discretion of any competent authority to amend their implementation of SORA to allow for "no" containment in the future. We have added clarification on the 1km adjacent area section with respect to assemblies of people. We also added a definition for these cases where the ground risk buffer is sufficient without the 1km rule.
20			37	884	As seen in Figure 5	Incorrect figure	As seen in Figure **7**	Accepted	Text has been updated.
21			43 - 44	1067 - 1092	Entire section 2.5.2	We are unsure what containment requirements intend to achieve in practice, or even how they can help improve the safety levels of an operation. It creates more work and confusion for the operators and would only delay further the authorisation of already safe operations.	We suggest reviewing the adjacent area containment concept with Industry to determine the best approach	Accepted	The containment section has been reworked with the objective of simplifying it. Additionally, see answer to comment 183.
22			47	1121 - 1122	(including the compliance matrix with the SORA, an example is provided in Annex A)	Matrix not provided in Annex A.	Include Matrix in ANNEX A	Acknowledged	References to Annex A have been corrected.
23	We suggest not replacing the old OSOs numbering as this may trigger a lot of confusion for applicants/operators, and may not necessarily help streamline the process.	Table 10	44	1112		We suggest not replacing the old OSOs numbering as this may trigger a lot of confusion for applicants/operators, and may not necessarily help streamline the process. We suggest removing any duplicate of current OSOs and replace with "RESERVED" for future use.	We suggest keeping using the existing OSO table.	Partially accepted	The OSOs numbering has been kept as in SORA 2.0. For simplificatiom, the OSOs with multiple number assigned have kept only the first number.
24		2.1 (a)	25		This definition of "risk" as provided in the SAE ARP 4754A / EUROCAE ED-79A: "the combination of the frequency (probability) of an occurrence and its associated level of severity" is used here.	Throughout the document the term "risk" is sometimes not exactly used as per the (correct) definition in the context of usual safety assessment, as it also appears in this section 2.1 (a) or in Annex I ("The likelihood (probability) of occurrence and the associated level of hazard") slightly formulated differently (perhaps make it consistent?) in SORA Main Body 2.1 (a) ("the combination of the frequency (probability) of an occurrence and its associated level of severity"). This risk definition is e.g. correctly echoed when the SORA document states (1.1.a): "The TLOS of operations under the categories covered by SORA is equivalent to that of the category A "open" and C "certified" categories" meaning that the TLOS (i.e. acceptable Catastrophic probability or combination of severity and probability) remains the same but is achieved differently whether we are in Cat A, Cat B or Cat C operations. However, when it is stated (SORA approach): "This means a large UA operating in a high risk environment (example: over a large city near an airport) would have to demonstrate more to the regulator than a small UA operating in a low risk environment (example: at a closed test range and below 50 feet), the term risk is used in a broader and more "subjective" sense. I did a similar comment to EASA when they published the draft Light UAS SC and they did agree to add a clarifying note(footnote 1), which could also be added in the SORA document	Add the following note (footnote 1): "The terms "high risk", "medium risk", "lower risk" are used throughout this document in a broad sense i.e. to identify the level of risk as commensurate to the level of harm a potential mishap could lead to. It does not negate however other standard accepted definitions"	Partially accepted	Text updated to not refer specifically to the three categories of risk.
25	Critical area	2.3.1 (m), (o)	32		Possibility to recalculate the critical area and get a lower iGRC when considered as too conservative	This possibility is likely to be used by many applicants especially in the case of rotorcraft. However, simply advising to go back to Annex F may not be so easy for most of them, not having a PHD in mathematics … :-)	Better identify what is the exact formula to be used and specify 1. All UA inputs (alternative) parameters that should be entered in the formula 2. Expected outputs	Acknowledged	Agree, Section 1.8 in Annex F was created to combine all the forumulas in a step-by-step process.
26	Ground Risk Mitigation	Table 4	35		M1 (b) VLOS mitigation	Electronic means (onbaord or in the ground) allowing to visually monitor the absence of people on the ground should also be considered as mitigation equivalent to VLOS.	Add Electronic means as a possible mitigation under M1 (b)	Accepted	Renamed M1(C) - Tactical mitigations - ground observation includes now also technical means of achieving the mitigation.
27	Containment requirements	2.5.2	43		Containment requirements	Specific reference to the rationale behind the containment requirements is important (like has been the case with Appendix F) and alternative option should be offered to the applicant to reach an equivalent safety level for the fly way case. Furthermore, the rationale behind the need of "Consult with authority" could not be identified. This category also opens the door to lack of harmonization among the various competent authorities	Add Appendix A of the Explanatory note in the SORA document and sate thatth eapplicant may offer alternative approach showing an equivalent level of safety can me reached with regard to fly away Better explain the rationale behinf Consult with Authority	Accepted	We have added the rationale for containment as a new chapter for Annex F. We have replaced Consult Containment with "Out of Scope" including advice on what needs to be done in these cases.

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28	OSO renumbering	Table 10	45		New OSOs numbers	Note sure what to comment here. On one hand, seems quite logical on the other hands, it may be be a big headache for those already familiar with the current OSO numbering (with existing compliance evidence documents).	Just suggesting to make sure that there is clear majority in favor of the renumbering!	Acknowledged	The OSOs numbering has been kept as in SORA 2.0. For simplificatiom, the OSOs with multiple number assigned have kept only the first number.
29	Moving SORA in the right direction with this update!	N/A	All	All		Zipline appreciates the inclusion of more quantitative approaches, examples, and derivations in this version of the SORA.	None	Acknowledged	Comment noted.
30	Do not require or suggest analysis or evidence for SORA classification should be included in the Operator Manual	N/A	13-14, 28-30	Many	The term "Operator Manual" in the pages listed.	Operator Manuals are designed and streamlined to be useful documents for operating the system. They should not be burdened with regulatory compliance finding material or evidence supporting SORA type analysis. This type of information should be included in separate documentation from the Operator Manual.	Replace "Operator Manual" with a term such as "Documentation Supporting SORA" or similar to not overly specify the document this information is included in by the applicant.	Accepted	Operator Manual is no longer used in this way and has been used to reflect the intent of this comment. Please refer also to Phase 1 updated description, including required data to support the deriving of a preliminary SAIL and containment requirements.
31	Make sheltering apply by default	N/A	35	Many	Sheltering reference in footnote 11	Sheltering is applicable for almost all operations and likely should be embedded into the iGRC table by making all values -1 due to sheltering impact. There could be a process to support for example operations over open air assemblies not getting this credit as well as operations with further sheltering such as night operations to take additional credit.	Suggest reducing values in the iGRC in table due to sheltering.	Rejected	Sheltering is not included in the iGRC table, but it is made a declarative mitigation at Low robustness level. High iGRC related issues addressed by adjusting the population density bands.
32	Remove Consult Authority from the containment requirements table	Table 7	43	1069	Consult Authority	With the intent being to harmonize the regulatory approach with the SORA, the inclusion of concepts like "Consult Authority" that lead to lack of harmonization should be avoided as much as practical. It seems replacing consult authority with HIGH requirements may be sufficient given the high robustness level.	Remove Consult Authority and replace with HIGH requirements.	Partially accepted	We have added the rationale for containment as a new chapter for Annex F. We have replaced Consult Containment with "Out of Scope" including advice on what needs to be done in these cases.
33	Thanks a lot to the JARUS Working Group SRM for the great work in making SORA more understandable and more quantitative which is a step greatly appreciated by the Drone Industry Association Switzerland							Acknowledged	Comment noted.
34	Include the EASA AMC and GM as potential means to comply with requirements in the SORA Annexes for the respective requirements					Include the EASA AMC and GM as potential means to comply with requirements in the SORA Annexes for the respective requirements		Rejected	The adaptation to national/regional specificities is a responsibility of the NAA (EASA for EU).
35	Not connection between the Scoping Paper to AMC RPAS 1309 Issue 2, section 5 (f)	The SORA approach	13	122-126	These values were chosen to ensure that UAS operations would not pose more risk to third parties than crewed aviation which are seen as socially acceptable rates (as referred in the top level principles cited in Section 5(f) in the Scoping Paper to AMC RPAS 1309 Issue 2): i. For ground risk - less than one fatality per million hours (1E-6 fatalities per hour faced by 126 overflown populations) (See Annex F for more details)	Explanation for the reason of the ground risk value coming from the Section 5(f) in the Scoping Paper to AMC RPAS 1309 Issue 2.	[Explanation required, missing text]	Partially accepted	Text updated with include the reference to Annex F.
36	Just for clarification, hours should be "flight hours"	The SORA approach	13	125	For ground risk - less than one fatality per million hours (1E-6 fatalities per hour faced by overflown populations) (See Annex F for more details)	"flight hour" missing	For ground risk - less than one fatality per million flight hours (1E-6 fatalities per flight hour faced by overflown populations) (See Annex F for more details)	Rejected	Here the text refers to the ground risk from the ground perspective, i.e. for those hours during which the population is exposed, i.e. "per hour faced by the overflown populations", which is what is driving the safety target here. So there is no need to add "flight" infront of it.
37	Optional documentation	The SORA approach	13	#######	The documentation created consists of operator manual, compliance evidence and risk assessment	Compliance evidence and risk assessment should be optional in the first step of the SORA methodology	The documentation created consists of operator manual, and optionally, compliance evidence and risk assessment	Acknowledged	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process.
38	Those statements about the operators manual are slightly confusing and we suggest to clarify them slightly	Executive Summary	13	152	This information allows the applicant and competent authority to agree upon the required evidence needed to satisfy the claims made in the risk assessment (i.e. via a compliance matrix). This information can be complemented by the compliance evidence, containing the necessary evidence supporting the claims of the risk assessment that do not form part of the operator manual, i.e. test data and evaluation.	Reading the statement could lead applicants to understand that the operator need the operators manual to actually support the claims of the risk assessment. In our understanding, the risk assessment is there to support claims done in the risk assessment. Otherwise there is no real added value of a risk assessment towards a form summarizing the ARC, GRC, SAIL and containment requirements. The role of a risk assessment should probably exactly be the demonstration that the risk is acceptable by including ground risk calculations, ground risk buffer calculations, kinetic energy considerations for M2 or in-depth air risk considerations needed. The operators manual should for sure align with that information but is as its name indicates, the manual that the operator uses in practice so including procedures, training, and other operator relevant information which could serve as compliance evidence to the requirements of the risk assessment. We suggest to adapt the statements or to change the semantics.	This information allows the applicant and the competent authority to agree upon the operation. This information can be complemented by the compliance evidence, containing the necessary evidence supporting the requirements obtained from the risk assessment that can be part of the operator manual or be available in separate documents (i.e. test data and evaluation). The risk assessment should contain the necessary evidence to support its claims.	Acknowledged	Operator Manual is no longer used in this way and now reflects the intent of this comment. Please refer also to Phase 1 updated description, including required data to support the deriving of a preliminary SAIL and containment requirements.
39	Out of completeness we would suggest to include also Not Required for the level of Integrity and Assurance	Executive Summary	13	208	The SAIL identifies a Level of Integrity and Assurance (Low, Medium, High) to be met for each OSO, according to criteria provided in Annex E	The statement seems to imply that it is either low, medium or high while it could be Not Required	The SAIL identifies a Level of Integrity and Assurance (Not Required, Low, Medium, High) to be met for each OSO, according to criteria provided in Annex E	Partially accepted	Text reformulated to say that for lower SAILs, some OSOs may not be required to show compliance to the competent authority.
40	There seems to be some level of overlap between Step 1 and 10. We suggest to consolidate	Executive Summary	13	217	Comprehensive Safety Portfolio	There seems to be an overlap between Step 1 and 10 and this might lead to confusion. We suggest to document the operation and the compliance evidence in the Step 10 when the risk analysis is performed and the SAIL and containment requirements identified. Step 1 could instead include the general information about the operation in order to understand whether the operation falls into the specific category or to quickly understand the SAIL and identify whether it can be done in the open category and/or whether it would rather belong into the certified category or can be covered by a Standard Scenario or a PDRA.	Step 10 could stay as it is and Step 1 could include the following: "Before performing the risk analysis and demonstrating compliance with the SORA requirements, it should first be identified whether the operation can be performed in the open category, certified cetegory or whether any available Standard Scenarios allows the coverage of the compliance of the operation. Step 1 should serve the general description of the operation (also the relevant systems being used) for the applicant and the authority to be able to quickly understand in which risk category the operation will fall and which requirements may apply"	Acknowledged	Refer to the major update of Step#1, Step#10, Phased process and Annex A.

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41	We suggest adding the given SAIL and containment requirements in this sentence.	Executive Summary	13	222	If the Comprehensive Safety Portfolio does not provide a complete argument aligned with the SORA process at the given SAIL , changes to the proposed operation (e.g. reducing the intrinsic risk of the operation), additional mitigation measures, or further analysis/evidence may be needed	Out of completeness include the alignment with the containment level	If the Comprehensive Safety Portfolio does not provide a complete argument aligned with the SORA process at the given SAIL and containment level , changes to the proposed operation (e.g. reducing the intrinsic risk of the operation), additional mitigation measures, or further analysis/evidence may be needed	Acknowledged	Refer to the major update of Step#1, Step#10, Phased process and Annex A.
42		1.2 Purpose of the document	16	254-247	Due to the operational differences and expanded level of risk, the “specific” category cannot automatically take credit for the safety and performance data demonstrated with the large number of UAS operating in the “open” category	Flights performed in the "open" category with the same platform can increase the reliability of the product by showing confidence in the number of flight hours without failures.	Due to the operational differences and expanded level of risk, the safety and performance data demonstrated by large number of UAS operating in the "open" category will be assessed and considered by the competent authority.	Rejected	The expression "cannot automatically take credit" confers the idea that credit may still be taken by operations in the open category in the compliance to SORA requirements. Nothing stops the Applicant from using data accumulated during previous operations in the open category, however it will be up to the Applicant to demonstrate its relevance in complying with SORA to the Authority. The FTB methodology in Annex E may be used in that respect.
43	Vague statement	1.2	15	273	The competent authority may request additional measures or requirements to what the SORA stipulates for operations.	This sentence seems rather vague and seems here to justify that competent authority would decide higher requirements than the one determined by the SORA. This is understandable in many situations but then and a contrario why would a competent authority not be able to remove measures or requirements to what the SORA stipulates if there is a good reason (short test flight or other consideration based on risk, organisation, technical design etc....)	The competent authority may add or remove measures or requirements to what the SORA determines for operations.	Partially accepted	Text updated.
44	Applicability of SORA methodology to swarm operations	1.3	17	281	The methodology presented in this document is aimed at evaluating the safety risks involved with the operation of one or multiple^2 UA. ^2 A multiple UA operation (different from a swarm operation) ...	The footnote is rather confusing since in a light show most drones are usually automated and have trajectories which are distinct one could say they actually have separated sections of flight geography (in time) and are controlled independently from one another (at least when the pilot has no involvement which is the case most of the time). Furthermore the degrees of common command and control and overlap between flight geographies can vary a lot. We would remove the footnote to avoid confusion and discuss the topic of swarms and multiple UAS in a complete separate JARUS SORA Annex. Swarm operations are exluded from the footnote and not mentioned in the text. Would this mean that swarm operations are out of the scope of the SORA? If that is the case, please mention it explicitly. Otherwise, please include a mention of the applicability of the SORA methodology to swarm operations, even if the applicability relies on work in progress (such as the activity on Multiple Simultaneous Operations conducted by JARUS WG-AW).	Option 1: Swarm operations, where swarm operations are defined as [swarm operations definition], are not within the scope of the SORA. Option 2: Swarm operations, where swarm operations are defined as [swarm operations definition], are within the scope of the SORA, but are subject to particular requirements, proportionate to [delivered documents of JARUS activity on Multiple Simultaneous Operations].	Partially accepted	Please refer to Annex I for definition of multiple simultaneous operations.
45	Adajcent Areas and Airspaces and multiple locations	1.3	18	313	If an applicant can demonstrate that they have sufficient procedures in place to correctly allocate operational volumes and buffers , a generic location operational approval may be considered by the competent authority.	Probably make sense to have procedures to assess the adjacent areas and airspaces as defined in their SORA Analysis	If an applicant can demonstrate that they have sufficient procedures in place to correctly allocate operational volumes, buffers, adjacent areas and airspaces, a generic location operational approval may be considered by the competent authority.	Accepted	Text updated.
46	Flight Geography	1.4.1	20	369	For normal operation, the UA shall operate inside the Flight Geography. Depending on the type of the mission, the flight geography can be defined as a flight corridor for each planned trajectory, or as a larger volume to allow for a multitude of similar missions with changing flight paths	Conceptually speaking and for location independent approvals one could also define it as a set or ensemble of flight volumes fulfilling some specific conditions.	For normal operation, the UA shall operate inside the Flight Geography. Depending on the type of the mission, the flight geography can be defined as a flight corridor for each planned trajectory, a larger volume to allow for a multitude of similar missions with changing flight paths or a set of different flight volumes fulfilling some specific conditions.	Accepted	Text amended.
47	Typo	2.1.	25	512	i. Fatal injuries to third parties on the ground ^5é;	Remove the typo (é)	i. Fatal injuries to third parties on the ground^5;		Text updated.
48	Phases of the SORA Process	2.2.2	27/28	560		For simplicity, we believe phase one could be renamed risk analysis phase and phase two: compliance phase	Phase one - Risk Analysis / Phase two - Compliance Phase	Partially Accepted	Phases have been renamed.
49	"Compliance evidence" and "SORA safety case" are new terms not specified before and not linked to any point of the SORA semantic model. Compliance evidence has been mentioned in "The SORA approach", page 13, lines 148,149 but not defined and declared as optional. SORA safety case is new in this chapter.	2.2.3 Step #1 – Documentation of the proposed operation(s) (a)	28	581-586	(a) The purpose of this step is to describe the documentation set that should be compiled and presented to the competent authority for assessment after Step #10 completion. This usually consists of the: i. Operator manual, ii. Compliance evidence iii. SORA safety case	Explanation about the need of showing "Compliance evidence" and "SORA safety case" in step 1 of the SORA methodology.	[Inclusion of explanation why these two documents are required in step 1 of the SORA methodology]	Accepted	Compliance Evidence is now defined in Step #10, SORA Safety Case has been replaced with the Comprehensive Safety Portfolio (in Step #10 as well)
50	Compliance evidence should not be required at this stage as the SAIL level (and therefore the robustness levels for each OSO) is not agreed, determined yet.	2.2.3 Step #1 – Documentation of the proposed operation(s) (c)	29	596-598	The compliance evidence document only collects necessary evidence supporting the claims of the risk assessment that do not form part of the operator manual, i.e. test data and evaluation.	Compliance evidence should not be required at this stage as the SAIL level (and therefore the robustness levels for each OSO) is not agreed, determined yet.	[To remove this document from step 1 of the SORA]	Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process.

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51	Again, safety case explanation is missing. There should be a clear explanation about the documentation to be provide (if needed) together with the operations manual. In SORA 2.0 the equivalent was the safety portfolio and together with the operations manual there was the operator relevant information. It is difficult for an applicant to determine the "compliance evidence" at this stage (step 1) if the SAIL level has not been determined.	2.2.3 (g)	29	616-620	Developing an operator manual together with the SORA safety case is an iterative process. As the process is applied, additional mitigations and limitations may be identified, requiring additional associated operational and technical information to be provided/updated in the operator manual. This should result with an operator manual that comprehensively describes the proposed operation as envisioned	Again, safety case explanation is missing. There should be a clear explanation about the documentation to be provide (if needed) together with the operations manual. In SORA 2.0 the equivalent was the safety portfolio and together with the operations manual there was the operator relevant information. It is difficult for an applicant to determine the "compliance evidence" at this stage (step 1) if the SAIL level has not been determined.	[Explanation about the use of "compliance evidence" and "SORA safety case" in step 1]	Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process.
52	Maximum UA characteristics dimension is not well defined for multirotor UA and any other configuration than fixed-wing and helicopters.	2.3.1	30	653	Max UA characteristics dimension	What dimensions do you take as max. UA characteristic dimensions? Blade to blade? Max wingspan? Only the solid ones? It is assumed that the max UA characteristic dimension is similar to the concept of the "D dimension" of an eVTOL aircraft, as presented in EASA PTS-VPT-DSN, Prototype Technical Specifications for the Design of VFR Vertiports for Operation with Manned VTOL-Capable Aircraft Certified in the Enhanced Category (March 2022), page 6.	For multirotor UA, the maximum UA characteristic dimension shall include only the size of the fuselage. OR For multirotor UA, the maximum UA characteristic dimension is defined by the maximum distance between rotors. OR For multirotor UA, the maximum UA characteristic dimension is defined by the maximum distance between blade tips. OR **For multirotor UA, the maximum UA characteristic dimension is defined by the diameter of the smallest cylinder that encloses the whole vehicle, as long as the height of the cylinder is not higher than its diameter.** OR For multirotor UA, the maximum UA characteristic dimension is defined by the diameter of the smallest sphere that encloses the whole vehicle.	Partially accepted	Guidance provided in section 4.2.4 for how to determine Intrinsic UA Characteristics
53	Ground risk buffer missing	2.3.1 (c)	30	658,659	The operational volume which is composed of the flight geography and the contingency volume.	Ground risk buffer is missing from the iGRC footprint	The operational volume which is composed of the flight geography, and the contingency volume and the Ground Risk Buffer.	Rejected	The ground risk buffer is part of the iGRC footprint but not the operational volume.
54	Where are the population density values coming from? Explanation about the 25 > 250 > 2,500 > 25,000 > ... ppl/km2 missing.	2.3.1 (e)	31	685	(e) Table 2	Values for the population density are not explained.	[Explanation about the values of the density of population]	Rejected	Out of scope of the Main Body, more detailed information can be found in Annex F.
55	Interpretation of "less than" in population density, Table 2 - Intrinsic Ground Risk Class (GRC) Determination	2.3.1.	31	688	Table 2 - Intrinsic Ground Risk Class (GRC) Determination	Since there could be some subjectivity on how to interprete the GRC of maximum population densities slightly above those defined in Table 2, please specify what level of flexibility in the population density should be accepted to keep similar levels of risk (e.g.: +10%, +50%, +100%). This comment could also be applicable to the margins of the other parameters (e.g. Max UA characteristics dimensions of 1.1 m, Max cruise speed of 37 m/s). Since Annex F already defines possible trade offs between the three variables, it is suggest to explicitly mention that possibility in the Main Body and include an explicit equation that should be respected. Within the column "Proposed Text", an equation is proposed in LaTeX format.	\left(\frac{V_0 \pm \Delta V}{V_0} \right) ^ 2 \times \frac{WS_0 \pm \Delta WS}{WS_0} \times \frac{D_{POP_0} \pm \Delta D_{POP}}{D_{POP_0}} = 1	Rejected	The Main Body is intended to be a general representation of the potential permutations outlined in Annex F and is not intended to address all possibilities. The applicant should reference Annex F for these cases.
56	Missing definition of dispersion area	2.3.1.	32	704	(i) ... Guidance in the Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation.	The definition of the dispersion area of an operation is not easily found in the reference document. Please include the definition or a clearer reference to the definition within the document.	[Definition of dispersion area of the operation] OR [Reference to the definition within the Flight Safety Analysis Handbook]	Partially accepted	Removed this reference and included suggested grid sizes.
57	Missing "F" in "Annex"	2.3.1.	32	734	(o) ... Therefore, an applicant may decide to calculate the actual critical area applying a mathematical model defined in Annex.	Letter "F" is missing.	Therefore, an applicant may decide to calculate the actual critical area applying a mathematical model defined in Annex F.	Accepted	Change incorporated in the original text and then restructured.
58	Limits of population densities for assemblies of people	2.3.2.	33	766 767	if the assembly of people exceeds ~ 20,000 ppl if the assembly of people exceeds ~ 200,000 ppl	How should assemblies of people with values slightly above or below the limits, but within the same orders of magnitude, should be interpreted? For example: 10 000? 15 000? 19 000? 30 000? Please specify to which extent the "approximate" should be interpreted.	1.2.1. < 25,000 ppl/km^2 if the assembly of people exceeds [strict value 1] 1.2.2. < 250,000 ppl/km^2 if the assembly of people exceeds [strict value 2] Proposed values (arbitrary, relying on orders of magnitude): 12,500 (50% of 25,000) 125 000 (50% of 200,000)	Rejected	Exact numbers for assemblies are not meaningful as the location, shape and size of a assembly can vary largely. The measurement of exact numbers is essentially impossible. However, estimating roughly the number of people can be done based on for example stadium capacity, event planners estimations or police estimations. Therefore the local conditions can largely decide what is to be taken into account on a case by case basis.

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59	Allowing reduction of fractionated GRC	2.3.3.	35	825	(g) If an applicant has multiple partial mitigations that do not meet the criteria withn Annex B individually, but whentaken together achieve cumulative order(s) of magnitude reductions, the applicant can work with the Competent Authority and use the process described within Annex F to justify a reduction of the final GRC score.	This approach is highly appreciated. Within the same philosophy, it is proposed that when a full reduction of a 1 GRC point cannot be justified, fractions of GRC points can be accepted in the form of an increase of the maximum accepted population density. For example, let's imagine that an applicant wants to operate with a <3 m / 35 m/s UAS a BVLOS operation in an area with 750 hab/km^2 (GRC 6). The applicant can satisfatory claim for a final GRC of 4 through sheltering and a medium level M2. The UAS is validated only up to SAIL II. With the mitigations applied, the maximum population density accepted for the operation would be 250 hab/km^2. Now, the applicant has partial arguments to justify a medium level M1 (instead of low level) and can justify an additional reduction of the population at risk of order 5 (instead of 10). Therefore, the TLOS would be respected until a population density up to 1250 hab/km^2 and the operation can be conducted in SAIL II. This approach should further encourage applicants to increase their mitigation means as much as possible.	(g) If an applicant [...] the final GRC score. When partial mitigations are not enough to justify a full reduction of the final GRC score, the applicant can with the Competent Authority to justify a proportionate increase of the accepted maximum population density for the intended operation and UAS.	Partially accepted	Please refer to Annex F for guidance on using different values.
60		2.3.3.	25	832	N/A	While artificially increasing the operational volume to include areas with low population density could be tried by certain applicants as a strategeme to unfaithfully reduce the ground risk (especially in manual operations), operations that are automatic, especially those that are repeated multiple times (such as A to B inter-city delivery operations, where maximum GRC are identified only near take-off and landing), the total time spent over the most populated areas should be proportionate to the time spent over those areas per mission. It is understood that, for simplicity, the maximum GRC should be identified in step 2, but it is requested that in step 3, it is possible to mitigate the ground risk in a similar way to step 5 mitigations for the air risk (restriction by boundary, chronology and time of exposure). A position paper is enclosed as an annex to justify this position.	Adapt the text to allow this approach.	Rejected	The GRC is calculated on the maximum overflown population density, thus a larger operational volume would not contribute to reducing the iGRC.The SORA is intended to allow continuous operations, with no consideration of time constraints, unless considered in the mitigations. Wording was introduced in Annex F for futher guidance.
61	Consideration of VLOS through technical means	2.3.3.	25	832	N/A	The methodology should allow applicants to take credit of VLOS mitigations when adequate technical means are put in place to replace a person in VLOS.	The applicant can propose the competent authority to take credit of M1(B) ground risk mitigations through the use of appropriate technical means (e.g.: different cameras, sensors, etc.) that can replace the need of a person in VLOS. The adequacy of the technical means should be proven both operationally and technically in proportion to the level of robustness required for the SAIL of the operation to the relevant OSOs (IV, X, XI, XII, XIII, XV, XVI, XVII and XVIII).	Accepted	Renamed M1(C) - Tactical mitigations - ground observation includes now also technical means of achieving the mitigation.
62	strategic mitigation by operational limitation	2.4.3	39	950	The strategic mitigation by operational limitation (restriction by boundary and chronology) may be used to reduce the air risk by one class in the case of VLOS operations with a considerably low time of exposure	This example is rather conservative and seems to limit strategic mitigation to only one class reduction and only to VLOS cases. We suggest openning that statement in order to make a lot of simple operations SAIL IV or VI for no real valid reasons.	The strategic mitigation by operational limitation (restriction by boundary and chronology) may be used to reduce the air risk by one class in the case of VLOS or BVLOS operations with a considerably low time of exposure. The risk may be reduced by two class if evidence is available that the air risk is considerably reduced with regard to the initial ARC.	Rejected	Text has been updated to clarify the intent of the mitigation. The assumption is that by applying VLOS both before and during the complete duration of the operation, the crew has the ability to assess the other aircraft activity in the airspace and therefore is able to lower the encounter rate
63	Consideration of VLOS through technical means	2.3.3.	25	950	The strategic mitigation by operational limitation (restriction by boundary and chronology) may be used to reduce the air risk by one class in the case of VLOS operations with a considerably low time of exposure.	The methodology should allow applicants to take credit of VLOS mitigations when adequate technical means are put in place to replace a person in VLOS.	The applicant can propose the competent authority to take credit of air risk mitigations based on VLOS through the use of appropriate technical means (e.g.: different cameras, sensors, etc.) that can replace the need of a person in VLOS. The adequacy of the technical means should be proven both operationally and technically in proportion to the level of robustness required for the SAIL of the operation to the relevant OSOs (IV, X, XI, XII, XIII, XV, XVI, XVII and XVIII).	Rejected	Replacement of VLOS with technical means has not been addressed since SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0
64	Consideration of VLOS through technical means	2.3.3.	25	984	N/A	The methodology should allow applicants to take credit of VLOS mitigations when adequate technical means are put in place to replace a person in VLOS.	The applicant can propose the competent authority to take credit of air risk mitigations based on VLOS through the use of appropriate technical means (e.g.: different cameras, sensors, etc.) that can replace the need of a person in VLOS. The adequacy of the technical means should be proven both operationally and technically in proportion to the level of robustness required for the SAIL of the operation to the relevant OSOs (IV, X, XI, XII, XIII, XV, XVI, XVII and XVIII).	Rejected	Replacement of VLOS with technical means has not been addressed since SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0
65	OSO #III is marked as Operator and Training Org. requirement, but the OSO requirements in Annex E do not refer to training.	2.5.3.	44	1112	N/A	Remove Training org. from OSO #III.	N/A	Accepted	Table updated.
66	Training requirements for procedures and ERP (OSO #IV) are relevant for training organisations	2.5.3	45	1112	N/A	Mark OSO #IV as relevant for training organisations	N/A	Rejected	Operators has the responsibility for the procedures and their coresponding training,

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67	SLA	2.6	47	1137	In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service and should be included as part of the Safety Portfolio. This will allow the competent authority to get clear oversight into which services are being used, the functions they perform, and how they contribute to the overall operational safety. It also allows verification that responsibilities have been correctly allocated, and that there are no unallocated responsibilities.	At low robustness level OSO 13 or the new OSO #VIII is self-declared and the applicant is free to evaluate the performance of the externally provided services. so there is no need to have service level agreements.	In the case the operator uses external service(s) and OSO #VIII is required with medium or high robustness, reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service and should be included as part of the Safety Portfolio. This will allow the competent authority to get clear oversight into which services are being used, the functions they perform, and how they contribute to the overall operational safety. It also allows verification that responsibilities have been correctly allocated, and that there are no unallocated responsibilities.	Rejected	Although a low robustness only requires self-declaration, that declaration itself should be made on the condition an SLA exists and the competent authority may wish to view it (if needed). A self-declaration does not mean there is no requirement.
68		Table 10, OSO XVI	46	1113	The table implies that the Manufacturer would address OSO #XVI.	It should be the operator mainly, as the knowledge of the operation is required to comply with the requirements.	Move the cross mark to the Operator column.	Accepted	Cross added to the operator column as well.
69		Section 2.5.3 (b)	44	1105	Table 6	Should read table 10.	Change to table 10.	Accepted	Diagram numbering has been updated.
70		Table 10, OSO XV	46	1113	Cross mark in Manufacturer column only.	In Annex E, OSO #XV low assurance requires that human factors evaluation is conducted to determine if the HMI is appropriate for the mission. Also comments in Annex E relate to the use of emergency procedures. This all seems to imply a knowledge of the operation, which the Manufacturer will not have.	Add a cross mark in the Operator column, possibly delete it from the Manufacturer column as well.	Partially accepted	Cross added to the operator column as well.
71		Table 10, OSO XV	46	1113	Cross mark in Manufacturer column only.	In Annex E, OSO #XVI low integrity (therefore medium and high) requires knowledge of the operation, which the Manufacturer would not have.	Move the cross mark to the Operator column.	Accepted	Cross added to the operator column as well.
72		Table 10, OSO XVIII	46	1113	Cross mark in Manufacturer column only.	In Annex E, OSO #XVIII low assurance (therefore medium and high) requires to evaluate "particular risks relevant to the intended operation"; the Manufacturer would not have knowledge of the intended operation.	Add a cross mark in the Operator column, possibly delete it from the Manufacturer column as well.	Rejected	This is a design requirement. An operator should not be operating the aircraft outside of the design intent. Please refer to the updated restructure of the OSOs and the corresponding levels of robustness.
73						The SORA methods requirements are only addressed to the UAS operator. However, the operator cannot fulfil all the requirements alone and so the requirements should also be linked to Designer, Manufacturers, Training organizations etc. Then it will be easier for National authorities to adapt the SORA method to their respective regulatory frameworks.		Acknowledged	Refer to Section 2.5 of the SORA Main Body as this describes the roles and responsibilities of the actors. Furthermore, the OSO table addresses different actors. The SORA itself is specifically tragetted at the operator who is applying for an authorisation to fly.
74						We support the restructuring proposed in the explanatory note.		Acknowledged	Document has been updated as per the example provided in the explanatory note of the external consultation.
75	Air Risk TLS explanation is rather confusing	ii	13	127-131	For air risk - less than one mid-air collision per 10 million flight hours (1E-7 mid-air collisions per flight hour) for operations that primarily occur under self-separation and see-and-avoid (primarily Classes D, E and G Airspace). For operations that occur with separation provided by an Air Navigation Service Provider (primarily Classes A, B, and C Airspace), the TLOS is one mid-air collision per billion flight hours (1E-9 mid-air collisions per flight hour).	Concepts of "self-separation and see-and-avoid" and separation provision by ANSP are quite controversial/confusing. The link to the type of airspace is not really obvious for drone ops. Self-separation and VLOS means 1E-7, but what about self-separation and BVLOS? Also, e.g. airspace class D in Switzerland is usually ATC controlled. Separations provided by the ANSP are based on the ANSP TLOS, not SORA, and exactly what we have in manned aviation, so why is this even mentioned here is unclear. Also, controlled airspace includes airspace class E which is usually not under ATC responsiblity. Also, it is also unclear if the assumption is that all drone ops within a CTR/TMA are under ATC separation? This would require 2-way radio comms and diverts from what countries are might be using today based on local procedures and tools, like e.g. Switzerland with the special request processing (SFO tool).	For air risk - the TLOS for unmanned operations should reflect the one from the type of manned traffic that will be commonly encountered in the used airspace respectively. For GAT, less than one mid-air collision per 10 million flight hours (1E-7 mid-air collisions per flight hour). For CAT, less than one mid-air collision per billion flight hours (1E-9 mid-air collisions per flight hour).	Partially accepted	Updated with reference to classes of airspace.
76	low level of robustness	(d)	22	418	"simply declares"	the applicant declares that the required level of integrity has been achieved and has performed, produced or obtained any necessary evidence as required by the OSOs.	"A **Low** level of assurance is where the applicant declares, after having performed, produced or obtained any necessary evidence required, that the required level of integrity has been achieved. Unless specifically required by the OSOs, no evidence, apart from a declaration, and if applicable, reference to the evidence(s) documentation, is to be provided to the compentent authority."	Accepted	Text updated.
77	high level of robustness	(d)	22	423	"has been found to be acceptable"	"found" should be replaced by "verified" to provide more clarity on the expected involvement.	"has been verified to be acceptable"	Accepted	Text updated.
78			29	627	"it is mostly sufficient to self-declare the compliance by a statement in the compliance evidence document"	The statement is only partly agreed and meaning could be improved as proposed. For example, when refering to the content of OM with a low robustness requirement: is it not always sufficient to only self-declare in the compliance evidence document (e.g. training syllabus). It in general accepted that the authority does not need to see/review such items, but it should be done anyway by the applicant.	it is sufficient to self-declare the compliance by a statement and an reference to evidence in the compliance evidence document.	Partially accepted	Text updated to better clarify what is expected for each robustness level. The reference to evidence is addressed in 4.10.4

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79	Size of GRB	(c) IV and V	30	669	"with at least a 1-to-1 principle" "A smaller ground risk buffer"	When reading letter iv. and v., it is undertood the 1 to 1 principle gives actually the maximum size of the ground risk buffer, since v. talks about a "smaller" GRB. In particular, when using a parachute, and the ballisitic trajectory approach including the parachute dynamics exceed the 1:1 rule, should letter (d) - line 682 -be applied ? Is the size of the GRB then only dependent on the adjacent air and ground risks (Containment Requirements on Annex E section 4)? The maximum population density in the area (currently in (c) iii.) is not relevant for letter (c) and is already addressed in table 2 and letter (h)	*The structure of letter (c) should be revised, mainly to clarify the considerations on the GRB sizing and the applicability of iv. , v. or (d).* ***Proposition:*** *(c) The applicant needs to have defined the area at risk when conducting the operation. The area at risk is defined to be the iGRC footprint, which is shown below in Figure 5 and is composed from:* *i. the operational volume ; and* *ii. the ground risk buffer.* *i. the operational volume ...[current lines 658 to 663]* *ii. the ground risk buffer is defined:* *a. with the 1-to-1 principle (footnote 6); or* *b. a smaller ground risk buffer value may be proven by the applicant:* *b1.) for a rotary wing UA using a ballistic methodology approach acceptable to the competent authority,* *b2) based on an analysis taking into account:* *- malfunctions or failures ... [current lines 673-673]* *- meteorological conditions ... [current line 677]* *- UAS latencies ... [current line 678]* *- UA behaviour ... [current lines 679-680]* *- UA performance .. [current line 681]* *c. [current lines 682-683] ... based on criteria defined in Step #8 and Annex E Section 4 (Containment Requirements) depending on the adjacent ground risks*	Partially accepted	The GRB size depends on the UAS' performances and use (e.g. altitude), not on the risk of the adjacent area/volume. High level guidance has been kept in the Main Body and specifics moved to Annex E.
80		(d)	31	682-984	(d) The 1-to-1 principle may in certain cases not be sufficient to meet the target level of safety. In such a case, the authority may ask a refinement of the definition of the ground risk buffer, based on criteria defined in Step #8 depending on the adjacent air and ground risks.	The criteria from Step#8 (containement) that can be used to refine the defintion of GRB are actually those linked to "Annex E Section 4 – Containment Requirements". Also, adjacent air risk has no influence on ground risk buffer.	(d) The 1-to-1 principle may in certain cases not be sufficient to meet the target level of safety. In such a case, the authority may ask a refinement of the definition of the ground risk buffer, based on criteria defined in Step #8 and Annex E Section 4 (Containment Requirements) depending on the adjacent ground risks.	Accepted	Reference to Annex E Section 4 added to the text and restructured.
81	Generally (m) and (o) need to be re-worked	(o)	32	731	"an applicant may decide to calculate the actual critical area applying a mathematical model defined in Annex."		an applicant may decide to calculate the actual critical area applying a mathematical model defined in Annex F	Accepted	Change incorporated in the original text and then restructured.
82		Figure 6	33	750	Operational Volume	To be consistent with text from line 748, outer limit of GRB must be shown here and not only "operational volume"	Figure 6 Operational Volume + Ground Risk buffer + suggestion to add a label "Adjacent area" and an arrow in the right direction after the inner limit (e.g. green rectangle on the bottom of image). This in order to show the start and to potential end of the adjacent area.	Accepted	Figure 6 has been updated accordingly.
83		2.4.3 (d)	39	950	The strategic mitigation by operational limitation (restriction by boundary and chronology) may be used to reduce the air risk by one class in the case of VLOS operations with a considerably low time of exposure	Is this also applicable when then the residual arc is ARC-a (e.g. short flights in arc-b >30m/AGL)? Mitigation by boundary and mitigation by chronology should be splitted for clarity. Addition of BVLOS should be considered.	d) The strategic mitigation by operational limitation (restriction by boundary or by chronology) may be used to reduce the air risk by one class in the case of ~~VLOS~~ operations with a considerably low time of exposure. This type of mitigation is applicable to all types of initial ARC.	Rejected	Text has been updated to clarify the intent of the mitigation. The assumption is that by applying VLOS both before and during the complete duration of the operation, the crew has the ability to assess the other aircraft activity in the airspace and therefore is able to lower the encounter rate. An ARC cannot be lowered more than ARC-a.
84			14	178 181	"controlled by air traffic versus uncontrolled" "Setp#9 (containment requirements)		"air traffic control" Setp#8 (containment requirements)	Accepted	Correction: "under air traffic control; versus uncontrolled" and Step#9 has been replaced by Step#8
85			17	306	"to support waiving regulatory requirements applicable"	Please provide more guidence on how is this to be understood.		Rejected	Waiver is an alternative word to exemption.
86			20	371	"loiter"	The word may lead to confusion for non-fixed wings.	Suggestion to replace with "loiter/hold"	Accepted	Text updated.
87			22	422	"proof of experience"	Based on our experience, the proof of evidence has lead to several discussions with applicants that claimed a certain number of flights/years of activity as proof that their operation is safe. Without a clear process on how this is to be done, the argument cannot be used in the frame of the risk assessment since in most cases the details of operations have not been properly recorded and evidence/traceability could not be provided.	Suggestion to add more clarity on what is meant by "proof of experience" or remove the second sentence completely.	Partially accepted	Text updated to refer to operational data. This implies the assumption that the operator is able to provide evidence acceptable to the competent authority.
88			32	na	Note 7: Assembly of people	Note 7 seems misleading. An airshow with 5000 people cramped together in a tight area is considered an assembly of people, so how is it to be understood in this case?	Rename note 7 differently than "assembly" of people" so it is more clear for the intent of the note.	Partially accepted	This note has been removed and the SORA method now only refers to a population density
89			33	747	35km in 3min Cruise Distance	This value equals to 194m/s with a cut-off at 200m/s as maximum considered in SORA. Is it really worth creating a special case for those things? I would say	Suggestion to add note that if it can exceed 35km in 3 min it should be classified in the certified category.	Rejected	The use of UA with maximum speeds above 200 m/s is theoretically still possible in the frame of the SORA through the use of Annex F models. This decision should also help a possible future inclusion of smaller but near-transonic UA within the scope of the methodology.
90			38	928	500m above the maximum altitude as minimum consideration		All altitudes in the document are given in feet. Please harmonise.	Accepted	Airspace containment considerations have been removed in favor of simplifcation
91			13	121	"uninvolved in the operation and is commensurate with existing crewed aviation risks to these same"		the term "risks" should be replaced by either "safety targets" or "level of safety".	Accepted	Replaced by "level of safety".
92			17	276	unconsistent use of "operational approval" and "operational authorisation" throughout the text		Remove and replace one of the two terms, as both are used to refer to the same.	Acknowledged	The two terms are used interchangeably.

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93			19	342	"or when there is imminent grave and imminent danger fatalities among uninvolved persons."		"or when there is imminent ~~**grave and imminent**~~ danger **of** fatalities among uninvolved persons."	Accepted	Sentence has been removed.
94			23	448	"The operator has received an operational approval from the competent authority. It allows the operator to perform a series of flights, provided that they are performed in accordance with the operational approval"		"The operator has received an operational approval from the competent authority. It allows the operator to perform a series of flights, provided that they are performed in accordance with **the scope and limitations of the** operational approval"	Accepted	Text updated.
95			25	535	"(b) The SORA process is an iterative process, meaning that the flowchart in Figure 3 may be repeated more than once until the documentation and the risk assessment have converged to an acceptable safety case. The comprehensiveness of the documentation should be verified by the applicant in Step# 10."	Remove "documentation", the documentation does not converge to a safety case, but the risk assessment (which of course is documented)	"(b) The SORA process is an iterative process, meaning that the flowchart in Figure 3 may be repeated more than once until ~~**the documentation and**~~ the risk assessment have converged to an acceptable safety case. The comprehensiveness of the documentation should be verified by the applicant in Step# 10."	Accepted	This paragraph has been removed.
96			32	722 and 731	point (m) and (o)	Those paragraphs seem out of context, as they refer to the critical area, a term not yet defined nor linked to the size of the ground risk buffer in this document.	Paragraph (o) is partially a repetition of paragraph (m). Please harmonise.	Accepted	Change incorporated in the original text and then restructured.
97			33	742	"1. either the maximum range remaining of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume,"		It is proposed to remove point 1. The maximum remaining range of the UA is not defined, and several assumptions can be taken by the operator in consideration to what is/could be the remaining range.	Accepted	The complete sentence word "remaining" has been deleted. Remaining range would be dependant on many parameters and at what stage of the flight it leaves the operational volume.
98			36	845	General comment	The term "fly away" is not defined.		Accepted	Refer to Annex I for added definition.
99			33 & 38		adjacent airspace definition		Consider defininng the adjacent area definition in one chapter / section.	Acknowledged	Comment OBE due to document restructuring.
100			28		Flowchart		Flowchart on page 26 seems now redundant. Consider removing.	Partially accepted	Flow charts have been replaced with the Phase diagram
101			35	805	M2 mitigation at low level of robustness		"N/A" should replace the current "0"	Accepted	Text updated.
102		Step #4 : Initial Air Risk Class (ARC)	14	181	The initial ARC of the adjacent airspace shall also be determined in Step#4 (section 2.4.2.2) as an input to Step#9 (containment requirements)	Typo, should read Step #8 iso Step #9	The initial ARC of the adjacent airspace shall also be determined in Step#4 (section 2.4.2.2) as an input to Step#8 (containment requirements)	Accepted	Text has been updated.
103		1.3 Applicability	17	287	The risk of collision between two UA or between a UA and a UA carrying people is currently deemed to be small and thus will be addressed in future revisions of the document.	The red part seems to be neither sufficiently justified nor relevant. It is therefore suggested to remove this part. Moreover, it may appear in contradiction with previous point (a) that says that SORA can be used when operating several UAs. In such a case, it seems debatable to state that collisions between several UAs are rare.	The risk of collision between two UA or between a UA and a UA carrying people will be addressed in future revisions of the document.	Accepted	Text updated accordingly.
104		2.1 Introduction to Risk, (c) (i)	25	512	Footnote 5: *Risk to involved persons is not included as they are informed of the risk of the UAS operation and have consented to accepting the risk.*	The assumption of the footnote is debatable: risk acceptance by involved people should also be mitigated through, PPE, training, procedures e.g. Mitigations may be SAIL-based. Otherwise one may encounter operators who have no safety procedures nor any kind of safety consideration for involved people who may not be always aware of the actual risks. In addition, the same remark can be made for (ii) concerning third parties in the air.	It is suggested to replace the current footnote by the following one and that could aply to both (i) and (ii): "*Risk acceptance by involved people should however be mitigated through, PPE, training, procedures e.g. Mitigations may be SAIL-based. Involved people should be properly informed about the actual risks of a given operation and trained on mitigation measures.*"	Partially accepted	Comment partially accepted. Text updated accordingly.
105		2.2.2. The phases of the SORA process, (d)	27	570	d. It is recommended that the applicant gets in contact as early as possible with the competent authority in order to present the available information and reach a common initial understanding on the final GRC, Residual ARC, subsequent SAIL as well as the risk level of the adjacent area.	Referring systematically to the competent authority may not ba alsways affordable to the competent authority itself. It is suggested to include the possibility to consult knowledgeable companies to assess the initial feasibility of an operation.	d. It is recommended that the applicant gets in contact as early as possible with the competent authority or other other entitites which are knowledgable about the practices of the competent authorities in order to present the available information and reach a common initial understanding on the final GRC, Residual ARC, subsequent SAIL as well as the risk level of the adjacent area.	Rejected	Since the in-principle agreement can only be achieved with the competent authority, the mentioning of other entities has not be included.
106			28	580	(a) The purpose of this step is to describe the documentation set that should be compiled and presented to the competent authority for assessment after Step #10 completion. This usually consists of the: i. Operator manual, ii. Compliance evidence, iii. SORA safety case.	The removal of the Conops and the use of "Operator manual" instead is confusing. Often there are two separate documents : - the conops is a document that describes the intended operation and its technical and operational conditions and restrictions : it is needed by the competent authority. - the operator manual is the document that is used by the operator's RPs and staff to prepare and perform the operation. It may be very comprehensive and complete, and the competent authority may not have to know it completely, only the relevant sections, depending on the requested level of assurance (declarative, declarative with evidence, validated by the competent authority. Even if the Conops is considered to be part of the OM, this should not imply that the whole OM has to be sent to the authority, only the part on ConOps : again, it will depend on the expected level of assurance.	(a) The purpose of this step is to describe the documentation set that should be compiled and presented to the competent authority for assessment after Step #10 completion. This usually consists of the: i. the ConOps dedicated to the operation, ii. Compliance evidence, including the relevant part of the Operator manual, iv. SORA safety case.	Acknowledged	Operator Manual is no longer used in this way and now reflects the intent of the majority of comments (an operator centric document to operate a system).
107			29	624	The applicant should only put information into the operator manual and compliance evidence document as it is required by the items mentioned above.	Again there should be a distinction between the OM, which may be very complete/comprehensive because used by the crew, and the material provided to the competent authority due to the robustness level.The OM cannot remain "operator-centred" if in the end it is written in such a way that it is made for the competent authority review. The OM should indeed be "operator-centered", so that each operator can develop OMs that fit their needs, culture, and operations. This means that the competent authority should be open to various structures and contents of OMs. The current wording shows inconsistencies between (b) and (i).	Suggested new paragraph (i): *(i) The operator should develop an OM that is comprehensive and tailor made to its operations and its culture. The ConOps, as a separate document, should be operation centered and fit the requirements of a given anticipated operation, answering the needs of the competent authority.* *Requirements that may not be covered by the ConOps or the OM may be included in a compliance document. If a requirement has a low robustness (ref. Section 1.4.2 How SORA measures risk mitigations - introduction on robustness), it is mostly sufficient to self-declare the compliance by a statement in the compliance evidence document.*	Acknowledged	Operator Manual is no longer used in this way and now reflects the intent of this comment (an operator centric document to operate a system)

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108		2.2.3 Step #1 – Documentation of the proposed operation(s), (k)	30	642	Any change with an impact on the SAIL determination may require prior approval by the competent authority.	Some changes may not have an impact on the SAIL, however they may include mitigation measures that have different levels of robustness so that the end result remain unchanged (for example, changing a robustness level from low to high to increase the safety credit and maintain the same level of SAIL even though the mitigation should require a validation from a competent authority or third party).	Suggested rewording: *The level or nature of change that requires prior approval by the competent authority should be discussed and agreed with the competent authority.*	Partially accepted	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.
109		2.3.1 Step #2 – Determination of the intrinsic UAS Ground Risk Class (GRC), (d)	31	682	The 1-to-1 principle may in certain cases not be sufficient to meet the target level of safety. In such a case, the authority may ask a refinement of the definition of the ground risk buffer, based on criteria defined in Step #8 depending on the adjacent air and ground risks.	The 1-to-1 rule is in several cases not suitable for fixed-wing UAs with significant operating speeds.	The 1-to-1 principle may in certain cases (especially fixed-wing aircraft) not be sufficient to meet the target level of safety. In such a case, the authority may ask a refinement of the definition of the ground risk buffer, based on criteria defined in Step #8 depending on the adjacent air and ground risks.	Partially accepted	Text added in Annex E Section 4.
110		Table 2	31	N/A	Population densities as multiples of 25 ppl/km²	300 ppl/km2 has been widely accepted as the upper limit of the sparsely populated area during two years and several OAs may have to be amended or revoked if the thresholds are changed now. Shouldn't they be aligned 30/300/3000?	Consider re-aligning population densities with multiples of 30 ppl/km²	Partially accepted	The values have been updated to multiples of 5, which encompasses 3, thus the current approvals.
111		2.3.1 Step #2 – Determination of the intrinsic UAS Ground Risk Class (GRC), (i)	32	702	Guidance in the Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation[8]	The FAA handbook does not seem to provide a clear definition of the dispersion area. Maube it would be more appropriate to directly include the definition in the document?	Add a definition of the dispersion area	Acknowledged	Removed this reference and included suggested grid sizes.
112		2.3.1 Step #2 – Determination of the intrinsic UAS Ground Risk Class (GRC), (j)	32	711	the assurance that there will be uninvolved persons in the area of operation is under full responsibility of the operator	Though we agree with the statement, it may be relevant to remind that the competent authority has also a duty of protecting the population in general. Hence it could be useful to add that the competent authority may challenge an operator if it has doubts about the safety of third parties.	Complete this paragraph with the follwong sentence: *However, this should not preclude any request from the authority for evidence that support such a declaration.*	Accepted	Change incorporated in the original text and then restructured.
113		2.3.1 Step #2 – Determination of the intrinsic UAS Ground Risk Class (GRC), (m)	32	726	These may not have been considered in the iGRC table, but may lead to an increase in iGRC.	Balloons and airships may also lead to a decreased iGRC. Here is a suggested rewording	These may not have been considered in the iGRC table, but may lead to a different iGRC.	Accepted	Change incorporated in the original text and then restructured.
114		Table 3	32	695	Footnote #7 in Table 3 concerning the definition of assemblies of people	Shouldn't the definition be associated to a density of people and not just an absolute number ? 50 people, if "packed" in a small volume, should be considered an assembly of people. A busy street in a commercial area should also be considered an assembly of people. What about a group of "only" 8,000 people? Or two groups of 9,999 people separated by a road or an empty space for example :)?	Use the definition provided by EASA for example: *'assemblies of people' means gatherings where persons are unable to move away due to the density of the people present;* Should a quantity be provided, it may be infered from the 10,000 limit divided by a given surface. 10,000 ppl/km² ?	Accepted	This note has been removed from the Main Body. Please refer to Annex I (it is also a population density for a grid size, so the total number depends on the alittude of the UA).
115		Determination of the adjacent area size and adjacent area intrinsic GRC, (d)	33	760	1.1 Calculate the average population density of the adjacent area identified in the previous section,	How to calculate the average population density of the adjacent area ? Guidance might be needed.	Provide guidance to calculate the average population density of the adjacent area.	Acknowledged	Out of scope of the Main Body for version 2.5
116		Determination of the adjacent area size and adjacent area intrinsic GRC, (h)	34	786	(h) For the adjacent area, the operator is not approved to plan flights in this area and will only reach the adjacent area in the event of a loss of control and fly away event. In that situation,the direction and duration of the fly away is assumed to be random, thus the average population density used.	Paragraph (h) is somewhat redundant with (f). Both paragraphs could be merged.	move content of paragraph (h) into paragraph (f) above	Rejected	The two paragraphs serve two different purposes: Paragraph (f) is on the calculation of the average population density while Paragraph (h) is on the operational implementation.

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117		Table 4	35	N/A	Table 4	Though the mitigation itself is relevant, this wording may be misleading : it could be argued that flying BVLOS with a video feedback showing the overflown area may be more efficient than having a remote pilot / crew flying VLOS but with poor ability to assess the exact projection of the UA's position on the ground, hence impacting their ability to effectively use this M1(B) mitigation.	Suggestion: Rename into "M1(B) - (Visual) avoidance of people on the ground". ("Visual" could even be removed also).	Partially accepted	Renamed M1(C) - Tactical mitigations - ground observation includes now also technical means of achieving the mitigation.
118		2.3.3 Step #3 – Final GRC Determination, (e)	35	811	(e) When applying mitigation M1, the GRC cannot be reduced to a value lower than the lowest value in the applicable column in Table 2. This is because it is not possible to reduce the number of people at risk below that of a controlled area.	Though the general principle is agreed with, one may question the relevance of keeping a 'high' iGRC for large UAS when flying above a fully ground controlled area. Maybe the rationale could be recalled here.	Provide rationale to support this constraint	Partially accepted	Mitigations effects re-evaluated and consulted M1 mitigation split into separate M1(A) and M1(B) mitigations.
119		2.3.3 Step #3 – Final GRC Determination, (e)	35	814	For example, in the case of a 2.5m UAS at a max cruise speed below 35m/s (second column in Table 2) flying over a population density below 10 ppl/km2, the intrinsic GRC is 4. Upon analysis of the Operator Manual the applicant claims to reduce the ground risk by first applying M1 at High Robustness (a -3 GRC reduction). In this case, the result of applying M1 is a GRC of 2, because the GRC cannot be reduced any lower than the lowest value for that column. The applicant then applies M2 using a parachute system resulting in a further reduction of -1 (i.e. GRC 1). The Final GRC is established by adding all correction factors (i.e. -2-1=-3) and adapting the GRC by the resulting number (4-3=1)	A M1 strategic mitigation with a high level of robustness (-3) applied for an operation over a population density below 10ppl/km² is not a good example : reducing the population at risk by a factor 1000 is not possible, or it would mean that the operation is over a controlled ground area, and then this should be taken into account at the iRGC determination Step, not as an M1.		Partially accepted	Example removed as it was leading to confusion.
120		2.3.3 Step #3 – Final GRC Determination, (i)	35	835	iii. Multirotors and their reduced critical area in M2 in Annex B and Annex F	Maybe a note could be added to remind that this evidence may not offer an additional risk mitigation if it has been already used earlier to support a shift to the left in the GRC column. A smaller Critical area should be used once, either in the iGRC assessment or as an M2.	Add a footnote: *a reduced critical area should be used either as an M2 mitigation means or as a reduced iGRC in Step 2 but cannot be claimed twice.*	Partially accepted	Mention of critical area reductions has been removed since it is a Step #2 aspect and not mitigation one.
121		2.3.4 Determination of final adjacent area GRC, (a)	36	841	M2 mitigations like parachutes or special descent manoeuvres may not be used by default	We do not understand this assumption which seems to contradict other words (European Moc2512 for instance).	Provide rationale to support this assumption	Acknowledged	JARUS consultations does not deal with EU documents. If the UA is in the adjacent volume, it means that a LoC event occurred. Such LoC could be of any kind and could jeorpardize, e.g., the appopriate deployment of a parachute. Usually if the opertional volume is exited, the mandatory flight termination would have included the activation of the M2 mitigation. It would be a different case, when M2 is applied by making use of intrinsic design features, that do not need to be deployed, but are still capable to reduce the impact KE. We added new text to clarify in the guidance section. This is now part of the alternative method to be found in Annex F.
122		2.3.4 Determination of final adjacent area GRC, (d)	36	846	After mitigations have been applied, calculate the final adjacent area GRC of the using the same process as Step #3 in above.	Typo	After mitigations have been applied, calculate the final adjacent area GRC using the same process as Step #3 in above.	Accepted	Comment accepted. Please note that this section is now part of the alternative method now found in Annex F.
123		figure 7	37	N/A	"OPS in Class B, C or D Airpsace ?"	It was also in SORA v2.0 but we do not understand why class A is not included.	Add Class A airspace in this section of the diagram.	Rejected	This flowbox is specific to the aerodrome environment. Class A airspace is not used for aerodromes.
124		2.4.3 Step #5 - Application of Strategic Mitigations to determine Resdiual ARC (optional)	39	950	(d) The strategic mitigation by operational limitation (restriction by boundary and chronology) may be used to reduce the air risk by one class in the case of VLOS operations with a considerably low time of exposure	We have various understandings among the team concerning this sentence : - Does it mean that restriction by boundary or chronology alone is not sufficient to reduce the air risk by one class, it is also necessary to have a low time of exposure ? It was previsously understood that restriction by boundary or chronology, if properly justified, was enough to reduce the air risk by one class. - Other option: in VLOS and with a low exposure time, the "boundary and chronology" mitigation may be claimed	Consider adding some note to further explain what is expected through this mitigation mean.	Acknowledged	Text has been updated to clarify the intent of the mitigation. The assumption is that by applying VLOS both before and during the complete duration of the operation, the crew has the ability to assess the other aircraft activity in the airspace and therefore is able to lower the encounter rate
125		2.4.4.1 Operations under VLOS/EVLOS	40	976	Notwithstanding the above, the applicant should have a documented VLOS de-confliction scheme, in which the applicant explains which methods will be used for detection, and define the associated criteria applied for the decision to avoid incoming traffic.	This should also apply to EVLOS, especially since communication between observers and the remote pilot will include latencies and the need for the remote pilot to understand properly the situation in order to apply an appropriate de-confliction scheme.	Notwithstanding the above, the applicant should have a documented (E)VLOS de-confliction scheme, in which the applicant explains which methods will be used for detection, and define the associated criteria applied for the decision to avoid incoming traffic.	Acknowledged	Deferred to SORA 3.0 when the air risk sections will be updated.

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126		2.4.4.2 Operations under a DAA System - TMPR	41	1003	(c) Medium TMPR (ARC-c): A medium TMPR will be required for operations in airspace with a moderate likelihood of encounter with manned aircraft, and/or where the strategic mitigations available are medium robustness. Operations with a medium TMPR will likely be supported by systems currently used in aviation to aid the remote pilot with detection of other manned aircraft, or on systems designed to support aviation that are built to a corresponding level of robustness. Traffic avoidance manoeuvres could be more advanced than for a low TMPR.	Additional guidance could be provided here in addition to Annex D as the way it is written here is very qualitative. What would be a technology "built to lesser standards"?	It is understood that this part was not updated in SORA 2.5 so this comment may be considered at a later step.	Acknowledged	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
127		2.5.2 Step #8 - Identification of containment requirements	43	Footnote 16	Basic containment sets a floor probability for fly-away events of 10-4 , so SAIL I operations will crash more often than SAIL II, but will not fly-away more often.	Basic containment = low containment? It's better to keep the word "low" if the word "basic" is not defined elsewhere.	Use Low instead of Basic, for consistency purpose	Accepted	Comment accepted. We have moved this to Annex F with a much more detailed explanation of this case.
128		2.5.3 Step #9 - Identification of Operational Safety Objecvtives (OSO)	44	1097	Table 6 provides a qualitative methodology to make this determination	Typo : should read "Table 10"	Table 10 provides a qualitative methodology to make this determination	Accepted	Table numbering updated.
129		2.5.3 Step #9 - Identification of Operational Safety Objecvtives (OSO)	44	1102	L is recommended with Low robustness	It could be added that competent authorities may ask for additional evidence for any given OSO if deemed necessary.	Add a footnote: "Competent authorities may ask for additional evidence for any given OSO if deemed necessary."	Partially accepted	The text related to the levels of robustness has been updated for clarity, in line with this comment.
130		2.5.3 Step #9 - Identification of Operational Safety Objecvtives (OSO)	44	1105	(b) Table 6 provides a qualitative methodology to make this determination	Typo : should read "Table 10"	Table 10 provides a qualitative methodology to make this determination	Accepted	Table numbering updated.
131		2.5.3 Step #9 - Identification of Operational Safety Objecvtives (OSO)	44	1111	...manufacturers or training organisations according to the distribution identified in Table 6.	Typo : should read "Table 10"	...manufacturers or training organisations according to the distribution identified in Table 10.	Accepted	Table numbering updated.
132		2.3.1 Step #2 – Determination of the intrinsic UAS Ground Risk Class (GRC)		700-707	(i) Determining the population density to calculate the iGRC in Step #2 needs to be done using the highest resolution static maps appropriate to the operation and available to the operator, unless maps for Step #2 are required by the authority. Guidance in the Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation8. Competent authorities may require specific maps to be used for determining population densities. If high resolution or dynamic maps are to be used, the operator must justify the usage of the maps and show the reduction of risk. See Annex F for additional information.	This guideline should be completed to advise to both the applicant and the authority to take in consideration population density variations due to seasonal and temporary events. The explanatory text does not seem to cover temporary events, which may result in significantly higher population density over a localized area. While in an urban context it might be considered to be covered by the "nominal" pop. density of the settlement, such consideration is not appropriate to temporary events organized in rural areas - typically music festivals, which may span over a few days and result in signficantly higher population density both in day and / or night time. Particular consideration should be also be made of touristic resorts, touristic sites and similar areas, deserted for part of the year and crowded during the other part, with special attention to campsites as population cannot be considered to be sheltered at night. Also some villages are deserted for most of the year but get inhabited during holydays due to secondary houses - not sure these inhabitants are considered in population density maps.	ADD THE FOLLOWING BULLET: Determination of the maximum density of population must make consideration of the organization of temporary events (typically concerts, sports, …) which lead to gathering of people in areas with an otherwise low density of population. Variation of population densities due to mass tourism should also be taken into account (with special consideration for campsites where population should never be considered as being sheltered). This implies that the SORA process must also include time considerations for the operation. While population density due to tourism can be anticipated in advance, as well as for major cultural or sport events because of the related advertising, the applicant may not have the knowledge of smaller ones. Local authorities however should be fully aware as the organization of a gathering of people is usually required to be announced. In order to guarantee adequate consideration of the above in the iGRC determination, the population density estimate should be reviewed and validated by local authorities. Also depending on the lapse of time between the initial Ground Risk assessment and the actual operation, provisions should be made to get back to local authorities to make sure no event leading to a gathering of people has been organized in the operational volume in-between.	Rejected	There may be various conditions which could cause variations in the population density (not possible to list them all in the document). The guidance provided allows these assessments to be made without being overly prescripive.
133			32	703-704		Annex F §3 contains very interesting considerations regarding the estimate of population densities and the difficulties behind. The bullet should definitely refer to Annex F § 3 (and at least the conclusion in 3.6.6.)		Accepted	Part (e) in "Population density information" added which references Annex F section.

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134		2.3.1 Step #2 – Determination of the intrinsic UAS Ground Risk Class (GRC)		731-736	(o) A generally conservative size of the critical area for most UAS can be anticipated by considering both the size and speed used in the iGRC determination. The applicant may feel that the iGRC is too conservative for their operation. Therefore, an applicant may decide to calculate the actual critical area applying a mathematical model defined in Annex. If the calculated critical area corresponds to the critical area identified in Annex F for a UA of a smaller size, then the applicant may use the corresponding iGRC.	bullet (o) seems redundant in its intent with bullet (m). Although wording are slightly differents, they both address the possibility for an applicant to calculate its own Critical Area using the model from Annex F.		Accepted	Text updated as part of the larger document restructure.
135		2.3.1 Step #2 – Determination of the intrinsic UAS Ground Risk Class (GRC)		731-736	(o) A generally conservative size of the critical area for most UAS can be anticipated by considering both the size and speed used in the iGRC determination. The applicant may feel that the iGRC is too conservative for their operation. Therefore, an applicant may decide to calculate the actual critical area **applying a mathematical model defined in Annex**. If the calculated critical area corresponds to the critical area identified in Annex F for a UA of a smaller size, then the applicant may use the corresponding iGRC.	Annex F § 4.6.1 proposes simple trade-offs based on simple UA size and cruise speed reductions. => can it be used instead of the underlying mathematical model?		Acknowledged	References to Annex F were included and a new section in Annex F, 1.8 was created to simply the process.
136				837-838	(a) Mitigations might be applied to reduce the GRC of the adjacent area. Mitigations that may be used for the adjacent area GRC **without additional justification:**	the justifications are subsets of M1 and M2 - but the meaning of wording "without additional justification" is confusing. Would that mean that it is possible to claim benefit from mitigation considerations for adjacent areas without justification - but justification must be introduced when same mitigations are used over the iGRC footprint area? That would not make sense - so it is recommended to remove this wording, to avoid any confusion.	(a) Mitigations might be applied to reduce the GRC of the adjacent area. Mitigations that may be used for the adjacent area GRC	Partially accepted	Containment part completely reworked.
137				845	(c) Mitigations whose failures would lead to a fly away scenario should not be given credit	The sentence sounds a bit confusing. With respect to the example provided in note 12, the failure of an FTS is not the only cause for a Fly-Away scenario.	(c) Mitigations designed to prevent the occurrence of a Fly-Away scenario further to a Loss of Control, should not be given credit	Partially accepted	Suggested rewording: If a failure of an M2 GRC mitigations would lead to a malfunction of flight termination resulting in a fly away scenario, this mitigation cannot be used for computing the adjacent area final GRC. Please note, that this discussion is now removed from the main body and becomes part of the alternate method to be found in Annex F
138				846	(d) After mitigations have been applied, calculate the final adjacent area GRC **of the** using the same process as Step #3 in above.	TYPO?	(d) After mitigations have been applied, calculate the final adjacent area GRC ~~**of the**~~ using the same process as Step #3 in above.	Accepted	We have accepted your proposal. Please note, that this discussion is now removed from the main body and becomes part of the alternate method to be found in Annex F
139				894	Figure 7 – ARC Assignment Process	ARC-b is assigned to "Operations in Uncontrolled Airspace over Rural Areas", for OPS below 500 ft AGL. Could it be clarified if that should also include Ops below 500 ft AGL over Sparsely populated areas as well?		Acknowledged	Comment to be considered as part of the work on SORA 3.0 The terminology of rural are urban are part of the air risk model as they relate to concepts used in manned aviation operations. While areas may overlap with popilated or sparsely populated ones, they should not be considered automatically the same.
140				1088	NOTE 16: Basic containment sets a floor probability for fly-away events of 10-4 , so SAIL I operations will crash more often than SAIL II, but will not fly-away more often.	Annex E § 4 indicates that the target level of Integrity for Low and Medium Robustness Containement is 10-3/FH. If note 16 is OK, then Containement target level of integrity for Low and Medium is always met. However it is understood that: * LoC probability is at 10-SAIL / FH - so the minimum is 10-1/FH * then given a LoC, the probability of fly-away is 10-1 * so the baseline containement value should be 10-2/FH, no?	UPDATE NOTE 16 as FOLLOWS: Basic containment sets a floor probability for fly-away events of 10-**2** , so SAIL I operations will crash more often than SAIL II, but will not fly-away more often.	Partially accepted	Effectively, Annex E § 4 indicates that the target level of Integrity for Low and Medium Robustness Containement is 10-3/FH. Note 16 has been removed, as Annex E details containment probabilities objectives, and (answer to comment #514) : the SAIL is representative of the Loss of Control of Opertion likelyhood, while a loss of containment is always a subset. If with rising SAIL loss of control becomes less likely, it is assumed to proportionally decrease loss of containment, thus lowering the containment requirements.
141	Good update to the SORA!	N/A	All	All		Wing appreciates the updated SORA and integration of target levels of safety and quantitative approaches. This should help standards bodies and operators better comply.	N/A	Acknowledged	Comment noted.
142	Update the SORA formatting to the proposal in the explanatory note	N/A	All	All	All	Update the SORA formatting to the proposal in the explanatory note.	Update text to example in explanatory note	Acknowledged	Document has been updated as per the example provided in the explanatory note of the external consultation.
143	Remove the use of the term operator manual for regulatory purposes.	N/A	13-14, 28-30	Many	Use of the term "Operator manual" in the Documentation of the proposed operation(s) section.	The operator manual should strictly be a manual for how to operate the system and not a catch all document for regulator approval (the operator manual should be part of that regulatory package). The use of this term for collecting other regulatory documents will lead to confusion for industry, especially for larger operations or operations in multiple jurisdictions (line 151 says it should contain flight path information, how is a world wide company with 10k flight paths supposed to do that in an efficient way). The operator manual should not be a collection of documents for regulatory purposes that contain information not required to safely operate the system (section 2.2.3 (j)).	Replace "operator manual" with a different term. Suggest something like "SORA application", "Application for Operation", "Description of Operation"	Acknowledged	Operator Manual is no longer used in this way and now reflects the intent of this comment (an operator centric document to operate a system)

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144	Reduce the iGRC of controlled ground areas.	N/A	31	687	Controlled ground area iGRC's --> 1, 2, 3, 4, 5	The risk to uninvolved people is actually 0 in a controlled ground area, so technically the iGRC should be 0 or 1 vs. the placeholder value Annex F uses. We understand that there is some risk that increases with size, so suggest a middle ground set of values to give regulators increasing oversight. This middle ground also encourages and rewards companies for testing in controlled ground areas vs. sparsely populated areas, many of times which comes at significant cost. A larger enphasis is then placed on containment for the operator and regulator, which is where the effort should be.	Controlled ground area iGRC's --> 1, 1, 2, 2, 3	Partially accepted	The ground area iGRC's has been adjusted to 1, 1, 2, 3, 3
145	Put the important Annex F formulas into a 1 or 2 page Appendix in the Main Body.	N/A	32-35	Many	Any time references are made to Annex F	The Main Body references Annex F a few times for instructions on how to calculate a different value. We see this as very useful, but unfortunately it's difficult to find the exact formula in Annex F amongst all the explanatory text. Thus suggest taking the key formulas and processes and creating a 1 or 2 page simplified process and making it a Main Body appendix. Applicants and regulators can go to Annex F for more detailed information, but the actual equation can thus be found a lot easier.	Put the important formulas and processes into a summary appendix at the end of the Main Body.	Acknowledged	Section 1.8 in Annex F was created to combine all the formulas in a step-by-step process.
146	Don't use special assessment criteria for non-sheltered assemblies of people	N/A	33-34	762	Identify potential locations for non-sheltered assemblies of people 1km beyond the outer limits of the operational volume during the time of operation. If the adjacent area has assemblies of people then assign the following average population density:	The calculation should not limit itself to just 1 km of range for assemblies of people. This significantly artificially increases the population density for operations near assemblies of people and is overly conservative, as a fly away could just as easily fly multiple km away and beyond the assembly. The process should use the same method as shown in figure 6 to determine average population density.	Remove section 1.2 and calculate the adjacent area using a single process that is already outlined.	Partially accepted	The nearer the assembly the higher the risk of reaching it. 1 km is a reasonable compromise to ask the operator to asses in pre-tactical the real time presence of assemblies. Within the reformatting of the document, an example is provided in which operators should take into account special cases such as concentration of people motivated by certain events and stated that preflight procedures are needed to be added in the operational manual, based on their SAIL and containment requirements. See answers to comments 275 and 590.
147	Make sheltering easy to apply.	N/A	35	Many	Reference to sheltering in footnote 11	Sheltering should apply for most cases and the process currently defined to giving people a -1 is overly burdensome to the operator and regulator to justify, so either embed it into the iGRC table by making all values -1, except for maybe the largest of aircraft and operations over gatherings of people, making it its own standalone sub mitigation for M1 and have very little/no evidence required, or make it very clear in the text under the mitigation table on page 35 that is easy to get and what is required (currently there's a footnote 11 but that is most likely not sufficient).	A few different options are presented in the comment: - Reduce iGRC in table - Make sheltering own sub-mitigation with clear guidance (-1 in normal situations with little evidence required, -2 at night, etc) - Add additional text to make it clear what the sheltering mitigation is and how to get it within the Main Body.	Accepted	Sheltering is now a separate mitigation as declarative. There is a bullet point referencing it in the iGRC table 2.
148	Make VLOS easy to apply	N/A	35	N/A	N/A	The requirements for VLOS are fairly subjective and challenging to prove for the applicant and verify for the regulator. Suggest creating simple to apply rules for the -1.	Apply a -1 for VLOS for flying within TBD value (example: 500m) of the PIC's line of sight.	Accepted	M1(C) ground observation is declarative with added simplification in the requirements.
149	Remove consult authority in the containment requirements table	Table 7	43	1069	Table 7 with consult authority	The concept of "consult authority" does not provide sufficient guidance to either regulators or applicants. Additionally, regulators in different jurisdictions may have different interpretations resulting in the same system being levied different requirements to do the same type of operation. Wing suggests allowing the high requirements (or if needed, a new set of requirements) act like a traditional "certified" system which allows you to operate in any containment scenario given the high robustness level. If these containment scenarios are unlikely, then remove them as it may lead to confusion.	Remove all consult authorities and replace with High requirements.	Accepted	Consult Authority has now been replaced by "out of scope". In these cases opertors need to either modify their operational volume or alternatively accept a higher SAIL.
150	Go back to old OSO numbering system	Table 10	44	1112		Go back to the previous OSO numbering. Remove duplicate OSO's and replace with RESERVED for future use.	Use old OSO table	Acknowledged	The OSOs numbering has been kept as in SORA 2.0. For simplificatiom, the OSOs with multiple number assigned have kept only the first number.
151	EU oriented		13	112-113	[..] within the “specific” category of UAS Operations (as defined in JARUS document “UAS Operational Categorization”)	As JARUS "specific" and EU "specific" are not exactly the same there should be a potential alternative to the full SORA process for UAS operations with slight derogations from the requirements/limitations of the "open" category. E.g. according to EU framework dropping of any material (including spraying seeds for agricultural purposes) from 3m with 20kg UA in A3 environment is not allowed in the Open category, while it would not trigger the SORA process if such operation were prescribed by the NAA. Another example is (wil be) the operations with non-C-class marked UAS closer to the people (at the same distance as it is allowed for C-class marked UAS). As for SAIL II operations, the UAS operator is not required to show any compliance to the competent authority for the OSOs related to UAS design, it is not clear why the whole SORA process should be applied if the only added risk compared to the operations with C-class marked UAS is [sometimes formal] lack of EU DoC.		Acknowledged	This comment relates to EU requirements and is not in the competency or JARUS.
152			13	125-126	[..] 1E-6 fatalities per hour faced by overflown populations)	Not clear what is meant by "overflown populations" in this case and how the flight hours are measured in cases when a significant amount of operation takes place over sparsely populated areas with very little or no population. In other words, would parts of the operation where no population is overflown would still count to measure the TLOS? Proposition: use the same wording as in Annex F	1E-6 ground fatalities per flight hour	Rejected	"per flight hour" cannot be added. This TLOS is measured for a population at risk (not the aircraft) and as such just "per hour" is appropriate. This is different to conventional aviation. Please see Annex F for further clarification.
153			14	164-169	The Final Ground Risk Class is determined considering two potential mitigation measures (as described in Annex B) [..]	Annex B (currently) proposes three potential mitigation measures, including M1(B) which is considered a tactical (not strategic) mitigation.	Strategic and tactical mitigations intended to reduce the number of people at risk on the ground;	Partially accepted	Reformulated with the same intent

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154			14	173	A final GRC in the area at risk higher than 7 is out of the scope of SORA.	As this is the summary of the methodology a simple explanation of why is it out of the scope of SORA and how should it be handled would be required.	A final GRC in the area at risk higher than 7 is out of the scope of SORA and the operation should be classified in the certified category.	Accepted	Text updated to include: "and should handled in the certified category."
155			14	181	[..] Step#9 (containment requirements)	Containment requirements have been moved to Step#8	[..] Step#8 (containment requirements).	Accepted	Corrected as per proposed text.
156	EU oriented		15	203-204	There are 5 levels of containment [..]	During the SORA 2.5 workshop in Cologne, it was presented that in the reality we would only have 2 levels of containment in Europe (with certain corner cases). It should be taken into account for simplification when adopting SORA 2.5.		Partially accepted	Text updated to align with Step8 final update.
157			14	208-209	Where cyber security threats apply and may have an impact on safety, a sub-Annex to Annex E provides [..]	As the cyber security threats apply to the vast majority of the UAS operations, It is very unclear when the guidelines provided in a sub-Annex to Annex E should be applied. More clarification would be needed. Note: Annex E (Cyber) could be found using Google, but not as a published and easily accessible document on the JARUS website"		Rejected	Details are provided in the sub Annex E. In the Executive summary text has been kept short to includes only the reference to it.
158			15	212-213	These OSOs cover, among others, the following areas pertaining to either the UAS manufacturer, or the UAS Operator	"UAS manufacturers and UAS operators only? How about other organisations - are they outside the scope of SORA? E.g. In addition to the UAS manufacturers (organisations involved in unmanned aircraft design and production) and UAS operators, the Annex IX of Basic Regulation (EU) 2018/1139 also mentions organisations involved in maintenance, related services and training."	These OSOs cover, among others, the following areas pertaining to either the UAS manufacturer, UAS Operator or other organisations involved in maintenance, related services and training.	Accepted	Text updated in the spirit of the proposed text: "The OSOs cover, but are not limited to, areas pertaining to: the UAS designer, UAS operator or other organisations involved in maintenance, related services and training, …"
159			16	234	drone size	Consistency in terminology	UA size	Accepted	Text updated.
160			16		[..] for authorization to operate a UAS within the "specific"1 category.	The footnote states that "This category of operations is further defined in the European Union Aviation Safety Agency (EASA) Opinion 01/2018". Meanwhile, in the executive summary (line 113) there is a reference to the JARUS document "UAS Operational Categorization" that defines the "specific" category.	[Reference to the different documents for the same definition should be avoided - one of them should be chosen.]	Accepted	Text updated.
161			16	247-249	Therefore, the SORA provides a consistent approach to assess the additional risks associated with the expanded and new operations not covered by the "open" category.	Unfortunately, currently, this is not always the case. E.g. in the EU it is not allowed to drop any material from UA in the Open category. For agricultural applications, when the UAS operator wants to spray water or seeds from a very low level (up to 3m AGL), it triggers the SORA where the actual "additional risk" of spraying something is not covered. Meanwhile, many other aspects are assessed and the proportionality is questionable.		Acknowledged	This comment relates to EU requirements and is not in the competency or JARUS.
162			16	252-253	This also includes security and cybersecurity risks if they directly contribute to a safety hazard.	As the cyber security threats apply to the vast majority of the UAS operations, It is very unclear when the guidelines provided in a sub-Annex to Annex E should be applied. More clarification would be needed. E.g. Cyber guidelines state the following: ""Whether a specific OSO must meet a Low, Medium, or High level of robustness is defined by the level of robustness required of the SAIL in the JARUS SORA, section 2.5.2 Step #8 Identification of Operational Safety Objectives (OSO)"". Meanwhile, even for SAIL II operations with a very small UAS (because of Low level of robustness for OSO#1) that would require all UAS operators to execute multiple additional tasks related to organisational culture, IT and data security that were not tackled before. Note: Annex E (Cyber) could be found using Google, but not as a published and easily accessible document on the JARUS website""	[Unclear]	Acknowledged	The Cyber-Annex is complementing the information in Annex E. Its application it is under the juristiction of NAAs.
163			16	255	drone	Consistency in terminology	UA	Accepted	Text updated.
164	EU oriented		17	272-273	The competent authority may request additional measures or requirements to what the SORA stipulates for operations.	As SORA is just a methodology, it is important how are we going to adopt it in the EU. By keeping such a statement as it is, the harmonisation will not be promoted. In addition, it would be questionable if currently NAAs have the "legal power and competency" to request specific technical requirements.		Partially accepted	General text has been added to this topic. The deviations from SORA are expected to be minimum and only in very special cases. The adaptations to national/regional specificities is in the responsability of the naitional/regional NAA.
165	EU oriented		17	276-278	For that purpose, the competent authority could decide to adapt any section of this document into their regulatory framework.	"It is still unclear how the SORA 2.5 is planned to be adopted in EU: (a) Included as AMC 1:1 as it is. (b) Included as AMC almost 1:1 (with slight adoptions by defining which is the competent authority - EASA or NAA; removing irrelevant terms/examples; using terms/definitions from the EU regulatory framework etc.); (c) For the purpose of clarification and harmonistation modified to be more specific (e.g. define what data to use to determine GRC, what standards are considered as acceptable etc.). (d) Used as a methodology to develop (by just partly copying the contents) AMC/GM for specific articles/paragraphs of Regulation (EU) 2019/947, Regulation (EU) 2019/945, SERA (..) or even amend the Regulations, if needed. "		Acknowledged	This comment relates to EU requirements and is not in the competency or JARUS.
166			17	297	Security aspects are covered in the supplemental Cyber Annex for Annex E [..]	If applied in all applications, might not always be proportionate. More guidance on when this Annex is applicable would be needed.		Acknowledged	Comment has been refered for future updates of Cyber Annex.
167	EU oriented		23	439	Roles and Responsibilities	During the SORA 2.5 adoption process, the roles and responsibilities of the key actors should be reassessed and potentially referred to other articles (not only for the risk assessment). Also, the terms and definitions should be aligned with EU regulatory framework.		Rejected	The adaptation to national/regional specificities is a responsibility of the NAA (EASA for EU).
168			26	540	Step #4: Determination of the initial air risk cLass (ARC)	Typo of capital letter in word "class"	class	Accepted	Text updated.

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169			27	546-549	(a) Before starting the SORA process, following aspects should be verified: i. If the operation falls under the “open” category or if the competent authority has determined that the UAS is “harmless” (the worst credible case is negligible or minor in consequence) in terms of the risk presented by the operation;	""There are cases when the operation does not fall under the ""open"" category, but the application of SORA would not be considered proportionate to mitigate the ""additional risks"" (e.g. dropping of objects, spraying of products). Proposition: add an additional point for verification to evaluate if the SORA is applicable"	If the competent authority has determined that the additional risk associated with the expanded operations might be assessed and properly mitigated without applying full SORA process.	Rejected	The fact that the SORA requirements might need to be complemented /amended to comply with national rules is addressed in the "Applicability" chapter
170			28	578	Figure 4 – The SORA Stages	Even though we positively welcome the ""2 phase"" approach for the SORA process (and already apply it in practice), the provided Figure 4 might be slightly confusing. (a) Figure 3 shows a linear process with clear sequential steps while Figure 4 introduces a different approach for basically the same thing. (b) In Figure 4 the Phase 1 includes Step#1. Meanwhile, section 2.2.3. (Step#1) clearly states that it usually consists of the Operator Manual, Compliance evidence and SORA safety case, while line 564 provides contradicting information - ""operator’s manual and compliance evidence is not required"". Proposition: Be more clear on what is meant by the ""Step #1"" or the Phase 1 in general. According to our understanding, the Phase 1 requires first 7 steps of risk assessment that could be briefly described using the form in the new Annex A, section 3 (referred to in line 599). After that the OM and Compliance evidence shall be prepared and assessed.In addition, it would be useful to show in the diagram that OM is developed in parallel as an iterative process. Note: Annex A is not publicly available "	[Diagram to be changed]	Accepted	Flow charts have been replaced with the Phase diagram Step #1 and Phase 1 have been better defined and align with the comment on what should or shouldn't be in Phase 1 and Step #1
171			29	599	The risk assessment might be presented to the competent authority using the form in Annex A, section 3.	There is a reference to an important Annex that is not published yet and not part of this consultation package.		Accepted	References to Annex A have been corrected.
172			29	628	Documents dealing with handling such a declarative requirement can be kept internal to the operator’s organisation and are not submitted to the competent authority, thus not being subject to version control by the authority.	In most of the cases the OM is one document and pointing out that declarative parts are not sent to NAA might bring more confusion than benefits. It can also bring a negative side effect that in practice UAS operators are not developing declarative parts and conducting operations without them.		Accepted	This text has been removed.
173			30	653-655	To establish the intrinsic GRC (iGRC), the applicant needs the max UA characteristic dimension (e.g. wingspan for fixed wing, blade diameter for rotorcraft, max. dimension for multi-copters, etc.)	Unfortunately, the practice shows that there are misconceptions about which dimension is considered to be the characteristic dimension for the purpose of the GRC score. E.g. for the multirotor UA the manufacturers very often include a L and W distance between rotors, while in most of the cases the diagonal + the size of the propeller should be (or not?) taken into account. Therefore a guidance material on such simple input data would be very helpful.	[Figure representing how to measure max UA characteristic dimension]	Partially accepted	Guidance provided in section 4.2.4 for how to determine Intrinsic UA Characteristics, but figure not included.
174			30	668	The maximum population density in the area	Which area?	The maximum population density in the area at risk OR The maximum population density in iGRC footprint	Accepted	Resolved as part of the document restructure.
175			30	671-672	[..] for a rotary wing UA using a ballistic methodology approach acceptable to the competent authority	"A simple guidance on ballistic methodology approach would be helpful. E.g. by clarifying if the wind resistance is taken into account or a more conservative approach is used. Maybe it is worth considering the inclusion of a link to the basic calculation calculator like this one: https://www.omnicalculator.com/physics/trajectory-projectile-motion The same applies to the contingency volume calculations - more practical guidance would be very helpful."		Rejected	To reduce the size of the Main Body, examples were minimized and included in Annex F.
176			31	677-681		Increased indent is needed for numbering	[no text - technical formatting]	Accepted	Resolved as part of the document restructure.
177			31	688	Table 2–Intrinsic Ground Risk Class (GRC) Determination	Behind a very good mathematical model in this methodology, our main concern is about the reliability of the data and the representation of the actual population density during the operation. With the new gradation, it makes complete sense from the academic point of view, however, in practice it is very hard to have reliable data as the environment is constantly changing and if the requirements are based on the difference between <25 and <250ppl/km2 "population categories" there are practical issues with the assurance of these assumptions. Despite the fact that each "population category" changes by 1 order of magnitude, the numerical difference for lower population densities causes the main issues. Our practical use cases showed that in many cases the "official data" do not match with the reality and local qualitative assessment is still needed, not only in cases when the applicant wants to claim lower iGRC, but also vice versa. Even if we would be able to receive accurate live data (unfortunately, that is currently not the case in foreseeable future) the resolution also plays a very important role.		Acknowledged	Qualitative assessment options have been included.

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178			32	695	Assembly of People7	"A footnote explains that "*An assembly of people is expected to be over 10,000 people, which is the minimum number of people needed to treat a grouping of people as an assembly of people*) " Should it be considered as a criterion for the assemblies of people also for the ""Open"" category? If not, it might be complicated to communicate this with UAS users that in the ""Open category"" 50 ppl might also be considered as the assembly of people if the ""persons are unable to move away due to the density of the people present"", while for the ""specific"" category the same gathering is not the assembly of people."		Acknowledged	This note has been removed from the Main Body. Please refer to Annex I (it is also a population density for a grid size, so the total number depends on the alittude of the UA).
179			32	698-699	The segment with the highest population density should be used when determining the iGRC.	This can be easily tricked by changing the resolution (works on both sides), therefor a harmonised resolution would be required. Meanwhile, it can also be a serious blocking point for operations if a very small portion of higher population density is at the outer bounds of the GRB and UAS operator cannot take any credit for this - the higher iGRC should be chosen (no difference if the flight geography would be located over the same population density).		Acknowledged	Added "Population density information" section and suggested optimal grid sizes in Table #4
180			32	700-701	Determining the population density to calculate the iGRC in Step #2 needs to be done using the highest resolution static maps	Going through the use cases we could not come up with a conclusion of which resolution would work better - 1kmx1km / 100mx100m / other. For very local operations sometimes UAS operators might benefit from higher resolution allowing them to use the less populated areas of 1kmx1km square, while in other cases the averaged-out data reduces the iGRC. Unfortunately, in practice, the local assessment in many cases shows a completely different picture (that is impossible to assess qualitatively for longer-range operations) and the information is dynamic. One of our conclusions has been that, even though we positively welcome the quantitative approach and more detailed gradation of different iGRC, at this moment in practice it is hard to apply it effectively (especially to qualitatively identify different iGRC between <25 / <250ppl/km2, when the static data is not accurate).		Acknowledged	Qualitative descriptors in Table #3 we added to address this point.
181			32	711	[..] the assurance that there will be uninvolved persons in the area of operation [..]	Typo	[..] the assurance that there will be NO uninvolved persons in the area of operation [..]	Accepted	Change incorporated in the original text and then restructured.
182			32	735	Annex	Annex is not identified	Annex F	Accepted	Change incorporated in the original text and then restructured.
183			33	735	1.1. calculate the average population density of the adjacent area	Without technical tools (that we currently do not have) it is very complicated (near to impossible) to calculate the average density. Also, it is important to keep in mind that this density is constantly changing.		Acknowledged	The drone industry is constantly evolving, including the resources required to validate the requirements from the SORA methodology among others. For example, standards and means of compliance addressed by the SORA methodology on a theoretical way to validate specific OSOs at Medium and High level of robustness are starting to be published. As for the population densities, although they do not represent with fidelity the exact number of people at risk during an operation, they are a practical approach to have an estimation of the ground risk. Therefore, minor evolutions of the population density should, in principle, not affect the ground risk substantially. Additionally, it is the responsibility of the competent authority to state which sources (and publication dates) are acceptable. In this sense, if a relevant change in the density is expected (e.g. building of new residential areas in fast-growing cities), the competent authority might require additional information.
184			33	763-766	If the adjacent area has assemblies of people then assign the following average population density: [..] ~20,000 ppl	What if the assembly of people (according to note 7 - starting from 10 000 ppl) is less than 20 000 ppl - use the average density from 1.1.? Maybe it is worth clarifying that.			See answer to comment 58.
185			36	839	M1 for using the assumption of sheltering	More clarification is required on what is meant by sheltering and what are prerequisites to assume that sheltering condition is achieved or met.		Accepted	Sheltering M1(A) is split as a separate mitigations with clarified requirements and guidance.
186			38	908-915	Determination of Initial ARC	"There is a serious lack of additional guidance on how to determine the Initial ARC and what to consider as ARC-a (or any other air risk class) environment. Proposition: implement the text from the explanatory note and Annex I (with a slight modification of the lateral distance from the obstacles) to the main body". To make rules more easy to understand for UAS operator, consider to apply equal limits for vertical and lateral dimensions (e.g. SERA rules)	ARC is airspace density and is measured in WCV/FLH (well-clear violations per flight hour, where the well clear volume is a "puck" centered on each aircraft with radius of 2000 feet and height +/- 250 feet). The assumed value is based on highest adjacent ARC as follows: o ARC-a: 10-4 o ARC-b: 10-2 o ARC-c: 1 o ARC-d: 10 Atypical air environment is defined as: a) Restricted Airspace or segregated Areas; b) Airspace where normal manned aircraft cannot go (e.g. at a height below 30m AGL or within a horizontal distance of 50 metres and vertical distance of 15m above an artificial obstacle); c) Airspace not covered in Airspace Encounter Categories (AEC) 1 through 11.	Rejected	The intent is to keep the Main Body concise and have the more detailed information in the appropriate Annexes. Further information to be included in v3.0 with the update of the air risk model.
187	American and British spelling is mixed in the document. E.g.: authorization vs. authorisation	various	all					Acknowledged	Text updated for consistency.

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188	For some tables a page break should be inserted as the heading is on one page and the rest of the table on the following page. E.g.: tables 3 and 4	various	all					Acknowledged	Structure updated.
189		2.3.1 GRC	31	(h) 697 - 699	It is expected that for many flight operations, the iGRC footprint may cover segments with different population densities. The segment with the highest population density should be used when determining the iGRC	Yes, specially a VTOL will operate through various segments of different population desinity. However, it is not acceptable that this leads to the fact that the whole "mission" is rated to the highest ppl/km² number. It needs to be reflected a) how long a high(er) ppl/km² is endangered (e.g. exposure time) b) what mitigation strategy is used (hight, speed etc.) c) what kind if resolution in a heterogene environment is in use	All the efforts of an operator to chose the route are not needed in case the reduction ot the people at risk in different portions of the flight is not credited. The SORA should appreciate that the risk is not even; as well as the operators efforts to avoid population to the utmost degree. Proposal: The iGRC (according to 2.3.1) is the initial evaluation of the people at risk on ground. For final GRC determination the operator needs to increase resolution to make sure that people at risk are outside of the GRB. In that case the highest residual ppl/km² after that demonstration can be used for SAIL determination.	Rejected	These steps are not part of Step 2, additional measures to reduce the population at risk can be given credit using the mitigations defined in Step 3.
190		2.3.1 GRC 2.3.2 GRC	31 (h) 34 (f)	698 / 699 777 - 779	The segment with the highest population density should be used when determining the iGRC. Unlike the iGRC table, the average value is used as it is a reasonable assumption that the likelihood of a flyaway event occurring in different portions of the Adjacent Area is close to uniform	Why is there a difference in the evaluation of the likelihood of an GRC once looking at it form the perspective of adjacent area - it is not higher of lower than for the iGRC. This makes only sense once the granularity of the ppl/km² is of low resoltution. **ALSO:** Operations with a VTOL (en-route) is not reflected well as it is not clear for iGRC (table 2) how the rolling / position of THE km² in focus is sdjusted to the movement or track of the VTOL during the flight. (There is a high lieklihood that data of ppl/km² are missleading in case the high resolutiong data (e.g. 100mx100m) is are used.		Acknowledged	The average is used for the adjacent area because it is assumed a loss of control can happen in a random location. For the operational area, the operator can choose to fly in specific areas. Please refer to the map resolution information added in the "Population density information" section.
191		2.3.1 GRC	31f	Table 3	**Quantitative Population Value (ppl/km2) > 250.000 is from the view of Qualitative Description "Assembly of people"**	It is not clear a) why this kind if quality introduces a most subjective value at the high end of the table that seems to focus on "a lot of people at one spot" rather than spreaded over the km² b) how to use that information when the operator is passing (safely / risk assessed) that "hot spot" in his calculated distance of "Contingency Volume" plus "GRB" c) why a ppl/km² of ore than 4 ppl/m² is even needed Mixing quantity with quaity at this highest end seems to be incorrect.	This qualitatively highest ppl/km² should be erased from the table 3 - no >250.000 should be invented at all. Porposal: end the table at <250.000 / Dense Urban and enter an asterisk to state: "Assembly of People (e.g. venues etc.) or Hot Spots (e.g. crisis locations at accidents etc.) require a case by case evaluation."	Rejected	Please note that the threshold has been changed from > 250,000 to > 50,000 and the single number has been removed from the Main Body. It is a population density for a grid size, so the total number depends on the alittude of the UA to be risk appropriate.
192			44	1097; 1105; 1111	...Table 6…	...Table 10...		Accepted	Table numbering updated.
193		OSO #I, IV, VIII, and XVII	44ff	1112ff	H for SAIL IV	OSO #I: That requires an operator certifcate from SAIL IV on. Unsure if this is commensurate with medium risk. OSO #IV: High is not consistent with the suggested FTB credit for the level of assurance. I.e. for FTB SAIL III credit is M, for FTB SAIL IV credit is high, but the scope of FTB demonstration is exactly the same, only the flight hours change.		Acknowledged	Please refer to the updated Annex E and the appropriate OSO resolution.
194		OSO #IV	45	1112ff	Operator is responsible	the operator likely requires information from the manufacturer to develop its procedures. At least a flight manual with relevant content.		Accepted	Cross added to the operator column as well.
195		OSO #VIII	45	1112ff	Robustness for SAIL IV is high while medium for SAIL III	Was that done intentionally because arc-c is SAIL IV or higher or is it just a typo? What about SAIL IV operations in arc-b or lower?		Acknowledged	The levels of robustness have not been changed from SORA 2.0
196		2.3.1 GRC	31f	Table 3	**Quantitative Population Value (ppl/km2) > 250.000 is from the view of Qualitative Description "Assembly of people"**	It is not clear a) why this kind if quality introduces a most subjective value at the high end of the table that seems to focus on "a lot of people at one spot" rather than spreaded over the km² b) how to use that information when the operator is passing (safely / risk assessed) that "hot spot" in his calculated distance of "Contingency Volume" plus "GRB" c) why a ppl/km² of more than 4 ppl/m² is even needed Mixing quantity with quaity at this highest end seems to be incorrect.	This qualitatively highest ppl/km² should be erased from the table 3 - no >250.000 should be invented at all. Porposal: end the table at <250.000 / Dense Urban and enter an asterisk to state: "Assembly of People (e.g. venues etc.) or Hot Spots (e.g. crisis locations at accidents etc.) require a case by case evaluation."	Rejected	Please note that the threshold has been changed from > 250,000 to > 50,000 and the single number has been removed from the Main Body. It is a population density for a grid size, so the total number depends on the alittude of the UA to be risk appropriate.
197		Executive Summary	12	117	"...can spend their available resources…"		…can allocate their available resources…	Accepted	Text updated.
198		Executive Summary	12	119	"…holistic/total safety risk…"	I have always thought of a "holistic" safety risk assessment as one that includes benefits as well as hazards, e.g. if I inspect that tower with a drone there may be a small increase in aviation risk, but I will save a line worker from a climbing operation which has a larger reduction in overall risk - or "holistic" risk.	"…total safety risk…"	Rejected	The term "total" may lead to confusion, so only holistic has been kept.
199		1.2	16	259	"…holistic/total safety risk…"	I have always thought of a "holistic" safety risk assessment as one that includes benefits as well as hazards, e.g. if I inspect that tower with a drone there may be a small increase in aviation risk, but I will save a line worker from a climbing operation which has a larger reduction in overall risk - or "holistic" risk.	"…total safety risk…"	Rejected	The term "total" may lead to confusion, so only holistic has been kept.
200		1.4.1	18	336	"...or when there is imminent grave and imminent danger fatalities among uninvolved persons."	missing words	"...or when there is imminent grave and imminent danger of fatalities among uninvolved persons."	Acknowledged	The text has been updated and the sentence has been removed.
201		1.4.1	19	374	"...sufficient margins to cater for such errors."	Poor choice of words	"...sufficient margins to account for such errors."	Accepted	Text amended.

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
202		1.4.2(d)	21	415	(d) Any given risk mitigation or operational safety objective can be demonstrated at differing levels of robustness. The SORA proposes three different levels of robustness: Low, Medium and High, commensurate with risk: □ A Low level of assurance is where the applicant simply declares that the required level of integrity has been achieved. □ A Medium level of assurance is one where the applicant provides supporting evidence that the required level of integrity has been achieved. This could be achieved by means of testing or by proof of experience. □ A High level of assurance is where the achieved integrity has been found to be acceptable by a competent third party	I think you're mixing apples and oranges the way (d) talks only of "robustness" and then the bullets talk only of "assurance"	I think changing the words "robustness" in (d) to "assurance" makes it all coherent. Then Table 1 in (g) makes the point very clearly.	Accepted	Text updated accordingly.
203		1.5(f)	23	476	"A competent third party is responsible for reviewing supporting evidence for mitigations and operational safety objectives of an application."	Could a competent third party also execute a test and provide the resulting test report as "supporting evidence"?	"A competent third party is responsible for reviewing supporting evidence for mitigations and operational safety objectives in an application. This may involve the third party executing test campaigns to produce such evidence, and/or review of documents provided by the applicant."	Rejected	The third party reveiwing the evidences should be independent from the one producing them.
204		1.5(h)	24	490	"...Annex H."	Annex H isn't published yet	Maybe make a note or something to that effect?	Accepted	Text updated.
205		2.3.1(c)(v)	30	677	c. Meteorological conditions (e.g. wind), d. UAS latencies (e.g. latencies that affect the timely manoeuverability of the UA), e. UA behavior when activating a technical containment measure (e.g. parachute deployment), f. UA performance.	These seem like a list indicated by the colon at the end of item (b)	Increase the indent level of this list.	Accepted	Resolved as part of the document restructure.
206		2.3.1(i)	31	701	"...the highest resolution static maps appropriate to the operation and available to the operator, unless maps for Step #2 are required by the authority."	Needs to be more specific about what type of maps the authority requires. Just saying "maps" doesn't really help. Also, regarding my comment to 2.3.2(g), I can "measure with a micrometer and cut with an ax" in this, e.g. if I can't precisely predict where my drone will land, using a finer resolution doesn't really help. It only provides false assurance that I am "avoiding" concentrations of population.	"...the highest resolution static maps appropriate to the operation and available to the operator, unless specific or officially approved maps for Step #2 are required by the authority."	Accepted	Added "Population density information" section and suggested optimal grid sizes in Table #4
207		2.3.2(g)	34	780	(g) There is a difference in which population density value is used when determining the ground risk of the iGRC footprint area (maximum) and the adjacent area (average). When determining the population density to use for the iGRC in the iGRC footprint (operational volume + ground risk buffer) the maximum population density is conservatively used as the operator may choose to spend a significant portion of their flight time over the maximum population density area in the approved area.	I will re-read Annex F, but I have a concern that this requirement to use "maximum" might result in applicants deliberately using a "less fine" resolution in an attempt to dilute areas of very high density across a larger grid.	None. More like a discussion point.	Acknowledged	Added "Population density information" section and suggested optimal grid sizes in Table #4
208		2.4.1(b)	36	857	(b) Tactical mitigations take the form of detect and avoid systems or alternate collaborative means, such as ADS-B, Systems transmitting on SRD 860 frequency band, UTM/U-Space services or operational procedures.	Just because you have ADS-B or Systems transmitting on SRD 860 frequency band doesn't mean you are "collaborative". It would mean, however, that you are "cooperative", but this is part of DAA, so no need to enumerate the types of cooperative means.	(b) Tactical mitigations take the form of detect and avoid systems or alternate collaborative means, such as UTM/U-Space services or other operational procedures.	Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
209		2.4.4.2(e)	41	1021	An example of this may be UAS flight operations in some parts of Alaska or northern Sweden where the manned aircraft density is so low that the airspace safety threshold could be met without any tactical mitigation.	This is a great place to introduce the idea of "shielded operations".	An example of this may be UAS flight operations within close proximity to obstructions on the ground (sometimes called "shielded airspace") or in some parts of Alaska or northern Sweden where the manned aircraft density is so low that the airspace safety threshold could be met without any tactical mitigation.	Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0
210	On the basis of the experience developed by this Aeronautical Authority, the phases of the SORA process thus proposed do not actually help the correct execution of the process and do not guarantee the possibility of carrying it out effectively and quickly. To avoid misunderstandings related to an incorrect classification of the SAIL based on the fact that the Authority in fact does not have the necessary evidence during phase 1, the process must be started once the Operator has presented a formal application, with all the necessary documentation support.		27	556-576	All text included from row 556 to row 576	The approach needs to be changed and the text consequently amended. Please take in consideration that the Civil Aviation Authorities are generally understaffed and consequently the process can be speeded up: - having the package of documents accompanying and supporting the application available from the initial stages; - starting the iterations once that the Authority has received a formal application from the Operator (e.g. planning a kick-off meeting in which the conops are discussed and any critical points highlighted, establishing also a roadmap for the consequent updating of the documentation by the Operator on the basis of the comments/suggestions received).		Acknowledged	The phased approach is recommended by WG-SRM as the method to undertake the SORA. A competent authority may determine these phases are not required for a given operation.
211			27-28	555-579	2.2.2 the phases of the SORA process	General Comment on the phase process: From an applicant perspective, this process can facilitate the introduction of SORA applications to their NAA. However, please keep in mind that not all NAA have the same number of UAS operators and staff to assess twice all the risk assessments submitted. Even though this process is optional, it still leaves a door open for discussion or potential submission of unfinished application.	Proposition: It would be wiser to remove this process	Acknowledged	The phased approach is recommended by WG-SRM as the method to undertake the SORA. A competent authority may determine these phases are not required for a given operation.

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212			16-23		1. Introduction	General Comment - Transition SORA 2.0 to SORA 2.5: The information related to the transition phase/period between SORA 2.0 and SORA2.5 is missing. In addition, there is no indication or guidance for applicants regarding their possible ongoing application or operational authorisation (How? When?...). The process for adjusting of the current operational authorisation is also not defined in SORA 2.5 main body. Please note that any significant change in the regulation should forsee a transition period. The impact of such modification on the application for an operational authorisation methodology/process is not considered (e.g. template form for application to an operational authorisation...).		Acknowledged	This is an aspect for NAAs to address within their processes and procedures and not related to the SORA methodology. NAAs are expected to provide timescales for transition periods. This is not in the competency of JARUS.
213			16-23		1. Introduction	General Comment - Implementation impacts: Another aspect is not taken into account in the main body regarding the Competent Authority. More precisely, the implementation in the different countries approving the SORA methodology but also the harmonised implementation between those countries. This new SORA 2.5 focuses on the quantitative approach, which should be the major improvement against the SORA 2.0. Nevertheless, the absence of harmonized data/tools/maps to be used by those countries will hinder the proper use of this new quantitative approach. The practical aspect of this methodology must be taken into account in order to obtain an efficient implementation and harmonization within the different countries.		Acknowledged	This is an aspect for NAAs to address within their processes and procedures and not related to the SORA methodology. NAAs are expected to provide timescales for transition periods. This is not in the competency of JARUS.
214						General Comment - Annexes : The SORA 2.5 package provided for consultation is incomplete. The consistency between the different annexes cannot be judged at this stage. Each step has been subject, from minor to major, modification without changing all the Annexes. For example, if we take a look at STEP#1 of the main body, this step has been significantly modified (name of the step, content of the step...). However, the Annex A is yet to be developed and was not provided. The consistency of the Annex A with regard to the STEP#1 changes can not be demonstrated. The impact of those missing annexes is an unknown factor for the applicant and the competent authorities.		Acknowledged	Annex A will be released as part of the SORA v2.5 release. It has been developed taking into account all the comments received through external consultation.
215			31-31	687-687	Table 2 intrinsic ground risk class determination	General comment - Data: This new approach on STEP#2 requires data to assess and define the people at risk on the ground. To be able to find such data, maps/tools need to be developed. In absence of better/harmonised input, some tools have been provided in Annex F. However, the quality of the available data does not permit a realistic value of the population density in one place. EXAMPLE: 1) Use of the Global Human Settlement layer (https://ghsl.jrc.ec.europa.eu/visualisation.php) to determine the population density of the area of operation (red zone) Considering the resolution of this map is 100m x 100m, we have a population density ranging from 0 to 10000 ppl/km² depending on the tiles we consider. The iGRC could then be classified from 4 to 7 with a 1.5m UA depending on the tiles (CGA N/A for this example). 2) Use of the another map provided in the Annex F "OAK RIDGE" (https://landscan.ornl.gov/) to determine the population density of the area of operation (red zone) We can see that for the exact same Location, we find the results of 2423 ppl/km, ending with an iGRC of 6. Conclusion: As a result of those two different outcomes for determining the population density and the iGRC, the practice that an applicant / the		Acknowledged	Additional guidance has been provided in the "Population density information" section to minimize variance in the determination of population density. Please also refer to the qualitative descriptors for further clarification.
216								Acknowledged	Blank. Kept for number traceability.
217								Acknowledged	Blank. Kept for number traceability.

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
218			31-32	694-695	"Table 3 quantitative population values to qualitatives descriptions"	Clarifications: Providing the number of the corresponding population density will not allow the applicant to complete the STEP#2 if their country does not possess the adequate tools/data/maps. Therefore, it would be relevant to provide the definitions of each term in table 3 "Qualitative descriptions" which correspond to the population density defined in Table 2. (e.g. Suburban, urban…).		Acknowledged	The area description column column has been added to provide more details for the qualitative descriptors.
219	Determining population density value	Ruling	32	699	The segment with the highest population density should be used when determining the iGRC	It is too conservative that if a small part of the operational volume is over a high populated area, the whole operational volume becomes high populated area. It should be proportinal to the area affected.	The segment with the highest population density will only be proportinal to the percentage of the area that occupies over the operational volume.	Rejected	Please refer to Annex F guidance for overflying small areas of higher population density.
220			32-32	710-711	"the assurance that there will be uninvolved persons in the area of operation is under full responsibility of the operator"	Typo?	the assurance that there will be **NO** uninvolved persons in the area of operation is under full responsibility of the operator	Accepted	Change incorporated in the original text and then restructured.
221	Determination of the adjacent area size	Ruling	33	739	The adjacent area size models a reasonably probable ground area where an UA may fly or crash after a flyaway	The adjacent area analysis should take into account that exists already geofence system (independent from the UA like parachute systems that stop the UA and release a parachute if the UA leaves the operational volume) that would have to fail in order to permit a fly-away of the UAV.It would require to fail the UA and the Geofence to permit a fly-away.	The adjacent area size models a reasonably probable ground area where an UA may fly or crash after a flyaway. If the UA contains an independent system that can avoid a single-failure fly-away, the final adjacent area will be defined as not needed.	Partially accepted	The purpose of the containment section is to identify the need for and the robustness of a containment system. A geofence system (dependent or independent) can then form a part of the solution to comply with the resulting containment requirements. If a drone system already features containment that meets the highest requirement for the SAIL, the adjacent area determination may actually be skipped.
222			33-33	742-743	"either the maximum range remaining of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume"	Clarification: The first methodology to define the adjacent area size does not allow its application. The term "maximum range remain" is not clearly defined. Also, the main body does not provide any practical example as in the second methodology (distance flown in 3 minutes at maximum speed). Comment: Generally speaking, the determination of the size of the adjacent area is not suitable for all operations. If we only consider the second methodology (first methodology is quite unclear), the minimum size of the adjacent area will be 5km. Which means that in most cases, the adjacent area will be bigger than the operation zone (operational volume + ground risk buffer). This definition is disproportionate and does not justify such a result. For this step, it will be meaningful to take into consideration CATEGORY A (EU OPEN category) and CATEGORY B (EU SPECIFIC category), and to propose a proportionate and less conservative solution.		Partially accepted	We removed the small adjacent area based on range. 5km should always be used as a minimum, as this mostly leads to a lower containment requirement.
223			33-33	759-761	"1.1. Calculate the average population density of the adjacent area identified in thw previous section"	Comment / Clarification: The calculation of the "average population density" is not clearly explained to the applicant. Applicants may need additional guidance on this calculation. Example: For this section, what should be the methodology used? Some areas are not entirely inside the adjacent area.		Acknowledged	See comment #227 and #183, there is a new discussion on your point in the new containment section in Annex F.
224			33-33	762-766	" 1.2. Identify potential locations for non-sheltered assemblies of people 1km beyond the outer limits of the operational volume during the time of operation. If the adjacent area has assemblies of people then assign the following average population density:"	Clarification / Definition: The sheltering definition is not provided in the SORA 2.5 package. The distinction between sheltering and non-sheltering locations should be clear not only to the applicant but also to the Competent Authorities. This term is not always interpreted in the same way from country to country or even between applicants. As a result, a clear definition of this sheltering/non-sheltering principle would eliminate any debate about the applicant's claim of sheltering.		Partially accepted	Sheltering has now been better defined in Annex B. Notes on using an alternative method for ground risk containment are added, refering to Annex F.
225			34-35	804-805	Table 4 – Mitigations for Final GRC Determination	Typo / consistency: The level of robustness in this table lacks consistency with regard to ANNEX B. If we take a look at the M1(A) mitigation, 3 levels are provided : LOW, MEDIUM and HIGH. However, for the M2 mitigation, we have different levels from one document to another: - Main body = LOW MEDIUM HIGH - Annex B = NONE MEDIUM HIGH HIGH+ Therefore, it would be useful to aggregate the different levels of robustness according to the Mitigations.	Proposed solution:	Partially accepted	Mitigations effects have been re-evaluated and table updated. Now only Low, Medium and High robustness remaining.

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226			35-35	811-822	(e) when applying mitigation M1…	Clarification: In this point, it is not clear to which M1 mitigation it refers. The M1 mitigation is now divided into 2 Mitigations : M1(A) and M1(B). A more detailed description may help the applicant understand this point.		Partially accepted	Mitigation M1 now split into M1(A) and M1(B) to clarify requirements.
227	Explanatary Note	A.1.1.3				How could a random operator possibly calculate the adjacent area population density as provided in all the examples? Is there a tool for this?	It would be unworkable to "count" all the squares with a certain population density and divide it through the total amount of squares. This would be a very work-intensive/impossible job. Without a tool, only a rough estimation is possible.	Acknowledged	Each authority may define a service to evaluate the population density. There is also a lot of information on pop density calculations in Annex F for GRC and adjacent area.
228	General Comment	Main Body				Main concern with the whole SORA implementation is the flexibility and agility of the NAAs to speed up the approval process. Therefore, many requirements including purely technical and "mathematical" formulas, should be as comprehensive as possible to avoid long delays and queues between NAA and the UAS SPs.		Acknowledged	The text has generally been updated to be more comprehensive and easy to use. The general approval process is an issue to be addressed by the NAAs and not part othe SORA process.
229	General Comment	Main Body				Additional rationale on the correlation between sheltering and population density etc.	It is unclear how NAAs will provide proper information on sheltering. In the worst case a city planner/architect will be involved in the SORA application as well.	Acknowledged	Sheltering mitigation split into its own M1(A) mitigation.
230	General Comment	Main Body				Additional rationale on the correlation between sheltering and population density etc.	Transport means Bus/Car/Train is also a shelter or not?	Acknowledged	Sheltering mitigation split into its own M1(A) mitigation.
231	General Comment	Main Body				Several OSOs, when the required level of assurance robustness is high, require certification by an independent, accredited and competent third party. In the original text, this was intended to be an industry body, such as Notified Body or Qualified Entity in EU, ODA in the USA or similar. However, some authorities have not properly understood and they say that this independent body shall be the aviation authority, which was not at all the original intent.	It is hence necessary to add a definition in the main body of SORA: 'Indipendent Third Party' means an industry body, different from the aviation authority, competent, independent from the assessed entity and accredited by State authority for one or more specific verification activities', A Note may clarify that these bodies are designated, under different jurisdictions, as Conformity Assessment Bodies, Notified Bodies, Organisation Designation Authorisation, Qualified Entities, Recognised Assessment Entities or similar.	Accepted	Please refer to the definition added for "competent third party"
232	General Comment	Main Body				Definition of atypical airspace and strategic mitigations. For example, in Europe this means that an ANSP subject to ATS.OR can make a safety case and allow BVLOS operations in CTR without the need for Tempo-D/R or TSA. This is reality in several European member states, but completely alien thinking in others.	It should be clearly said that with and ATSP agreement a dynamically activated part of controlled airspace is a type of atypical airspace.	Rejected	Various local implementations may vary. Air Risk model has not been updated as part of v2.5. Comment to be considered for v3.0.
233	Other				Consistency	Under PDRAs, Atypical airspace seems to be "50 m horizontal to an object and 15 m above the object, when the object has a height of more than 105 m", while the general definition is "within 30 m from an object, both horizontally and vertically".	This may be confusing to operators. Is there a way to make this consistent (e.g. only use one definition)?	Rejected	The text of the SORA is kept general to allow for further tailoring depending on the use case. Comment refered to PDRA TF.
234	Definition	Main Body	17	292	…additional hazards are excluded from the scope of this methodology…	Are risks due to additional hazards excluded from SORA, i.e. ignored? So, are dangerous goods allowed to be brought on board as long as the container provides sufficient protection in case of an accident? How is adequate protection defined and validated for medical goods, for example? Is it necessary for the container to withstand the effects of altitude at all times? How is accidental release accounted for?	Note or reference to be made.	Rejected	The requirements regarding additional hazards that are not part of SORA are expeted to be addressed according to the appropriate regulation in the area of operation.
235	Semantics	1.4.1	19			Regulation of the specific category is both performance-based and risk-based. The former terms means that legally-binding rules should be as much as possible technology-agnostic, while detailed specifications and methods should be contained in voluntary industry standards. This approach originated in 1998, through ICAO Assembly Resolution A32-14 (now replaced by Resolution A39-22) and in fact SORA uses it when referring to industry standards to implement some OSOs. Risk-based regulation means sparing the scarce resources available inside the aviation authority, through several mechanisms, among which audit cycles adjusted to the risk profile of the organisations, declarations instead than verification by authority, use of Regional Safety Oversight Organisations (e.g. EASA), or delegation to external competent third parties. The shortage of authority resources was recognised at ICAO level through Resolution A40-6: "Recognizing that not all Member States have the requisite human, technical and financial resources to adequately perform safety oversight", which launched the GASOS Programme relying on pooling of resources at regional level. In EU, the need to reduce workload on aviation authorities, was regognised in Communication 613 of 2015 by the European Commission (which orginated current EASA Basic Regulation 2018/1139: "Finally the present proposal addresses the challenges that some national authorities face in maintaining and financing the resources necessary for accomplishing the required certification and oversight work. To this end the present initiative proposes a framework for pooling and sharing of technical resources between the national authorities and the European Union Aviation Safety Agency, and which includes the possibility of transferring responsibilities for implementation of Union legislation on a voluntary basis. For these reasons, several SORA OSOs require, espacially for medium or high level of accurance robustness, a certificate not issued by an aviation authority, but by a 'competend third party'. Examples in EU	Insert a new definition on 'competent thiord party': Entity different from the competent avation authority, accredited and under continuous assessment by a State or Regional Authority which is authorised to conduct certain delegated certification, safety management, verification of conformity or oversight tasks.	Accepted	Text updated.

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236	General Comment	Main Body	22	429	National specificities could include nationally sensitive infrastructure, protection of environmental areas, etc.	SORA focuses on safety - risk assesment and mitigation. National aspects on e.g. security should not be brought in (direct) connection with SORA. For example cross border operations based on a granted authorization (in the country of registration) could become more difficult, due to various additional SORA requirements coming from national interpretations.	Delete this sentence or restructure it in a way to only hint the NAAs about additional consideratoins when it comes to national airspace.	Acknowledged	Text updated. Please refer to Section 1.3 for the scope and applicability of this methodolgy.
237	General Comment	Main Body	28	577	Flow Chart Figure 4	Figure 3 is not a good addition to figure 4, from an applicants perspective. The word "step" indicates a sequence. But workflows are displayed to happen in parallel.		Partially accepted	Flow charts have been replaced with the Phase diagram
238				655		Why are only the max UA characteristic dimension, the maximum cruise speed and knowledge of the maximum population density considered? If you look at for example the first column of the iGRC determination table (< 1 m, < 25 m/s), many UAs would fall in to this category, ranging from < 250 gr UAs up to +/- 10 kg UAs and in some cases even heavier. Other two variables – the maximum flight height and the weight of the UA – are both really useful for considering the iGRC.	Maybe a iGRC calculation tool can be developed based on those four variables (dimensions, speed, height and weight) (a table would be too complex with four variables), which the operator can use to calculate the iGRC? (e.g. max < 1 m, max < 25 m/s, max < 60 m and max < 1 kg). This would lead to a much more proportionate iGRC.	Acknowledged	The SORA ground risk model does not use flight height or weight in determining ground risk. An iGRC calculation tool is referenced in Annex F.
239				671			Please provide AMC/GM (source) for the determination of the GRB based on the ballistic method (e.g. https://www.omnicalculator.com/physics/trajectory-projectile-motion).	Rejected	This is an EU specific request
240	General Comment	Main Body	31	687		UAS operators that have an authorization to fly over populated areas (in cities) for e.g. in SAIL II will most probably have not the same privilege/requirements with SORA 2.5. anymore. M1 Mitigation (Low) and VLOS Mitigations also entail new demanding requirements. The entire change will effect quite a number of operators and have a big impact on existing authorizations.		Acknowledged	The new table is considered to reflect more accurately the ground risk model and it is expected that some mitigations are easier to apply than in versoin 2.0, resulting in many similiar SAIL scores.The previous "VLOS requirement" is now refered to as ground mitigation and has been updated accordingly.
241		Table 2	31	687		Fly above Berlin with 4 000 per km2. The initial ground risk for flying in urban areas like Berlin has increased from 5 to 7 in SORA 2.5 This increases the burden on operators tremendously. What is the safety case? Operators will rather go for certified than taking the burden and unsecurity of an SAIL V operation. In other words, the table kills specific category in urban areas if not smaller than 900 gr.	Please provide additional inofrmation on safety case for flight above populated areas. Decrease the table by 1E-1 to avoid voiding SORA in urban areas and requiring operators to fly in the certified category in the future. Compare the safety record of helicopters and UAS and the number of people killed on the ground.	Rejected	The new table is considered to reflect more accurately the ground risk model and it is expected that some mitigations are easier to apply than in versoin 2.0, resulting in many similiar SAIL scores.
242		Table 2	31	687		The scale of the table should be linear instead of logarithmic. Flying in urban areas was almost impossible before and will be even rarer now, even though the greatest need for flying UAS is in urban areas. Why is flying in urban areas considered to increase risk by a factor of 100? Is this proportionate and have people been proven to be injured, is it a feeling, or is there evidence that the risk to people on the ground from UAS is higher than in general aviation? The risk on the ground may not be rated as higher than in general aviation. Manufacturers are already trying to meet the requirements. Increasing the factor 100 would eliminate UAS for most applications and dependent on mitigations.	Please provide additional inofrmation on the mechanism behind the decision for logaritmic scale or why it is increased by factor of 100.	Rejected	The new table is considered to more accurately reflect the ground risk model and is logorithmic to align with the expected TLOS differences in SAIL levels. In cases where the table is believed to be too conservative the actual critical area and the associated iGRC formulas in Annex F may be used. Additionally the ground risk mitigations in Step 3 are expected to be easier to identify and use (such as sheltering).
243		Table 2	31	687		Preserve elements from the old iGRC table.	Elements from the old Table 2 should be kept. Also the new table returns higher iGRC in most cases. Reduce initial ground risk to values of SORA 2.0 and show assumptions as to why the GRC is so high. Current table leads to SAIL V and above in urban areas with curent technology.	Rejected	The new table is considered to reflect more accurately the ground risk model and it is expected that some mitigations are easier to apply than in versoin 2.0, resulting in many similiar SAIL scores.
244		Table 2				Two different iGRCs need to be determined, why not provide a table for both the area of operations iGRC and the adjacent area iGRC? Also, it would be great if both the quantitative and the qualitative population density are added in the table.	Changes to the iGRC determination table.	Rejected	The GRC for the adjacent area and the iGRC footprint need to be determined in order to evaluate the risk difference between the areas and to determine the containment requirements. The relation between quantitative and qualitative population densities are indicated in table 3 and are not included in one table due to the amount of information provided in both Tables 2 and 3.
245		Table 2	31	687		Population density in the table will require NAAs to maintain such data. How is it provided, when, etc.?	It is important when requesting such data provision from the authorities to have a near horizon for implementation otherwise it is overruling. When will this be achieved. How far in the future will this be available?	Acknowledged	Please refer to the both Main Body and Annex F sections on population densities and maps. Individual competent authorities may decide to impliment their maps at different timelines.
246		Table 2	31	687		Should SLAs be secured for this population density data provision?	It is not trivial and cheap to secure such information, albait normalised.	Acknowledged	It is expected that any data source may be used (e.g., publically available maps or the qualitative descriptions) as long as it is acceptable to the competent authority.
247				691		Under (1) of UAS.OPEN.020 on p. 250 of the EAR for UAS, the following line can be found: “In the event of unexpected overflight of uninvolved persons, the remote pilot shall reduce as much as possible the time during which the unmanned aircraft overflies those persons”, which leads to the conclusion that the pilot may sometimes fly over uninvolved persons with a class C1 drone weighing (< 900 gr). Since operators in the Open category are allowed to do so (without any form of mitigation), it would be totally unfair not to let operators in the Specific category do this without having to apply disproportionate mitigations, especially since operators in the Specific category compiled many well-defined operational procedures in an Operations Manual (whilst this is most often not done in the Open category) and the pilots are more extensively trained than in the Open category. Of course, operations over assemblies of people would not be allowed under these conditions.	Add an extra point (g): “An UA weighing less than 900g and having a maximum cruise speed less than 25m/s is considered to have iGRC of 1, unless the UA is operated over assemblies of people. In the case of an operation over assemblies of people, an iGRC of 4 is assigned.”	Rejected	This is EU specific. A note is there for a UA weighing less than 250g and having a maximum speed less than or equal to 25 m/s.

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248	Determining population density value	Ruling	32	699	The segment with the highest population density should be used when determining the iGRC	It is too conservative that if a small part of the operational volume is over a high populated area, the whole operational volume becomes high populated area. It should be proportinal to the area affected.	The segment with the highest population density will only be proportinal to the percentage of the area that occupies over the operational volume.	Rejected	Please refer to Annex F guidance for overflying small areas of higher population density.
249				700		During the EASA SORA 2.5 workshop it was mentioned that under SORA 2.5, qualitative density data may be used in case there are no representative sources for determining the population density based on quantitative data. Looking at the new iGRC table, three rows are assigned to populated area (< 2 500 suburban, < 25 000 urban and < 250 000 dense urban). Which one to use when no quantitative data is available?		Acknowledged	It is expected that the qualitative descriptors and/or area description may be used for the cases where quantitative data is not available.
250	Editorial		32	734	Defined in Annex	Which Annex?	Annex XY.	Accepted	Change incorporated in the original text and then restructured.
251	Determination of the adjacent area size	Ruling	33	739	The adjacent area size models a reasonably probable ground area where an UA may fly or crash after a flyaway	The adjacent area analysis should take into account that exists already geofence system (independent from the UA like parachute systems that stop the UA and release a parachute if the UA leaves the operational volume) that would have to fail in order to permit a fly-away of the UAV.It would require to fail the UA and the Geofence to permit a fly-away.	The adjacent area size models a reasonably probable ground area where an UA may fly or crash after a flyaway. If the UA contains an independent system that can avoid a single-failure fly-away, the final adjacent area will be defined as not needed.	Partially accepted	The purpose of the containment section is to identify the need for and the robustness of a containment system. A geofence system (dependent or independent) can then form a part of the solution to comply with the resulting containment requirements. If a drone system already features containment that meets the highest requirement for the SAIL, the adjacent area determination may actually be skipped.
252		2.3.2 and Figure 6	33	744		There is little clarity on the rationale behind the current numbers provied in 2.3.2. and Figure 6.	Please elaborate on the rationale behid these numbers provided in the graphic.	Acknowledged	According to the experience from the field, in case of a flyaway there is a high probability that the drone crashes or impact with an obstacle within 3 minutes flight. Moroever it was considered that above certain distance, larger is the adjacent area and lower will be the average population density since some sparsely populated area will be included. In the new containment section of Annex F, the rationale why the 35 km was selected, is reported.
253	Editorial		33	750	Case 1.1, Case 1.2.1, Case 1.2.2, Case 1.2.2	1.2 is missing.	Formating.	Accepted	This has been resolved as part of reformatting the document.
254	General Comment	Main Body				Flying by night as mitigation	Please elaborate on the rationale behid such mitigation means.	Acknowledged	Flying during the night may be used to show less people at risk in the operational area for a specific time of day, when applicable.
255	Ruling	Main Body	33	757-766	Determine the average population density value 1.1. Calculate the average population density of the adjacent area identified in the previous section, 1.2. Identify potential locations for non-sheltered assemblies of people 1km beyond the outer limits of the operational volume during the time of operation. If the adjacent area has assemblies of people then assign the following average population density: 1.2.1. < 25,000 ppl/km^2 if the assembly of people exceeds ~20,000 ppl9;	Where is this information available for the operators and authorities to be used? On a 50+ km flight, it is simply impossible to analyze all events in the vicinity at the exact time of the flight. If BVLOS operations are to account for sporting events at a stadium, concerts, large gatherings at beaches/parks, and sporting events, these events must be reported by the state with date, time, and location. Berlin has over 360 gatherings per year (basically at least one every day) that do not even follow the planned route.	It is important when requesting such data provision from the authorities to have a near horizon for implementation otherwise it is overruling. When will this be achieved. How far in the future will this be available? If required, it is strongly recommended to define a service for reporting gatherings, selling tickets for sporting events and outdoor spectacles before activating this requirement otherwise urabn flying is void.	Acknowledged	Each authority needs to define procedure or service to provide such information. Different options may be considereed such as the coordination with the entity respsonsible for the organsiation of the events in the area (in this specific example) or the definition of a real ime population density map service. Please also see comment 590.
256	General Comment	Figure 7	37	892		Discepancy between Figure 7 and Annex C. Different height values (OPS Volume and Flight Geography) are used.	Improve labels.	Acknowledged	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
257				1058		For clarity, it would be good if “Area of operations fGRC” is mentioned instead of “Final GRC”, since two different fGRCs are determined (for the area of operations and for the adjacent areas).For clarity, it would be good if “Area of operations fGRC” is mentioned instead of “Final GRC”, since two different fGRCs are determined (for the area of operations and for the adjacent areas).	For Intrinsic Ground Risk Class: iGRC (already used) For Final Ground Risk Class: fGRC For Initial Air Risk Class: iARC For Residual Air Risk Class: rARC	Rejected	Containment requirements have been significantly reworked and thus area references are no longer necessary.
258		Table 7	43	1069		The impact of a higher containment solution than required is not described. How does a higher containment feedback into the GRC or Adjacent Area?	Redefine a mitigation table accordingly. Add formular or table to reduce GRC and adjacent area when overexeeding containment solution.	Rejected	Higher contaiment than needed do not reduce the GRC and the posibility of a LoC.
259	Definition	Main Body	43	1069	Consider adding exposure to risk.	Time of exposition to risk is not implemented in Ground Risk and Adjacent area.	Consider exposure as well. When a flight passes an urban area for 1% of the flight time, risk should be rated accordingly.	Acknowledged	Please refer to Annex F guidance for overflying small areas of higher population density.
260		Table 7	43	1070		Discrepancies between the Annex E tables and main body and other Annexes.	Table 7 simplification as per EASA workshop on SORA 2.5	Acknowledged	The containment section was reworked for ease of use and Table 7 updated.
261	General Comment	Table 10	44	iGRC		General consideration on the renumbering of OSOs	It will make some standards that are already adopted obsolete. Such statement is also valid for many companies documentation.	Acknowledged	The OSOs numbering has been kept as in SORA 2.0. For simplificatiom, the OSOs with multiple number assigned have kept only the first number.
262	Definition	Table 10	46	1113	Producer or designer	Headline of chart: what is meant with manufacturer? Produces or designer…? Compare with Annex E line 100 OSO #II	Clarify definition of manufacturer, production designer, maintainer, operator, trainer. (Table 10)	Accepted	Definition has been updated in the Main Body and Annex I.
263	General Comment	2.6 c	47	1137	(c) In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service and should be included as part of the Safety Portfolio. This will allow the competent authority to get clear oversight into which services are being used, the functions they perform, and how they contribute to the overall operational safety. It also allows verification that responsibilities have been correctly allocated, and that there are no unallocated responsibilities.	Showing SLA with the external consultant/service provider to the NAAs during the application process might be non-disclosed information and leads to a conflict.	Please provide additional description on the mandatory infomration form such a document.	Rejected	The SORA is not in the position to dictate the specific information within an SLA. The requirements for SLA are specific to the external service being used for safety critical tasks during operation. These are also specific to the terms between the two parties entering into the SLA. The JARUS SORA guidance is intended to provide the necessary safety requirements to be met given the ground and air risk assessments. Whilst important, IP considerations are outside the scope of this document.

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264		2.6 c	47	1137	In the case the operator uses external service(s), reference(s) to Service Level Agreement(s)(SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service to get clear oversight into which services are being used, the functions they perform, and how they contribute to the overall operational safety. It also allows verification that responsibilities have been correctly allocated, and that there are no unallocated responsibilities.	Writing SLA comprising minimum operational spectifications for the service and require,ments for the organisation of the service provider, would be a tremendous task for the UAS operator. Furthermore, if each operator would write its own SLA this would lead to lack of harmonisotion across the community. Therefore, whenever possible, the SLA should be based on an industry standard. For instance, requirements for the organisaiton providing the 'Population Density Information Service' are already published in ISO 23629-12 https://www.iso.org/standard/78962.html?browse=tc One more sentence is necessary in this paragraph to clarify the role of industry standards	Add: The SLA, whenever possible, should be based on industry stardards for either the minimum operational performance of the service or the organisation of the service provider or both. For instance, requirements for the organisation of the provider of 'Population Density Information Service' are already published in ISO 23629-12 https://www.iso.org/standard/78962.html?browse=tc	Rejected	The SORA is not in the position to dictate the specific information within an SLA. The requirements for SLA are specific to the external service being used for safety critical tasks during operation. These are also specific to the terms between the two parties entering into the SLA.
265			20	372	The outer boundary of the Flight geography shall include the total system error (TSE) of the UA. The UAS operator should, therefore, establish sufficient margins to cater for such errors.	There are multiple issues with the paragraph:1) an operator does not always know the total system error (if the must be demonstrated by a number) and 2) what if a flight geography is just a narrow flightpath whereby a risk of leaving the contigency volume is mitigated? It creates mitgation after mitigation, eg. what if a parachute fails (if it wasnt a mitiagtion already), what if three safety barriers on communication fail? How far does an operator need to go?	The outer boundary of the Flight Geography shall include the failure of primary navigation and/or failure of the primary means of communication on the conditions these have a separate system carrier (not autopilot or companion computer).	Acknowledged	Text updated. Guidelines on TSE may be provided after publication of SORA 2.5.
266			20	387	the operational volume and ground risk buffer	please give this a name as well	operational environment	Rejected	Text not updated in this version. To be considered in v3.0.
267			29	599	) The risk assessment might be presented to the competent authority using the form in Annex A, section 3.	It is currently not clear which changes require prior approval. Changing GRC, ARC or SAIL is obviously needing prior approval. But what if certain mitigations, supporting systems change or even the UAS itself receives an upgrade, what then?	Changes having an impact on the basic elements of the SORA and specifically mentioned in the operational authorisation such as containment and mitigations require prior approval. Changes in UAS serial number, name of pilots, … do not require prior apporval	Partially Accepted	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.
268			30	646	Changes requiring prior approval by competent authority	It is currently not clear which changes require prior approval. Changing GRC, ARC or SAIL is obviously needing prior approval. But what if certain mitigations, supporting systems change or even the UAS itself receives an upgrade, what then?	Changes having an impact on the basic elements of the SORA and specifically mentioned in the operational authorisation such as containment and mitigations require prior approval. Changes in UAS serial number, name of pilots, … do not require prior apporval	Acknowledged	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.
269			31	582	(d) The 1-to-1 principle may in certain cases not be sufficient to meet the target level of safety. In such a case, the authority may ask a refinement of the definition of the ground risk buffer, based on criteria defined in Step #8 depending on the adjacent air and ground risks.	It is unclear wether such statement in the main body would inadvertently require the operator to prove that the 1-to-1 principle is sufficient.		Acknowledged	Currently outside the scope of SORA 2.5, to be considered in a future development of SORA.
270			31	687	Table intrinsic ground risk		please explain the considerations made for the iGRC-numbers in the table	Acknowledged	Outside the scope of the Main Body, see Annex F.
271			32	715	The maximum cruise speed is conservatively defined as the maximum possible commanded airspeed of the UA, as defined by the manufacturer.	this is not conservatively if the wind speed is not taken into account. It was not clear if the applicant can account for such in Annex B step 3 as it is not to be found.		Rejected	Since a loss of control could happen in any direction, it is just as likely for the crash to happen with a headwind or tailwind. Therefore, the effect of the wind direction on the crash area has been considered to even out.
272			32	734	the actual critical area applying a mathematical model defined in Annex.	Which annex	Annex F?	Accepted	"F" incorporated in the original text and then restructured.
273			33	744	the distance flown in 3 minutes at maximum cruise speed of the UA:	What is the basis for 3 minutes?		Acknowledged	The 3 minutes comes from empirical examination of a scaler that would fit smoothly for most UAS between the 5 km minimum and 35 km maximum values which are limiting based on smoothing effects of population density maps. So the 3 minutes should fit for smallest UAS close to the 5km distance.
274			33	744	. If the distance is less than 5 km, use 5 km.	Line 816 states that M2 mitigations like parachutes or special descent manoeuvres may not be used by default to lower adjacent area ground risk. But can it be accepted by the EASA/NAA to lower the size of the adjacent area if the pilot manually deploys the FTS and parachute as an emergency procedure before it enters the adjacent airspace? In that case the drone would never fly further than 300m even in max wind conditions if deployed at height of 90m AGL. It then seems disproportional to use 5km. What's the point of having a ground risk buffer suitable to your system that ensures your drone will land/crash there in worst case scenario if you still need to look much further for the adjacent area (with respect to ground risk)? The size of the ground risk buffer should be at least considered as part of the size of the adjacent area ground risk and in practice there should not be a difference. It is not clear why that adjacent area should be this large and on top of the ground risk buffer.		Rejected	Containment becomes an important issue, when operating next to an area with high average GRC. In most critical cases, making the adjacent area smaller will result in an increase of average GRC. Your proposal would be counterproductive from an operators's view. Plus, the flight termination would be considered a part of the containment functions. The adjacent area analysis will ensure, that the right robustness will be picked for the implementation of the containment functions
275			33	762	1km beyond the outer limits of the operational volume	Why for assemblies of people should you only look at 1km away while the adjacent area should be at least 5km? This doesn't make any sense. In addition how can an operator know where sporadic assemblies of people such as at a festival that only occur 1 or a few days per year with varying dates will occur? This in not practical, neither to determine nor to verify and enforce by the NAA and police		Acknowledged	The 1 km distance is intended to model the impact probability to an assembly. The flyaway directions are random and so if an assembly is 1 km away the likelihood of a flyaway completely missing the direction of an assembly is high. The sizes of assemblies that are meaningful are set to start from large stadium crowds or large demonstration sizes which are quite likely detectable from news, city event calendars or stadium calendars. Any random large assembly of people which was not taken into account would fall under rare acceptable events that could not be avoided by flight planning.

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276			35	806	(d) In general, a quantitative approach to mitigation allows a reduction in the intrinsic GRC by 1 point if the mitigation reduces the at-risk population to the next lowest iGRC population band, which in most cases is approximately a factor of 10 (90% reduction) compared to the risk that is assessed before the mitigation means are applied. Such quantitative criteria should be used to validate the risk reduction that is claimed when applying Annex B to SORA.	Please think about the following situation whereby an operator claims M1 High robustness and almost can follow individuals. In case a factor 10 cannot be applied because of little population density, but the operator still has the ability to safe those individuals, then only a low mitigation can be applied and results again in a higher SAIL. imagine UAS 20m in desert areas, then the applicant never use M1 or M2 mitigations since it is not controlled ground area but some people might be there vut 90% of reduction cannot be achieved. 2 people in the area => 1 person in the aea is only a reduction of 50%.	Mitigations in low density areas whereby 90% of reduction cannot be achieved (as there is almost nobody) can still be claimed by the applicant upon decision of the NAA.	Rejected	The mitigations have been split and mitigations do not always require quantitative evidence for achieving the effect. The 90% is the intent which can be shown to be complied with quantitatively or qualitatively.
277			36	841	M2 mitigations like parachutes or special descent manoeuvres may not be used by default	Why not? If the FTS triggers a parachute rescue system than why does this not affect the score? The impact on (uninvolved) people in the adjacent area will also be with a lower kinetic energy as it will be inside the operational volume. In essence it does not reward an operator to use a UAS with a high level robustness parachute where the FTS also triggers this parachute. They might as well choose a UAS that just cuts power to the motors and let the drone fall ballistically to the ground without parachute deployment as there is no incentive to develop an FTS combined with parachute. In addition, they could then argue that their ground risk buffer can be smaller as they don't need to consider the drift of the drone as it descend by parachute in max wind conditions… A frangible drone at high ballistic speed seems more dangerous to me than a normal drone descending at low velocity by parachute where the uninvolved people have more time to try to get out of the way.		Rejected	Please refer to the containment requirements significantly rewritten.
278					1.2. If the above value is less than 500m above the maximum altitude of the operational volume, use 500m above the maximum altitude	Why 500m? This is pretty high which could be mitigated by an FTS/parachute system.		Rejected	See Explanatory Note to SORA 2.5. We assume a UA may ascend for up to 3 minutes at 500fpm in the event of a flyaway. Airspace containment was removed for simplification, setting Low containment as minimum.
279			40	990	EVLOS operations whereby the remote Pilot in Command maintains an uninterrupted situational awareness of the airspace in which the UAS operation is being conducted via visual airspace surveillance through one or more human observers, possibly aided by technology means are to be considered as BVLOS for the purposes of M1(b), and not VLOS	It is unclear what the driver (data) is to consider EVLOS as BVLOS for M1(b). One could argue that OSO for EVLOS on multi crew coordination should be higher but still being able to mitiagte the risk.	delete paragraph	Partially accepted	Paragraph has been removed during restructuring and reference to M1 deleted.
280	see Comment	2.3.1 (e)	31		see Comment	The limits of the population/km² are too high. The limits should follow the limits used in official census data, e.g. Zensus 2011 in Germany. (https://atlas.zensus2011.de)		Acknowledged	The limits are based on the quantitative model and not tuned for a single countriy's approach or need.
281			31	Table 2 & 3	> 250,000	It must be ≥ instead of just > to include the number 250,000 itself	≥ 250,000	Acknowledged	Table left as is to stay consistent with Annex F, will note to revisit in SORA 3.0.
282		2.3.1 (o)	32	734	[…] applying a mathematical model defined in Annex.	Which Annex? Annex F?		Accepted	Change incorporated in the original text and then restructured.
283		2.3.3 €	35	817	[…] risk by first applying M1 at High Robustness […]	be more specific by adding the (A) behind M1	[…] risk by first applying M1(A) at High Robustness […]	Acknowledged	Text updated.
284		2.3.4 (b)	36	844	[…] as long as they are still applicable and in a fly away scenario.	remove the "and"	[…] as long as they are still applicable in a fly away scenario.	Accepted	Comment accepted. We have moved this to Annex F with a much more detailed explanation of this case.
285		2.3.4 (d)	36	846	After mitigations have been applied, calculate the final adjacent area GRC of the using the same process as Step #3 in above.		After mitigations have been applied, calculate the final adjacent area GRC using the same process as described in Step #3.	Accepted	Comment accepted. We have moved this to Annex F with a much more detailed explanation of this case.
286		2.4.2 (a)	37	884	As seen in Figure 5, the airspace is categorized into 12 aggregate […]	Wrong figure number	As seen in Figure 7, the airspace is categorized into 12 aggregate […]	Accepted	Text has been updated.
287		2.5.3 (b)	44	1105 & 1111	Table 6 is a consolidated list of common OSOs […]	Table 6 --> Table 10	Table 10 is a consolidated list of common OSOs […]	Accepted	Table numbering updated.
288		2.5.3 (b)	44	1112		Please describe where to find Criteria 1, 2 and 3		Acknowledged	Text has been updated and restructured to include a reference to Annex E for the further information regardings the OSOs.
289			13	153		Agreement - which arbitration board exists for operators in case of "disagreement" with authorities?		Acknowledged	This is outside of the scope of the SORA. Each State will have its own mechanisms for managing any diagreements with an authority.
290			16	254		"one-stop-shop" is not well defined. Please do not use this kind of slang and give guidance instead of inverse definitions. Main Question: What is it intended for?		Accepted	Text updated.
291			17	272		Where is the limit of what an authority may request?		Rejected	The NAA is expected to determine this and communicate it to the applicant. The SORA methodology cannot prescribe these limits as it is out of its scope.
292			17	Footnote		(Sentence very complicated and not easily accessible)		Accepted	This footnote has been removed and text updated accordingly.
293			20	363		"This volume" - reference not clear (contingency volume or flight geography or operational volume?)		Accepted	Text updated.
294			21	399		Definition of (*) in Picture?		Accepted	Picture updated with (*) removed.
295			23	453		Sentence does not belong/fit here, "The responsibility of the competent authority..." belongs under (e)		Accepted	Text updated.
296			29	625		"[…] as it is required by the items mentioned above." - imprecise: which items are addressed here?		Acknowledged	Text updated.

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297			29	609-625		Requirements do not fit together "should be as accurate and detailed as possible" vs. "only put information into the operator manual and compliance evidence document as it is required by the items mentioned above".	....as accurate as possible and as detailed as needed to understand the safety critical aspects.	Partially Accepted	This section has been reworded to make it clear that in Step #1 the data needs only be as detailed as it needs to be to continue through Steps #2-#9 of SORA.
298			30	668		maximum population in the area -> imprecise, how is itdefined? Please include the reference.	...as defined by/ in Section XY	Accepted	In the updated format, guidance has been added in the appropriate section.
299	HAP Comment - discrepancy		Table-2	53		Based on the GRC Table a High Altitude Platform HAP would be in the last column due to its wingspan. Based on out real-world experience with the HAP, that seem way to restrictive. It would be in the same class as an unmanned UAS of the size of an A320. If the flight speed would be used as the single characteristic to determine GRC the first column would be correct for the HAP. This corresponds actually more with our expectation for such a system than it being comparable to an A320. This discrepancy between flight speed (iGRC=1) and wingspan (iGRC=5) is an indicator that this system is not taking such systems into account. There is the online tool to calculate the iGRC: CasEx. Using this tool, the iGRC is calculated for the HAP. Two cases are checked with the DLR-HAP. First the controlled ground case with <0,25 people/meter² and the rural area case with <25 people/meter². Based on these calculations the iGRC changes from 5 (table) to 4 (calculation, always rounded up) for the controlled ground case. And from 7 (table) to 6 (calculation, always rounded up) for the rural area case. Both show a minor improvement but seemingly still not a realistic value for such an aircraft, with the corresponding risks involved. We do not see suitable instruments/means to balance this discrepancy well enough.		Acknowledged	This issue is generic for lighter-than-air (LTA) and other unconventional configurations (e.g. ultra-light, extra-wide wingspan aircraft). Please refer to part (b) in "Identification of the iGRC" section and Appendix A in Annex F.
300			44	1112ff.	OSO#I	Roman numerals hinder readability and pronunciations. We agree that a revised numbering with the knowledge gained during the past years helps readability in general. However, there is a large body of documents using the older numbering. So a step towards new numbering should only be done if the final state of the annex is reached. If you plan to revise the OSOs that might change ordering, clustering or the number of OSOs in general, we expect this intermediate numbering very confusing for later referencing.	OSO#01	Acknowledged	The OSOs numbering has been kept as in SORA 2.0. For simplificatiom, the OSOs with multiple number assigned have kept only the first number.
301		2.3.2	33	737ff		Containment requirements and adjacent area: The overall containment requirements in SORA 2.5 seem to be more appropriate than in SORA 2.0. However, the method to determine the adjacent area is rather complex. Additionally, the bases of the parameterization to determine the size (e.g. 3 min, 5 and 35 km) of the area are not clear to us. Alternatives like the mean population density of the country of operation seem much simpler. Finally, for the following academic example, we do not understand how to fix the containment requirements to the appropriate robustness: Given a huge very sparsely populated environment with a city in the center, we define the operational volume as a ring around the city. Now, by increasing or decreasing the radius of the outer ring's circular border we can change the size of the adjacent area significantly and thus change the containment requirements. However, in reality the risks of the operation do not change. Could you clarify how to approach situations like these?	Suggestion: Revise method and simplify.	Partially accepted	Gaming the adjacent area metrics, by manipulating operational volume size and shape should be caugth by authorities. Including large areas of empty land or sea obviously will artificially lower the requirements for containment, but this should be detectable. Additional wording added as guidance to authorities. "Authorities should notice and prevent cases where an applicant tries to include in the operational volume areas which are not intended for use, but are only there for manipulation of the size of the adjacent area. "
302			31	688		The first row (controlled ground) of the iGRC-table seems to overestimate the ground risk. It is unclear to us, why there is a population considered in controlled ground at all. Annex F, p.19, ll.377-379 gives as only reasoning for this choice to avoid a division by zero, but no argument as to why an operation of a large drone over controlled ground should be classified as medium risk (SAIL III or SAIL IV). In our opinion, population density in controlled ground should be defined to be zero and the GRC for all aircraft independent of size and speed should always be 1, as defined in Annex F, p.10, formula (5) (this formula, for no apparent reason, is not considered later in Annex F anymore). Otherwise, flight tests for technology demonstration, prototyping and concept validation are enormously too expensive, although the operation does not pose any risk to 3rd party people at all. This overestimation of the risk will cost the drone community dearly and seems to be motivated and in the interest only of large established companies. It might be necessary to add a footnote for environmental impact of crashes (not focus of SORA as we understand) and the handling of personell involved in operations and their safety.		Partially accepted	Partially Accepted, some increase in iGRC score was done for larger wingspans for additional risk, but none higher than iGRC of 3 (SAIL II)

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303			31	688		In the explanatory notes it is stated that no main conceptual modifications were introduced from SORA 2.0 to 2.5. However, the iGRCs are all higher by one point in 2.5. For all operations, where the shelter mitigation is not applicable, the SAIL will be one point higher as well in most cases. In Annex B, table 2 (line 41) it is mentioned that the shelter mitigation is applicable for UAS weighing less than 25 kg. It is unclear to us, where this limit originates from. The study cited does not show a limit of the effectiveness of sheltering at 25 kg. This makes us feel that the limit of 25 kg is artificial and overly conservative.		Acknowledged	The mathematical model from which the tables are derived was not substantially changed from SORA 2.0 to SORA 2.5. The sheltering limit is a conservative assumption to ensure most of the structures used for housing will not be breached in case of an impact. Further research in this area is expected to be conducted in order to help build consensus for a given limit, especially in the presense of sturdier structures. The specifc comment has been removed from Main Body and a reference Annex B has been included.
304			31	688		Why does the table not have a line for a population density of 2.5 ppl/km²? It would be very useful for areas, that are not controlled ground but where very few people are expected to be.	Insert line with 2.5 ppl/km² based on Annex F	Accepted	Additional row of population density inserted into the final table.
305			35	805		Currently, the M1 mitigation has to be applied before the M2 mitigation. We can imagine many cases of larger UAS, where shelter cannot be claimed on an intrinsic level, but an M2 mitigation is used which reduces the impact energy enough so that shelter is applicable. In such cases it should be possible not only to claim e.g. a -1 for M2 medium by critical area reduction, but an additional -1 for M1(A) low for sheltering. Please consider these cases and allow the possibility of a combination of M2 and M1 for sheltering.		Acknowledged	Both M1 and M2 can be use in an operation. Please refer to the updated Annex B for possibility of combining M1(A) and M2 usage.
306			32	731-736		In our experience with mostly larger UAS, the need for an operator to use Annex F to avoid an unfairly high iGRC based on the table (p.31, l.688) is not the exception but the norm. Here are a few examples from our fleet: Gyroplane ALAADy-Demonstrator (450 kg) - characteristic dimension: 8.4 m, cruise speed: 40 m/s Fixed wing transport aircraft (650 kg) - characteristic dimension: 9.5 m, cruise speed: 35 m/s Helicopter superARTIS (85 kg) - characteristic dimension: 3.2 m, cruise speed: 25 m/s Fixed wing Prometheus (30 kg) - characteristic dimension: 3.2 m, cruise speed: 35 m/s Fixed wing high altitude platform (HAP, 127 kg) - characteristic dimension: 27 m, cruise speed: 11 m/s The problem is, Annex F, as of now, is much to complicated for an operator (as well as for the competent authorities) to use. There are many assumptions made, and many cross-references make it hard to grasp all of them. The online-calculator is a great idea. However, it was almost impossible to us to use it in an easy way. Please provide a summary of Annex F, which includes all the assumptions that led to the iGRC table. This summary should be all that is needed for operators and authorities to assess their individual iGRC.		Acknowledged	Section 1.8 in Annex F was created to combine all the formulas in a step-by-step process.
307		Exsecutive Summary	13	150	Operator Manual	EASA Easy Access Rule says "Operation Manual", but SOAR 2.5 says "Operator Manual." Better to unify the naming.		Acknowledged	Operator Manual is no longer referenced, but the intent of the document is mentioned.
308		1.1	16	234	Target Level of Safety (TLOS)	Target Level of Safety (TLOS) is described only here. I doubt it is necessary to introduce TLOS concept.		Rejected	An explanation for TLOS is provided in the updated text. Although a high level description, it provides sufficient background info to understand what TLOS is, and how it relates to the SAIL concept and associated requirements in SORA.
309		1.5	24	492-498	Remote Pilot in Command, Remote Crew, Maintenance staff	Remote Pilot in Command, Remote Crew or Maintenance staff...is defined or named differently with EASA's definition. It causes confusion, it is better to unify if possible.		Accepted	Annx I definition has been amended
310		2.2.3	29	633-634	The operator manual can be a stand-alone document, or a collection of documents specific to the operator	In Manned aircraft aviation, Operation Manual describes the rule related to the regulation or the procedure of how to operate the aircraft. It should be the formal or public document which is established or organized by operator properly. Therefore, Operator Manual should not be a collection of documents specific to the operator.		Rejected	Operator Manual is no longer used in this way and now reflects the intent of the majority of comments (an operator centric document to operate a system). Please refer also to Phase 1 updated description, including required data to support the deriving of a preliminary SAIL and containment requirements.
311		2.3.1	31	678-680	d. UAS latencies (e.g. latencies that affect the timely manoeuverability of the UA), e. UA behavior when activating a technical containment measure (e.g. parachute deployment),	If possible, tell us more how to assess the risk with UAS latencies and UA behavior when activating containment measure and how to calculate these (the guideline how to culcurate).		Rejected	Text removed and put into Annex E to reduce duplication. Guidance outside the scope of SORA 2.5
312		2.3.1	31	681	f. UA performance	Please tell us more about UA performance specifically, what we should describe about this.		Rejected	A list was not included as it may include many factors and be UA specific.
313		2.3.1	32	706	the operator must justify the usage of the maps and show the reduction of risk.	What means "must justify the usage of the maps" and how ?		Partially accepted	Significant rework of the section was done to provide guidance on map usage.
314				687-688		The classification with only the characteristic dimension is not reasonable due to diffrent materials and structures.		Rejected	Different materials and structures would affect sheltering and lethality, which are mitigations. Incorporation of all the different factors into the model has been out of scope for this version of SORA.
315			13	141	UA	The words "UA" and "UAS" maybe could be unified to one.		Acknowledged	Text updated for consistency.

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316			13	149	Operator Manual	The Easy Access Rules refer to "Operation Manual". Before it was "ConOps". A unified name would be good.		Acknowledged	Operations/Operator Manual is no longer referenced, but the intent of the document is mentioned.
317			25	512	ground5e	Format		Accepted	Text updated
318			30	655	knowledge	The word is maybe to superficial. In line 700 the detailed approach is decribed.	Determination of the density of the population	Accepted	The word "knowledge" removed.
319		Executive Summary	13	121	This TLOS is defined for people and aircraft uninvolved in the operation and is commensurate with existing crewed aviation risks…	change to "manned" aviation. UAS ops are usually also "crewed" but by a remote crew	This TLOS is defined for people and aircraft uninvolved in the operation and is commensurate with existing manned aviation risks….	Rejected	Whilst unmanned aircraft may be remotely controlled or self-controlled by onboard computers. the term crewed aircraft / crewed aviation is more traditionally referring to onboard pilot,
320		Executive Summary	13	123	would not pose more risk to third parties than crewed aviation	change to "manned" aviation. UAS ops are usually also "crewed" but by a remote crew	would not pose more risk to third parties than manned aviation	Rejected	Since the term "unmanned" is extensively used in the Air Risk part / annexes, it has been decided not to change the terminlogy at this stage and consider it in SORA 3.0.
321	While this sentence explains an essence of SORA, it also sticks to the credo: Large UAS fly danggerous missions and small UAS fly harmless missions. The elegence of SORA is that also large UAS (e.g. on a closed test range) can fly harmless missions and small ones (e.g. over assemblies of people) can fly dangerous ones. Could we add this to the description, as it would make the concept to new readers much much clearer?	Executive Summary	13	139-142	This means a large UA operating in a high risk environment (example: over a large city near an airport) would have to demonstrate more to the regulator than a small UA operating in a low risk environment (example: at a closed test range and below 50 feet).			Accepted	Text updated to replace "small UA" by "same UA".
322	During the SRM workshop in May 2022 in Cologne we discussed that it is not reasonable to require operators to have an operations manual ready in Step 1. They first need to find out which SAIL they are in, and what they need to comply with. This paragraph does not refelct the discussions from Cologne and may lead to confusion with new applicants. We advise to change and describe that in Step 1 only basic information about the intended operation should be collected, e.g. - which UAS - overflown area - airspace of the operation - design of flight geography, contingency volume and ground risk buffer.	Executive Summary Step#1	13-14	150-157				Accepted	Description of Step 1 has been simplified and reformulated.
323	Not the flight path but the flight geography? Or do you intend to change it?	Executive Summary Step #1	13	150-151	The operator manual on one hand describes the UAS operator and the operation(s) that they intend to conduct (such as flight path information, type of airspace and overflown population density).			Comment	Description of Step 1 has been simplified and reformulated.
324	We recommend to call residual ARC final ARC as for the GRC. Both GRC and ARC are initially set and then reduced via strategic mitigations. Several operators were confused with this.	Executive Summary Step #7	14	197	SAIL (scaled from I to VI) is then determined using the information given in Step#1 and the outputs of Steps #3 (final GRC) and #5 (Residual ARC).			Rejected	Terminology kept for SORA 2.5 to allign with the Annexes that have not been updated. It may be rediscussed for SORA v3.0.
325	Step 10 is where you actually write the operations manual. We recommend to describe this here.	Executive Summary Step#10	15	217-223				Partially accepted	Text updated - reference is made to updated Annex A where all these details are provided.
326		1.1 Preface	16	234	the complexity of the operation, drone size, or	change drone to UA	the complexity of the operation, UA size, or	Accepted	Text updated
327		1.1 Preface	17	255	of all types of drones into all airspace classes	change drone to UA	of all types of UA into all airspace classes	Acknowledged	Text updated
328	Could you elaborate why you see this risk to be small? It is somewhat comprehensible based on traffic density of UAS, and the unavailability of UAS carrying passengers. But is there any data to support the claim that UAS to UAS collisions are unlikely today?	1.3 Applicability	17	287-288	The risk of collision between two UA or between a UA and a UA carryingpeople is currently deemed to be small and thus will be addressed in future revisions of the document.			Accepted	Text updated.
329	Sufficient procedures to correctly allocate operational volumes are part of a LUC in the EASA adaption. If generic authorizations should be possible in JARUS SORA, there should be additional guidance under which circumstances this is possible. How should sufficient procedures look like and how can these be checked? We may need an OSO covering this.	1.3 Applicability	18	312-313				Rejected	LUC is a European requirement. The to national/regional specificities are a responsibility of the NAA (EASA for EU).
330		1.4.1 Semantic Model	19	323-324	the remote crew is able to continue the management of the current flight situation, such	add: and has a functioning C2 link to the UAS	the remote crew is able to continue the management of the current flight situation and has a functioning C2 link to the UA, such	Rejected	Even in case of a "return to home" operation after a C2 link loss, the operation is considered to be in control.

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331		1.4.1 Semanctic Model	19	344-345	In the context of the semantic model, this includes situationswhere a UA has exited the operational volume and is potentially operating over or in an area of higher ground or air risk for which it is not suited.	add: loss of C2 link after having tried to reconnect without sucess.	In the context of the semantic model, this includes situations where a UA has exited the operational volume and is potentially operating over or in an area of higher ground or air risk for which it is not suited, or after losing the C2 link and after not being able to sucessfully recover the link.	Rejected	The C2 link is not always connected to a loss of control of the operation situation.
332		1.4.1 Semanctic Model	20	359-361	Containment is a function consisting of technical and operational mitigations that contain the flight of the UA within the defined operational volume and ground risk buffer.	this should not be iii. but point (d) as Containment should not be located in the context of the emergency procedures.		Accepted	Text updated.
333	We recommend to include an example like flight termination.	1.4.1 Semantic Model	19	352				Partially accepted	Example added as part of the emergency procedures
334	How is the size of the GRB related to the containment requirement? We currently use a ballistic approach for rotary-wing UAS or a 1:1 rule to determine the GRB. This computation is independent on the containment requirements in SORA 2.0. Containmet was triggered by the characteristics of the adjacent area and not the size of the GRB. While the triggers for enhanced containment were changed in SORA 2.5, the computaion of the GRB has not. So what is meant here?	1.41 Semantic Model	20	383-384				Acknowledged	The SORA model has been updated such that containment includes both the ability to remain within the contingency volume, and to terminate flight and remain within the ground risk buffer. Text has been updated to reflect this. See also the updated Step 8 (containment).
335	This description intents that the UA has to come to a full stop (after sliding/desintegrating after touching the ground) inside the Ground Risk Buffer. However computations for the GRB expressed later (like the ballistic approach) do not account for this. Assuming a ballistic descent, one would only compute the point where the UA touches the ground first.	1.4.1 Semantic Model	20	380-382	(e) The Ground Risk Buffer is an area on the ground that surrounds the footprint of the Contingency Volume. If an operation loses control in a way that the UA exits the Operational Volume, it shall be contained to end its flight inside the Ground Risk Buffer.			Rejected	The model already considers a large amount of conservativeness. For simplicity it was decided to reject the comment
336	We recommend to clearly include a terminology for the overall area of the operation, Flight Geography+Contingency Volume+Ground Risk Buffer. Currently Flight Geography and Contingency Volume form the Operational Volume. However, we frequently need to express the overall operational area including the GRB (e.g. for ground risk purposes). An terminology including the GRB would be handy.	1.4.1 Semantic Model	20	386				Rejected	Please refer to the iGRC footprint definition. To be further considered in v3.0.
337	Point (d) speaks of "robustness" but the description of the bullet points is for assurance only. This does not match.	1.4.2 How SORA measures risk mitigations - introduction to robustness	22	415-424				Accepted	Text updated accordingly.
338	The description of the CAA's competency to identify geo zones is out of context, when point (c) describes the operator. Should be put somewhere else.	1.5 Roles and Responsibilities	23	453-456				Accepted	Text updated and specific reference to geo-zones removed.
339	We recomment to be specific in step 10: 1. write the Ops manual 2. validate that the ARC- and GRC mitigations, TMPR requirements, OSOs, and containment by the SORA met with sufficient....	2.2 SORA Process Outline	26	540				Acknowledged	Step #10 has been rewritten to provide more clarity on its purpose (to compile the comprehensive safety portfolio), and what it should contain. This doesn't specifically mention the Operator/Operations Manual, but the information contained within it would be required to complete Step #10.
340	The first point should include designing the operational volume and ground risk buffer for the intended operation. Without this information, a consultation wit the CAA is not meaningful.	2.2.2 The phases of the SORA process	27	559				Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process.

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341	During the SRM workshop in May in cologne we discussed that it is not reasonable to require operators to have an operations manual ready in Step 1 as they first need to find out which SAIL they are in, and what they need to comply with. This paragraph does not refelct the discussions from Cologne and will lead to significant confusion with new applicants. We advise to change and describe that in Step 1 only basic information about the intended operation should be collected, e.g. - which UAS - overflown area - airspace of the operation - design of flight geography, contingency volume and ground risk buffer.	2.2.3 Step #1	28	584				Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process. Please refer also to Phase 1 updated description, including required data to support the deriving of a preliminary SAIL and containment requirements. There are no requirement to have an OM ready during that phase.
342	Experience has shown that compliance evidence is usually part of the annex of an operations manual. CAAs usually approve the operations manual, and do not want to approve a number of different individual documents. This does not mean that evidence could not be collected in external documents, which are referenced in the operations manual (nobody wants to have a 100 page test report in the ops manual itself). However, a compliance evidence document, really including evidences was not used by any operator that we authorized. What was instead used, was a compliance matrix, in which operators show which OSO/Mitigation is fulfilled in which chapter of their operations manual. But there was no "evidence" included in this matrix. Its purely for easy handling at the CAA.	2.2.3 Step #1	29	596-598	(c) The compliance evidence document only collects necessary evidence supporting theclaims of the risk assessment that do not form part of the operator manual, i.e. test data and evaluation.			Rejected	Operator Manual is no longer used in this way and now reflects the intent of the majority of commenters. The concept being discussed here is the Comprehensive Safety Portfolio using SORA terminology.
343	The version of Annex A including the form is not yet published.	2.2.3 Step#1	29	599-600	The risk assessment might be presented to the competent authority using the form in Annex A, section 3.	delete		Partially Accepted	References to Annex A have been corrected.
344	What does (h) mean? Should operators be allowed to write an operations manual where the CAA should only review parts of it? This is not acceptable for us as a CAA and may significantly increase worklod. We recommend to remove this paragraph.	2.2.3 Step #1	28	584	(h) The structure of the operator manual should allow the identification of the elements/sections verified by the competent authority and the elements/sections not verified. If needed, changes to the operator manual might have an applicability date.	delete		Accepted	This document is intended to provide requirements to satisfy the SORA process, not determine regulatory mechanism to approve SORA assessments. Text has been updated to indicate that the competent authority maydecide what should or should not be reviewed.
345	We believe, that a declaration must be part of the operations manual, as CAAs authorize the operations manual, not the compliance evidence file.	2.2.3 Step #1	29	627-628	If a requirement has a low robustness (ref. Section 1.4.2 How SORA measures risk mitigations - introduction on robustness), it is mostly sufficient to self-declare the compliance by a statement in the compliance evidence document.			Rejected	This document is intended to provide requirements to satisfy the SORA process, not determine regulatory mechanism to approve SORA assessments. Text has been updated to indicate that the competent authority maydecide what should or should not be reviewed. Statements of compliance form part of the compliance evidence, but not necessary of the operations manual, as this may not help the crew use their system.
346	Note for EASA version: Paragraph (j) must definetly be adapted to European needs. Different GRCs and ARCs etc require a different authorization. We thought this would also be the case within the JARUS framework?	2.2.3 Step #1	29	634-639	Any change with an impact on the SAIL determination may require prior approval by the competent authority.			Acknowledged	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.
347	We propose to delete this sentence. Several other changes like a new location, a new UAS, TMPR changes, OSOs depending on pop density (old 10,12), procedure changes, etc. also require prior approval. A new SAIL would usually trigger a completely new authorization and is not a good example here.	2.2.3 Step #1	30	642-643	Any change with an impact on the SAIL determination may require prior approval by the competent authority.	delete		Acknowledged	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.

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348	The list of point (c) v. most likely won't lead to a smaller ground risk buffer for several of the points like c., d., e. In such, the description here is not self-sufficient. When do we need to consider wind? When do we need to consider latencies? It is not clearly written if it is OK to use the 1:1 rule or for rotary wing a ballistic approach, and when one might deal with latencies or wind. Recommendation: - 1:1 is acceptable - ballistic is acceptable for rotary wing. - when parachute is used for flight termination, take parachute descent rate and wind drift into account. When an applicant want to use smaller values, justifications with computations, tests etc. is needed.	2.3.1 Step #1	30	670-681				Acknowledged	The text was removed from the Main Body and put into Annex E. Some guidance is included, but full analysis was outside the scope of SORA 2.5 and may be looked into for version 3.0.
349	Why do the GRCs for controlled ground increase with increasing UAS size? SORA analyses the risk a UAS operation poses to uninvolved persons. As per definition (see Annex I) in a controlled ground area, no uninvolved person can be present. When the controlled ground area encompasses Flight Geography, Contingency Volume and Ground Risk Buffer, then no uninvolved person can be harmed independent of the UAS size. Increasing the GRC for controlled ground with increasing UAS size is against this logic. We recommend to set the GRC over controlled ground to 1 irrespective of the UAS size. We had cases where companies wanted to test a >8m UAS in a military restricted area (controlled ground area) and ARC-a. This operation was automatically SAIL III, just because the UAS was larger than 8m. We do not believe this is meaningful.	2.3.1 Step #2	30	687 (GRC table)				Partially accepted	Partially Accepted, some increase in iGRC score was done for larger wingspans for additional risk, but none higher than iGRC of 3 (SAIL II)
350	We know that the new GRC table triggered lots of discussions in SRM, but that it is technically compliant to the background of Annex F. We do not want to challenge this. However, we as a CAA have several issues with applying the GRC table from both a practical and legal perspective. Practical perspective: We do not have reliable population density data available that allows to use the table. We know that there is open source data like the Global Human Settlement layer and other census data available. However, experience using a variety of the data has shown that the current data is by far not accurate enough to base very important quantitative decisions on it. The population density will ultimatly determine which SAIL an operation is in, and in the end, if it is possible for an operator to conduct an operation. We as a CAA are responsible for validating the correctness of a SAIL. This makes us ultimatly responsible for the safety of uninvolved people. At the same time, we know that the data which we feed in the model is not accurate enough, to	2.3.1 Step #2	30	687 (GRC table)				Acknowledged	Please refer to the area description added to the qualitative descriptors section.

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351	We find it difficult to use the words rural and urban here, because they are used for air risk as well. The terminology for population density between air risk and ground risk differes for good reason. Now these two terminologies are mixed, which can lead to confusion. Maybe you should use a different wording in the air risk determination, because the air risk does not directly depend on the population density (but for example also from the number of heliports in that area).	2.3.1 Step #2 Qualitative Descriptio n of population density	32	695				Accepted	The terms Rural and Urban were removed from the ground risk section.
352	What is meant here? Of course, maps will be required by the authority, as the authority has to validate that the operator chose the correct population density. The maps do not only need to be available to the operator. We recommend to clarify	2.3.1 Step #2	32	701-703	Step #2 needs to be done using the highest resolution static maps appropriate to the operation and available to the operator, unless maps for Step #2 are required by the authority.			Partially accepted	Section rewriten and guidance for map resolution now included in "Population density information" section.
353	The statement that the cell resolution should be approximately equivalent to the dispersion area of an operation is taken from data presented in the Flight Safety Analysis handbook of the FAA. This handbook concerns space rocket launch safety analysis. "The degree of resolution required depends on the amount of dispersion possible from a nominal trajectory. " This concerns the trajectory of rockets after a failure over a very very large area. It is doubtfull if this is transferrable to UAS in the specific category.	2.3.1 Step #2	32	703-704	Guidance in the Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation.	delete		Accepted	References to the handbook have been removed and specific guidance relevent to UA provided in "Population density information" section
354	What does that statement mean? What reduction of risk? If high resolution maps are available, why should the applicant argue about any reduction of risk when using it to determine the iGRC? The most accurate maps available should be used to determine the population density.	2.3.1 Step #2	32	706-707	If high resolution or dynamic maps are to be used, the operator must justify the usage of the maps and show the reduction of risk.			Acknowledged	Section rewriten and guidance for map resolution now included in "Population density information" section.
355		2.3.1 Step #2	32	711	the assurance that there will be uninvolved persons in the area of operation is under full responsibility of the operator	it must be "no uninvolved" persons	the assurance that there will be NO uninvolved persons in the area of operation is under full responsibility of the operator	Accepted	Change incorporated in the original text and then restructured.
356	The maximum possible commanded airspeed of the UA as defined by the manufacturer is a tight criterion for the 3m class using fixed-wings. Speeds of over 126km/h may be easily achieved with UAS in this category. Can we not change this to the maximum operational speed?	2.3.1 Step #2	32	712-715	The maximum cruise speed is conservatively defined as the maximum possible commanded airspeed of the UA, as defined by the manufacturer. This is not the mission specific maximum commanded airspeed of the UA as reducing the mission airspeed may not necessarily reduce the impact area.			Acknowledged	Please refer to M2 mitigation for cases where the maximum operational speed is intended to be used instead (provided that the appropriate justification exists).
357	This is rather unspecific. Annex F is a 94 pages document. Which exact formulars for critical areas are we talking about? Do we include obstacles or not, etc.? If it should be possible to compute according to Annex F, and this is stated in the main body, then there should be a clear link to the respective chapter (or formula no.) of Annex F.	2.3.1 Step #2	32	733-736	Therefore, an applicant may decide to calculate the actual critical area applying a mathematical model defined in Annex. If the calculated critical area corresponds to the critical area identified in Annex F for a UA of a smaller size, then the applicant may use the corresponding iGRC.			Accepted	Section 1.8 in Annex F was created to combine all the formulas in a step-by-step process.
358	This definition is not compliant to Annex I. Assemblies of people are defined in Annex I: "Area where persons are unable to move quickly away in case of a potential UAS crash due to the density of the people present." In such, an assembly of people can be well below 10,000 people.	2.3.1 Step #2	32	Footnot e No 7	7 An assembly of people is expected to be over 10,000 people, which is the minimum number of people needed to treat a grouping of people as an assembly of people).			Accepted	The footnote has been deleted.

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359	We understand point (b) in a way, that the computation of the distance of the adjacent area starts from the outer edge of the operational volume. So for example 3min cruise at 10m/s would be 1.8km - so take 5km. Now it says the inner limit of the adjacent area is the outer limit of the GRB (the GRB is not part of the adjacent area). So assuming the GRB is 500m, the actual size of the adjacent area is 4,5km, right? Please clarify, a drawing would be great.	2.3.2 Determination of the adjacent area size and adjacent area intrinsic GRC	33	741-749	(b) The lateral outer limit of the adjacent area is calculated from the operational volume as: 1. either the maximum range remaining of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume, or 2. the distance flown in 3 minutes at maximum cruise speed of the UA: 2.1. If the distance is less than 5 km, use 5 km. 2.2. If the distance is between 5 km and 35 km, use the distance calculated. 2.3. If the distance is more than 35 km, use 35 km. The inner limit of the adjacent area is the outer limit of the ground risk buffer (i.e. the ground risk buffer is not part of the adjacent area).			Accepted	Clarification added for the calculation of adjacent area and relation to the ground risk buffer. Picture explanation updated. "The lateral inner boundary of adjacent area is calculated from the ground risk buffer. So if the ground risk buffer is larger than the adjacent area, adjacent area does not exist. "
360	We recommend to delete this sentence as it will not lead to standardization. We now have a meaningful method to compute the adjacent area. So make it binding and do not introduce a backdoor for each applicant or each CAA.	2.3.2 Determination of the adjacent area size and adjacent area intrinsic GRC	33	753-756	(c) If the applicant or competent authority considers the previous criteria are not appropriate for determining the size of the adjacent area, the competent authority may ask for or accept an alternative means of calculating the adjacent area. The UA's inherent flight characteristics in a loss of control situation can be used to argue for a different size of the adjacent area.	delete		Accepted	We have removed the sentence.
361	Why 1km beyond the outer limits of the operational volume? Should that not be the outer edge of the GRB? Take a UA that flies 1200m high. The GRB with 1:1 would be 1200m. With the proposed definition to measure 1km from the ops volume, the "adjacent area" of this definition would be completely within the GRB. That does not really work, or are we misunderstanding something? Above it says that the adjacent area starts from the outer edge of the ground risk buffer. With the description here, we would also take assemblies of people into account that are within the GRB, and not in the adjacent area (but within 1km of the ops volume). This would mean that the UA would need to be authorized to fly over assemblies of people anyways. How is that necessary for estimating risk in the adjacent area, when the GRB is not part of the adjacent area?	2.3.2 Determination of the adjacent area size and adjacent area intrinsic GRC	33	762-765	1.2. Identify potential locations for non-sheltered assemblies of people 1km beyond the outer limits of the operational volume during the time of operation. If the adjacent area has assemblies of people then assign the following average population density:			Acknowledged	The reason to calculate the adjacent area from the operational volume is to ensure that there is a maximum extent to which an area will be assessed and the area to assess will not simply grow endlessly. Also alignment with the adjacent airspace definition was sought. The 1 km maximal limit for assessing assemblies of people is set to limit the area where a credible impact to an assembly of people could happen. It is a good point that after operations volume exceeds the altitude of 1 km the assessment of assemblies of people in the adjacent area will disappear. This was intentional. Additional clarification has been added. Adjacent area definition: "The adjacent area is the ground area adjacent to the ground risk buffer. The outer limit is calculated starting from the operational volume outwards. The ground risk buffer does not become part of the adjacent area."
362	The concept of the "average population density" is a key concept for the adjacent area and needs further explanation. How do we compute the "average population density" if the adjacent area is an arbitrary shape (depending on the shape of FG/CV) and has rural areas in it, but also a city? Are we supposed to make a geometric average of an arbitrarily shaped adjacent area? This would require a numeric approach. One would need to divide the adjacent area into small pieces, take the pop density of each piece and build a geometric average. We do not believe that this is practically possible for operators and CAAs. It would significantly increase workload and require dedicated software tools. Could you please elaborate what we should do here and which tools we can use to make the necessary computations?	2.3.2 Determination of the adjacent area size and adjacent area intrinsic GRC	34	786-789	(h) For the adjacent area, the operator is not approved to plan flights in this area and will only reach the adjacent area in the event of a loss of control and fly away event. In that situation, the direction and duration of the fly away is assumed to be random, thus the average population density used.			Acknowledged	Each authority would be required to identify the methodology. An authority may define guidelines for a service providing such information, identifying also all parameters

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363	Is this really desired in terms of safety or standardization? The SRM group composed of experts from around the world argued months and years until reaching consensus for Annex B. This is basically the waiver to any CAA to integrate other mitigations on their own. How is that justified in terms of reaching the TLOS? We recommend to delete the sentence.	2.3.3 Step #3	34	801	Competent authorities may define additional mitigations and the relative correction factors.			Acknowledged	It is not foreseen that there will be many custom country specific mitigation, but is also not necessary to prevent such if a country finds something that could not fit or was not considered into current recommendations.
364	What is that, is high robustness 2 or 3?	2.3.3 Step #3	35	805	Mitigation table			Acknowledged	The High+ -3 mitigation level has been removed from the table. As a general principle, applicants may show to authorities higher performance evidence for any mitigations to justify increased reductions.
365	This is not acceptable for us as a CAA. We have to make sure that an applicant fulfills the requirements for a mitigation described in Annex B, otherwise we cannot grant that mitigation. CAAs are usually legally bound to that process. Annex F cannot heal ground risk mitigations of Annex B, but can be used to more precisley compute the critical area of a UAS. This may be used in special cases where the iGRC table does not match due to an unusual configuration. But it is not a way to heal non-fulfillment of Annex B mitigations.	2.3.3 Step #3	35	825-828	(g) If an applicant has multiple partial mitigations that do not meet the criteria within Annex B individually, but when taken together achieve cumulative order(s) of magnitude reductions, the applicant can work with the Competent Authority and use the process described within Annex F to justify a reduction of the final GRC score.			Rejected	Multiple partial mitigations achieving an order of magnitude effect are considered a valid way to reduce risk. Local implications with legal systems are not part of JARUS recommendations.
366	We create a legal problem for CAAs here: Several aspects and requirements of ground risk mitigations are not only part of Annex B, but also of Annex F. (E.g. requirements for accepting M1(B) - clear visibility of flight area etc.). At least for a few aspects, the information in Annex F are of crucial importance to understand what operators need to complay with, and under which circumstances the mitigation is acceptable. Example: An applicant wants an M1(B). He argues that he fulfills everything stated in Annex B. The CAA now says stop, we know in Annex F, there are some additional requirements for the mitigation, that are not written in Annex B. Please fulfill them as well. The applicant says no, because he argues that he fulfills integrity and assurance requirements from Annex B and that is enough. He is right and the authority has no legal means to force him to comply with the aspects of Annex F. Even though, they are of utmost importance for a correct application of the mitigation. This leads to cases where applicants incorrectly	2.3.3 Step #3	35	834-835	(i) Additional guidance on commonly used mitigations can be found in the following documents: i. Sheltering as a reduction of people at risk in M1(A) in Annex B11 ii. Visual Line of Sight as a strategic and tactical mitigation in M1(B) in Annex B iii. Multirotors and their reduced critical area in M2 in Annex B and Annex F			Accepted	Annex B and Annex F content have been aligned on mitigations. There are no additional requirements in Annex F.

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367	An M2 based on frangibility that the operator also uses within the ops volume and GRB may also be used in the adjacent area as an M2. This is reasonable. We suspect that the argument why an M2 parachute should not be used, is that we expect a loss of control when the UAS leaves the ground risk buffer. Therefore, the parachute release could not be guaranteed (as control was lost). Is that correct? If so, please elaborate: A parachute system designed for usage within the ops volume/GRB as an emergency system, should also work in a loss of control situation which might happen within the ops volume. It could be a system triggered by an internal IMU of the parachute system. Why should an applicant not take credit from this over the adjacent area?	2.3.4 Determination of final adjacent area GRC	36	839-842	ii. M2 mitigations based on passive designs or inherent UA characteristics, like 841 frangibility, may be used to lower the adjacent area intrinsic GRC. M2 mitigations like 842 parachutes or special descent manoeuvres may not be used by default.			Acknowledged	Please refer to the containment requirements that have been significantly rewritten.
368	Why can an M1 based on sheltering claimed in the adjacent area without further justification? One needs evidence available to claim shelter according to M1(A), but not for the adjacent area? There can be cases within a city where shelter may be used for FG/CV and GRB but the adjacent area is a park where shelter does not work. How should this be handled?	2.3.4 Determination of final adjacent area GRC	36	839	i. M1 for using the 839 assumption of sheltering;			Acknowledged	Please refer to the containment requirements that have been significantly rewritten.
369	We believe it is not a good idea to do the adjacent area computations under Step #2/3. The adjacent area computations do not have to do anything with the GRC computation of the operation, but are exclusively used for containment (Step #8). Computing the adjacent area GRC, and using (different) mitigations in the adjacent area in the same step will probably confuse applicants. We recommend to shift the adjacent area related parts to Step 8, where we actually need the data. If M1 shelter works all the time, one could just make a new table in Step 8 that should only be used in this step. This table could also include the aspects of assemblies of people within 1km.	2.3.4. Determination of final adjacent area GRC	35-36	836-847					Containment is now condensed into Step #8.
370	This is not correct. Tactical mitigations work during the operation (TMPR). These are not used to lower the ARC, but to comply with the DAA requirements of the residual ARC. Only strategic mitigations are used to lower the ARC	2.4.1 Air Risk Process Overview	36	852	The ARC may be modified/lowered by applying strategic and tactical mitigation means			Acknowledged	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.

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371	We do not agree, that operations at very low altitude automatically qualify as ARC-a. There is a significant difference to operations close to obstacles and these two options should not be treated together. Operations at very low level: Even though the general traffic density at very low altitudes is marginal, there could be landing HEMS and landing sailplanes who are explicity allowed to fly at very low altitudes. An ARC-a relieves an operator from performing any kind of DAA. Imagine a UAS flying over a field and a HEMS would like to land. The UAS would not be required to perform any DAA, in fact, the UAS would not even need to be able to detect the helicopter, which we consider quite dangerous. So in general, we believe that just flying at very low altitudes should not qualify as ARC-a. It would be much more beneficial for most applicants if one would change operations <500ft over urban area from being ARC-c to ARC-b, instead of arguing where we may have ARC-a at VLL. Operations close to obstacles:	2.4.1 Air Risk Process Overview	37	911-913	Examples may include operation in reserved or restricted airspaces, or operation at very low altitudes (including in close proximity to obstacles) where manned aircraft generally do not operate.			Partially accepted	The wording is meant to say that operations at very low level may be considered as atypical, however not necessarily valid in every case. Text updated.
372	As for adjacent GRC, we recomment to shift this section to Step #8	2.4.2.2 Determination of adjacent airspace size	38	920-939					Containment is now condensed into Step #8.
373	The case maximum achievable altitude is not covered in the text	2.4.2.2 Determination of adjacent airspace size	38	933 Figure 8				Accepted	We have removed airspace containment by setting the minimum containment requirement to "low". Separate Airspace containment will be discussed in the Explanatory Note and might become part of the future Annex G (Air Risk Model)
374	We need much more guidance on this, otherwise the mitigation is rather arbitrary. Annex C requires to show that the generalised density rating of the ops volume is in fact lower than assumed initially. How can VLOS reduce the generalised traffic density to that of another AEC? What is a considerably low time of exposure? Seconds, minutes, hours? Referencing to a future version of Annex C is not a real solution to CAAs, as we need information on how to apply the mitigation now.	2.4.3 Step #5	39	950-952	(d) The strategic mitigation by operational limitation (restriction by boundary and chronology) may be used to reduce the air risk by one class in the case of VLOS operations with a considerably low time of exposure13.			Acknowledged	Text has been updated to clarify the intent of the mitigation. The assumption is that by applying VLOS both before and during the complete duration of the operation, the crew has the ability to assess the other aircraft activity in the airspace and therefore is able to lower the encounter rate

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375	We of course agree that VLOS is an acceptable TMPR. However, should the possibility to use it as TMPR not also depend on the visibility? We introduced two new definitions: 1. ALOS=The Attitude Line of Sight defines the maximum distance up to which a remote pilot can detect the position and orientation of the UAS. Up to this limit, the remote pilot is able to control the flight path of the UAS, and is able to determine the attitude and position of the UAS. 2. DLOS= The Detection Line of Sight defines the distance up to which other aircraft can be visually detected, and sufficient time is available for an avoidance maneuver. The ground visibility is crucial for this. We also created an image showing how ALOS and DLOS change with changing visibility conditions. In our opinion the descriptions of what VLOS is do not cover visibility conditions sufficiently at the moment. From the image on the right hand side it should be clear, that VLOS crucially depends on the visibility conditions. In line with this, VLOS does momentarily not include a detection area and an alerting theshold as for	2.4.4.1 Operations under VLOS/EVLOS	40	965	VLOS is considered an acceptable Tactical Mitigation for collision risk for all ARC levels. Notwithstanding the above, the operator is advised to consider additional means to increase situational awareness with regard to air traffic operating in the vicinity of the operational volume			Acknowledged	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0
376	Rewording recommended: An authorization will either be in VLOS or BVLOS. If parts of the operation are in BVLOS, then a BVLOS operational authorization is required. Nevertheless, visual observation may still be used as a TMPR for parts of the flight where this is possible. But in general this is not a VLOS flight, it is just that visual observation fulfills TMPR.	2.4.4.1 Operations under VLOS/EVLOS	40	968-971	(b) Operational UAS flights under VLOS do not need to meet the TMPR, nor the TMPR robustness requirements. In the case of multiple segments of the flight, those segments done under VLOS do not have to meet the TMPR nor the TMPR robustness requirements, whereas those done BVLOS do need to meet the TMPR and the TMPR robustness requirements			Partially accepted	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Following paragraph has been removed as it was leading to confusion -"Operational UAS flights under VLOS do not need to meet the TMPR, nor the TMPR robustness requirements"
377	Why can this depend from the strategic mitigations alone (the term "or" suggests this)? It depends from the final ARC and therefore the initial ARC AND the strategic mitigations.	2.4.4.1 Operations under a DAA System	41	990-991	(b) High TMPR (ARC-d): This is airspace where either the manned aircraft encounter rate is high, and/or the available Strategic Mitigations are Low.			Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
378	Given the new GRC table of Step#2, flying close to a city with > 2500ppl/km² will trigger GRC =8 for UAS >3m as adjacent area GRC. With shelter being accepted (-1) we end up with high containment for UAS >3m (in case the adjacent area GRC=7). We understand that the effect will diminish, when the overall average population density of the adjacent area is used, because the average population density will probably be below <2500ppl/km² (assume e.g. the city is only on the left side of a quadratic operational area). The math is correct here and we do not want to challenge this. However, for us as an authority it is unclear how we should compute the average population density of the overall adjacent area. The adjacent area especially for long range operations is huge. It might look very different in several parts and we would need to average over a very large area. This is not a computation we could do by hand. If such quantitativly strict requirements are imposed by the SORA, we need	2.5.2 Step #8	43	1069 (Table)				Acknowledged	See comment #362 and #183.

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379	We have put together a variety of test cases where we compare typical UAS operations between SORA 2.0 and SORA 2.5 up until the SAIL determination. We found that for some occurences the SAIL in SORA 2.5 is higher, even using the newly available mitigations. This should not be the case. Additionally, the change in assurance of M1(A) made this mitigation more conservative. We will attach these cases to the CRD.	2.5.3 Step #9	44	1093				Acknowledged	The comment has been considered during the update after the external consultation.
380	It is not tolerable for a CAA, that the level of robustness is only "recommended". This leaves the door wide open to not apply an OSO, beacuse it is just "recommended" This should be binding!	2.5.3 Step #9	44	1102-1104	ii. L is recommended with Low robustness, iii. M is recommended with Medium robustness, iv. H is recommended with High robustness.			Rejected	The JARUS SORA is providing guidelines and cannot impose legal requirements. This is under the responsibility of each local/regional competent authority to define.
381	We encourage to clearly state, that this is the point for an operator to really write the operations manual, given he now knows all requirements he needs to fulfill from the previous steps.	2.6 Step #10	47	1117				Partially Accepted	The SORA main body does not specify the writing of an Operations Manual. The text has been updated to clarify that operational compliance evidence is part of the CSP, and references to Annex A are throughout Steps #1 and #10, which provides an Operations Manual template.
382		Levels of automation	17	283	"The methodology is designed to be applicable to all levels of automation."	Add a reference for "levels of automation". > Or add a definition in Annex I? (see comments on "Automation" and "Automated UA" addition in Annex I comments)	*Add a footnote for "levels of automation" refering to an official definition.* *https://web.archive.org/web/20160206104148/http://www.dtic.mil/dtic/tr/fulltext/u2/a515926.pdf* *https://www.easa.europa.eu/en/faq/116449*	Rejected	Please refer to the JARUS automation concept paper for further guidance.
383		Unclear sentence	19	342	";or when there is imminent grave and imminent danger fatalities among uninvolved persons"	Sentence makes no real sense in english (Cross-checked with a native speaker). "Imminent" repetition + "grave". Use of grave is quite weird here since refering to fatalities, which are by default quite "grave"… ;-)	";or when there is **an** imminent ~~**grave and imminent**~~ danger **of** fatalities among uninvolved persons"	Accepted	Text updated and the complete sentence has been removed for clarity.
384		Loss of control: Flight termination vs Flight cessation	19	345	"loss of control" state is also entered, if a UA loses flight control and crashes or if a flight termination sequence is executed, even if this happens inside the operational volume."	The "loss of control" aspect should be emphasized to highlight the difference in term of flight control states: Flight termination (Emergency : e.g. parachute) vs Flight cessation (Contingency: e.g. immediate landing function for which the UA is still under control) > See line 339 "[…], or allow safe cessation of the flight"	"loss of control" state is also entered, if a UA loses flight control and crashes or **if a UA loses flight control** and flight termination sequence is executed, even if this happens inside the operational volume."	Acknowledged	See updated paragraph 2.3.2.
385		Typo	20	400	"Loss of control of the operation (*)"	No footnote linked to the star	*Add footnote or remove star*	Accepted	Text updated
386		Competent third party	23	443	"(b) Applicant – The applicant is the party seeking operational approval. The applicant must substantiate the safety of the operation by performing the SORA. Supporting material for the assessment may be provided by third parties (e.g. the manufacturer of the UAS or equipment, UTM service providers, etc.)."	In line with point (f) Competent third party, specify that the applicant may not necessarily be the operator, since the latter may not have the required competencies. The third party being designated either by the operator or the Competent authority.	"(b) Applicant – The applicant is the party seeking operational approval. **The applicant may be the operator itself or a competent third party designated by the operator or the Competent Authority.** The applicant must substantiate the safety of the operation by performing the SORA. Supporting material for the assessment may be provided by third parties (e.g. the manufacturer of the UAS or equipment, UTM service providers, etc.)."	Rejected	The applicant must be the operator since then it will become responsible for conducting the operation. If the operator does not have enough competencies, they cannot apply for an operational authorisation.
387		Wording	23	447	"(c) Operator – The operator has received an operational approval from the competent authority. It allows the operator to perform a series of flights, provided that they are performed in accordance with the operational approval, based on the SORA compliance demonstration."	Align wording with paragraphs (b) and (c) which are starting with "[xyz] is the party which […]".	"(c) Operator – The operator **is the party which receives** ~~**has received**~~ an operational approval from the competent authority. It allows the operator to perform a series of flights, provided that they are performed in accordance with the operational approval, based on the SORA compliance demonstration."	Accepted	Text updated.
388		Remote operative vs Remote pilot	24	492	"(i) Remote Pilot in Command – The remote pilot that is designated by the operator as being in command and charged with the safe conduct of the flight."	"Remote pilot" is restrictive given the number of new assignments/jobs emerging with regards to increasing automation. In some case we cannot even speak anymore of a remote pilot per se (No drone handling, just clicks and basic actions).	"(i) Remote Pilot **/ Operative** in Command – The remote pilot **/operative** that is designated by the operator as being in command and charged with the safe conduct of the flight."	Rejected	The notion of the remote pilot may have legal implications. Unless the drone is approved to be operated without human intervention (autonomous) the remote pilot is usually expected to have responsibility for the flight.
389		Wording	27	546	"(a) Before starting the SORA process, following aspects should be verified:"	Insist on the recommendation right at the start of the sentence	(a) **It is highly recommended that** Before starting the SORA process, following aspects ~~**should be**~~ are verified:"	Rejected	Under the new structure, the category "R" indicated what is expected from an applicant.
390		Compliance evidence documents	29	596	"(c) The compliance evidence document only collects necessary evidence supporting the claims of the risk assessment that do not form part of the operator manual, i.e. test data and evaluation."	Due to the sometimes critical embedded information (IP, technical competitive edge, etc.) it should be possible that such data is provided directly to the Competent Authority by the drone manufacturer.	"(c) The compliance evidence document only collects necessary evidence supporting the claims of the risk assessment that do not form part of the operator manual, i.e. test data and evaluation. **Due to sensitive content it may be provided directly to the competent authority by the UA manufacturer**"	Rejected	The JARUS SORA guidance is intended to provide the necessary safety requirements to be met given the ground and air risk assessments. Whilst important, IP considerations are outside the scope of this document.
391		Wording	30	642	"[…] changes introduced should be properly traced."	Trace > backward action from end to start Track > forward action from start to any end Tracking allows tracing ;-)	"[…] changes introduced should be properly tracked."	Partially Accepted	Text updated to mention version control.
392		iGRC	30	651	"(a) The intrinsic UAS ground risk relates to the risk of a person being fatally struck by the UAS (in the case where the UAS operation is out of control) absent any mitigations being present"	" absent any mitigations being present". Wording is unclear/confusing. Proposed correction is based on the sentence meaning assumption.	"(a) The intrinsic UAS ground risk relates to the risk of a person being fatally struck by the UAS (in the case where the UAS operation is out of control) **in the absence of any mitigation**"	Acknowledged	This sentence was removed for readability as it was duplicating information.
393		External reference missing	30	654	"(b) To establish the intrinsic GRC (iGRC), the applicant needs the max UA characteristic dimension (e.g. wingspan for fixed wing, blade diameter for rotorcraft, max. dimension for multi-copters, etc.), the maximum cruise speed and the knowledge of the maximum population density intended to be flown over."	It would be great to seize the opportunity of SORA 2.5 to provide a method or a reference to a method for drones measurements. If some may sound easy some others (e.g. multicopters) are way less trivial. The max size in the case of a multicopter or medium size rotorcraft sounds less important than the main body mass where lies the maximum risk of fatality due to its potential energy (While a VTOL fixed-wing may embed more risk with its wings & engines attached to it…).	*Provide a reference towards a UA measurement method.*	Accepted	Guidance provided in section 4.2.4 for how to determine Intrinsic UA Characteristics

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394		Population density	30	656	"(b) To establish the intrinsic GRC (iGRC), the applicant needs the max UA characteristic dimension (e.g. wingspan for fixed wing, blade diameter for rotorcraft, max. dimension for multi-copters, etc.), the maximum cruise speed and the knowledge of the maximum population density intended to be flown over."	As highlighted by many attendees during the SORA 2.5 workshop having the "knowledge" of population density is extremely random. Depending on the tool (e.g. EU Global Human Settlement vs countries available local ones) discrepancies in granularity can be extremely high and detrimental to drone operations depending on which tool a NAA decides to favor. Additionally the qualitative descriptors are detrimental compared to SORA 2.0 (see other comments related to line 691 and 702) IMPORTANT NOTE: Population density based on cell phones identification can be pretty much unreliable due to the fact that more & more people now have two cells phones: a professional and a personal one. And no phone operator will have means nor the right to make such a distinction (GDPR, etc.)	"(b) To establish the intrinsic GRC (iGRC), the applicant needs the max UA characteristic dimension (e.g. wingspan for fixed wing, blade diameter for rotorcraft, max. dimension for multi-copters, etc.), the maximum cruise speed and the **best** knowledge of the maximum population density intended to be flown over. **In the case of discrepancies of information between different tools or absence of data for the considered site, adjacent areas information (i.e. tiles) shall not be considered (potential high differences) and a specific assessment shall be conducted instead and using other means (Enquiry to City Hall, declared number of employees at site, etc.) to ensure an accurate evaluation of the overflown area."**	Rejected	In absence of quantitative data, the qualitative descriptors and area descriptions are expected to be sufficient to make an iGRC determination.
395		Population density	30	668	"iii. The maximum population density in the area;"	*Same remark as previous point*	*Same remark as previous point*	Rejected	Please refer to Annex F guidance for overflying small areas of higher population density.
396		Max UA Characteristics & iGRC table	31	687	Max UA characteristics dimension	When the typical kinetic energy from SORA 2.0 has been replaced by the Max cruise speed the UA characteristics have not been updated accordingly. When looking at the trend between Speed steps ratios and UA size steps ratios it is perfectly linear except for the first row which makes the iGRC detrimental for drones of sizes between 1m and 2m: 40m / 20m = 2 and 200m/s / 150m/s = 1.33 and gives a ratio between the two of 2/1.33= **1.5** 20m / 8m = 2.5 and 150m/s / 75m/s = 2 and gives a ratio between the two of 2.5/2 = **1.25** 8m/3m = 2.6 and 75m/s / 35m/s = 2.14 and gives a ration between the two of 2.6/2.14 = **1.2** 3m/1m = 3 and 35m/s / 25m/s = 1.4 and gives a ratio between the two of 3/1.4 = **2.14 !!! (should be below 1.2)** The first row Max UA Characteritics dimension should logically be adapted to match a consistent increase. Based on a ratio of for example 1.15. this would make 1.4*1.15= 1.61 and 3m/1.61 = 1.86m	**Update Max UA Characteristics first row to 1.8 or 2m**	Rejected	To maintain consistency with previous versions of SORA, the max UA characteristics were held as consistent as practical.
397		iGRC Qualitative descriptors	31	691	"(g) In the event that population density values are not available or an authority would rather use qualitative descriptors for the iGRC Table, the following approximations can be used as guidance:"	The qualitative descriptors (to be used in case of absence of data) are detrimental compared to SORA 2.0. For example Sparsely Populated in SORA 2.5 ("<250" row) gives respectively for 1, 3 and 8m UAs the following GRC: 4, 5 and 6 While in SORA 2.0 the Sparsely Populated rows respectively give: For VLOS: 2, 3, and 4 For BVLOS: 3, 4, and 5 Which means an additional point for any configuration...	*SORA 2.5 qualitative table shall be reworked to keep alignment with SORA 2.0 which was not pointed at as showing deficiencies with regards to that matter.*	Rejected	The new table is considered to reflect more accurately the ground risk model and it is expected that some mitigations are easier to apply than in versoin 2.0, resulting in many similiar SAIL scores.
398		Population density	32	702	"(i) Determining the population density to calculate the iGRC in Step #2 needs to be done using the highest resolution static maps appropriate to the operation and available to the operator, unless maps for Step #2 are required by the authority. Guidance in the Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation8. Competent authorities may require specific maps to be used for determining population densities. If high resolution or dynamic maps are to be used, the operator must justify the usage of the maps and show the reduction of risk. See Annex F for additional information."	The statement "Guidance in the Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation8" seems not relevant/useful since the FAA FSA Handbook was developed for space operations and even if it claims to be quite generic (the intrinsic differences of rockets vs drones both in terms of design/materials and operations are quite substantial). The tempered FAA statement within the referenced document "In **general**, the size of the potential impact dispersions and the potential individual risks serve as a good **guideline** for the resolution of the population characteristics" lowers even more the relevance of the proposed method. Furthermore considering some UA very small dispersion areas (e.g. Less than 10sqm) no tool will be able to provide such a level of granularity. Suggestion is then to simply remove the comment.	"(i) Determining the population density to calculate the iGRC in Step #2 needs to be done using the highest resolution static maps appropriate to the operation and available to the operator, unless maps for Step #2 are required by the authority. Guidance in the ~~**Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation8**~~. Competent authorities may require specific maps to be used for determining population densities. If high resolution or dynamic maps are to be used, the operator must justify the usage of the maps and show the reduction of risk. See Annex F for additional information."	Accepted	Added additional guidance in the "Population density information" section and suggested optimal grid sizes in Table #4
399		iGRC mitgiations	32	717	"(l) The GRC is found at the intersection of the applicable maximum population density and the column matching both the max UA characteristic dimension and the maximum cruise speed expected. In case of a mismatch between the Max UAS characteristic dimension and the maximum cruise speed, the applicant should choose the left most column that meets both criteria or provide substantiation for the chosen column."	The second sentence makes no sense and has to be corrected: **"In case of a mismatch** between the Max UAS characteristic dimension and the maximum cruise speed, **the applicant should choose the left most column that meets both criteria** or provide substantiation for the chosen column." If there is mismatch, it's therefore impossible to meet both criteria! ;-)	*Impossible to propose an alternative since the intent of the sentence cannot be understood.*	Acknowledged	Sentence was updated to remove "mismatch" and associated language.
400		Adjacent airspace size definition	33	742	"1. either the maximum range remaining of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume, […]"	Precision missing regarding the drone state (e.g. at full battery charge / which is still likely to be a rare case due to battery life and 100% charging being therefore remote)	"1. either the maximum range remaining of the UA once it leaves the operational volume, **with its full charge/fuel capacity**, if it is less than 5 km from the edge of the operational volume, […]"	Partially accepted	The word "remaining" has been deleted, in accordance with comment #639 (Remaining range would be dependant on many parameters and at what stage of the flight it leaves the operational volume.)
401		Population density	34	776	"(f) Conservative simplifications for calculating the average population density should be accepted to allow more practical calculation means."	Comment is too vague and does not provide any lead to what could be the mentioned simplifications.	*No proposal since, further information is missing*	Accepted	We have updated the sentence to provide more clarity. Also, this is now only relevant to the internal operator processes as containment has been simplified in the final doc version.

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402		iGRC mitigations	34	793	(b) The mitigations used to modify the intrinsic GRC have a direct effect on the safety objectives associated with a particular operation, and therefore it is important to ensure their robustness	It is acknowledged that the M3 ERP mitigation removal makes perfect sense. However another M3 must be considered: employees' awareness which actually significantly reduces the risks for people. We have a concrete example of a company which established a specific awareness/training session for any employee due to enter a site where a drone is operated (drone location, paths, missions, how it behaves in case of issue and how employees should behave). All these actions do take place before the crash itself and by that concur to enhance local safety compare to a site where such awareness is not taking place (also echoes "operator's operational safety culture" see line 612, page 19). Non-involved people may therefore be considered as involved persons (informed of the risk as per footnote 5 page 25)	Insert another line in the table of mitigations as follows: M3 - UAS Awareness Safety Training (for initially non-involved people at site of operations) Low: -1 Medium: N/A High: N/A	Acknowledged	The suggestion would be part of the OSOs and enhanced reliability of the remote crew.
403		iGRC mitigations	36	845	"(c) Mitigations whose failures would lead to a fly away scenario should not be given credit12." and footnote "12 For example, if the flight termination system triggers a parachute, in the event of a fly away, it is assumed the parachute system has failed, unless proven otherwise by the applicant."	Unclear… If the parachute was triggered, it is actually that it worked and was initiated to avoid further fly away. Not consistent with Annex E Page 45 - High Integrity Criterion #4 – GRC Buffer containment which states "Example methods of achieving this may include: an independent Flight Termination Systems (FTS), that will initiate the end of the flight, when exiting the operational volume;"	**Remove footnote #12 which is not consistent.**	Partially accepted	The sentence has been rephrased for clarification: "(c) Mitigations whose failures would lead to a fly away scenario should not be given credit12." replaced by "If a failure of an M2 GRC mitigation would lead to a malfunction of flight termination resulting in a fly away scenario, this mitigation cannot be used for computing the adjacent area final GRC". This is now part of the alternative method to be found in Annex F.
404		Tactical Mitigations	36	857	"(b) Tactical mitigations take the form of detect and avoid systems or alternate collaborative means, such as ADS-B, Systems transmitting on SRD 860 frequency band, UTM/U-Space services or operational procedures. Depending on the residual risk of mid-air collision, the Tactical Mitigation Performance Requirement(s) may vary."	One should specify ADS-B in only (ADS-L Not yet standardized) https://www.youtube.com/watch?v=EAK6E2eRmhg https://www.easa.europa.eu/sites/default/files/dfu/ads-l_4_srd860_issue_1.pdf	"(b) Tactical mitigations take the form of detect and avoid systems or alternate collaborative means, such as **ADS-B out (waiting for ADS-L to be standardized),** Systems transmitting on SRD 860 frequency band, UTM/U-Space services or operational procedures. Depending on the residual risk of mid-air collision, the Tactical Mitigation Performance Requirement(s) may vary."	Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
405		Typo	37	884	"(a) As seen in Figure 5,"	Typo > Figure 7, not 5	"(a) As seen in Figure 7,"	Accepted	Text has been updated.
406		SORA 3.0	37	892	Figure 7 "OPS in Airport/Heliport Environment" + "OPS in Class B, C or D Airspace?"	Probably more a remark for SORA 3.0 The Class D / CTR case leading to Arc-D can often be way too prescriptive considering the actual risk : this is due to the size of CTRs. CTR can have very large size (over 15/30km distance between the A/P and the CTR's edges) making an encounter with A/C taking off and landing improbable especially for flights conducted below 400ft. For other A/C navigating within the CTR, they must have a radio contact with the TWR which means that they can be made aware of specific drone activities. Therefore, the Arc-d should only be considered within a given distance of the A/P, considering Take-off and landing axis, and major A/C pathways around the A/P, and a lower Arc considered for the same airspace when at a given distance and flying a low or very low altitude. EU 2019/947 states "As it is not possible to anticipate all local situations, the UAS operator, the competent authority and the ANSP should use sound judgement with regard to the definition of the 'adjacent airspace' as well as the 'adjacent areas'. For example, for a small UAS with a limited range, these definitions are not intended to include busy airport/heliport environments 30 kilometres away. The airspace bordering the UAS volume of operation should be the starting point of the determination of the adjacent airspace. In exceptional cases, the airspace beyond those volumes that border the UAS volume of operation may also have to be considered."	To be considered as input for SORA 3.0 WG	Acknowledged	Comment to be considered as part of the work on SORA 3.0.
407		Atypical Airspace	38	908	"(e) ARC-a is defined as airspace where the risk of collision between a UAS and manned aircraft is acceptably low without the addition of any tactical mitigation. This is usually the case, when it can be generally expected, that no manned aircraft use the airspace volume intended for the operation. Examples may include operation in reserved or restricted airspaces, or operation at very low altitudes (including in close proximity to obstacles) where manned aircraft generally do not operate. A competent authority may also designate parts of their airspace as atypical. ARC-b, ARC-c, ARC-d are generally defining airspace with increasing risk of collision between a UAS and manned aircraft."	Instead of ARC-a specifically mentioned "Atypical Airspace"	"(e) ~~ARC-a~~ **Atypical Airspace (leading to ARC-a classification)** is defined as airspace where the risk of collision between a UAS and manned aircraft is acceptably low without the addition of any tactical mitigation. This is usually the case, when it can be generally expected, that no manned aircraft use the airspace volume intended for the operation. Examples may include operation in reserved or restricted airspaces, or operation at very low altitudes (including in close proximity to obstacles) where manned aircraft generally do not operate. A competent authority may also designate parts of their airspace as atypical. ARC-b, ARC-c, ARC-d are generally defining airspace with increasing risk of collision between a UAS and manned aircraft."	Partially accepted	Text updated
408		ARC-d	41	999	"[…] If operations in this airspace *(Commenter note> ARC-d)* are conducted more routinely, the competent authority is expected to require the operator to comply with the recognised DAA system standards (e.g. those developed by RTCA SC-228 and/or EUROCAE WG-105)."	Consistent with the Atypical Airspace definition lines 914, 915 of page 38, it should be reminded that this statement does not apply for ARC-d spaces portions declared as Atypical by the competent authority.	"[…] If operations in this airspace are conducted more routinely, the competent authority is expected to require the operator to comply with the recognised DAA system standards (e.g. those developed by RTCA SC-228 and/or EUROCAE WG-105) **with exception of ARC-d airspace portions declared as Atypical by the competent authority.**"	Rejected	An atypical airspace may be representative of the ARC-a, and not ARC-d, unless differently assigned by a local authority.

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409		Typo	43	1088	"16 Basic containment sets a floor probability for fly-away events of 10-4 , so SAIL I operations will crash more often than SAIL II, but will not fly-away more often."	There is no containment level named "Basic" but a "Low" one Furthermore Annex A, page 44, line 491 / Criterion #1 of the Level Integrity table indicates that "[…] The probability of the failure condition "UA Leaving operational volume" […] shall be less than 10-3/Flight Hour (FH)."	"16 ~~Basic~~ Low containment sets a floor probability for fly-away events of ~~10-4~~ 10-3 , so SAIL I operations will crash more often than SAIL II, but will not fly-away more often."	Accepted	Effectively, Annex E § 4 indicates that the target level of Integrity for Low and Medium Robustness Containement is 10-3/FH. Note 16 has been removed, as Annex E details containment probabilities objectives, and (answer to comment #514) : the SAIL is representative of the Loss of Control of Opertion likelyhood, while a loss of containment is always a subset. If with rising SAIL loss of control becomes less likely, it is assumed to proportionally decrease loss of containment, thus lowering the containment requirements.
410	Compliance evidence documents	Compliance evidence documents	47	1120	"ii. Compliance evidence(s) (e.g. tests of a parachute, report of table-top exercise)"	Same remark as page 29, line 596. i.e. Add a foot note specificying that such information might be sent directly to the authority by the drone manufacturer.	"ii. Compliance evidence(s) (e.g. tests of a parachute, report of table-top exercise)" **Add a footnote:** **"Due to sensitive content it may be provided directly to the competent authority by the UA manufacturer"**	Rejected	The JARUS SORA guidance is intended to provide the necessary safety requirements to be met given the ground and air risk assessments. Whilst important, IP considerations are outside the scope of this document.
411		1.4.1	20	395-397	The Adjacent Airspace is the airspace adjacent to Operational Volume and depends on the particular UA performance and the resulting likelihood of flying into an airspace with an increased air risk.	It reads like the size of the adjacent airspace depends on the airspace itself (is it increased air risk airspace or not?).	The Adjacent Airspace is the airspace adjacent to Operational Volume and depends on the particular UA performance.	Partially accepted	Text updated
412		2.3.3	35	823-824	f) No credit is possible for higher resolution static maps, unless maps with lower resolution were imposed on to the operator by the authority	Please clarify the sentence. How can an operator take credit for a high resolution map if the authority imposes a low resolution map?		Acknowledged	Sentence was removed and replaced with guidance in the "Population density informatin" section.
413		2.3.2	33	744	the distance flown in 3 minutes at maximum cruise speed of the UA	"maximum cruise speed" needs to be clearly defined. The malfunction of the flight controller or sensor that leads to a fly away may also affect the function that limits the maximum speed, and consequently the maximum speed of such failure scenario should be assumed.	the distance flown in 3 minutes at maximum cruise speed that the UA can reach, assuming a failure scenario that could lead to a fly-away	Rejected	Maximum cruise speed is already defined as "The maximum cruise speed is conservatively defined as the maximum possible commanded airspeed of the UA, as defined by the manufacturer." For the purposes of the adjacent area calculation, this is considered sufficient since it strikes an appropriate balance between the mathematical worst-case scenario and usability of the calculation considering the availability of maximum speed data.
414		2.4.1	36	866-868	The competent authority or ANSP may impose additional strategic or tactical mitigations on airspace authorizations, taking into account uncertainties related to UA reliability, conspicuity, and other factors.	I suggest to remove this sentence as it opens the door to undefined additional requests by single ANSP or NAA and application of different standards wrt to mitigations in the various countries using SORA.		Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
415		2.4.2.1	38	912	operation at very low altitudes	"Very low altitude" is a broad term and can be understood as 10m or as 100m altitude. Please clarify the typical altitude / height limit for ARC-a		Rejected	The values may different depending on the local specificities, therefore the general term is kept.
416		2.4.2.2	38	926	maximum climb rate of the UA	"maximum climb rate" needs to be clearly defined. Is it the maximum speed of the UA defined for the specific mission (set as a limit in the flight controller) for which the adjacent airspace size is calculated? Or should a malfunction of the flight controller be considered that leads to a fly away and may also affect the function that limits the maximum climb rate and consequently the maximum climb rate in such failure scenario would need to be assumed?		Accepted	Air Risk Containment has been removed for simplification.
417		2.5.3	44	1105	Table 6 is a consolidated list of common OSOs	Please update reference		Accepted	Table numbering updated.
418		2.3.1	32	700	Determining the population density to calculate the iGRC in Step #2 needs to be done using the highest resolution static maps appropriate to the operation and available to the operator.	It would be beneficial to UAS operators if acceptable sources of population density maps, which will be accepted by the authority, are provided in the text.		Rejected	While the value is understood, different maps may have different levels of validity in certain geographies. Additional guidance or recommendations may be considered in future versions.
419		2.3.1	31	691	In the event that population density values are not available or an authority would rather use qualitative descriptors for the iGRC Table, the following approximations can be used as guidance:	Please propose criteria for when population density values/maps are invalid. In which cases can an authority request an operator to use qualitative descriptors?		Rejected	Precise criteria was not included due to too many potential cases. Additional guidance or recommentations may be considered in future versions.
420		2.3.1	32	694-695		Table 3 needs to be revised and broken down further. If population density is 1000ppl/km^2, then the iGRC obtained from Table 2 (<2500 in this case) seems restrictive.		Rejected	The values were based on the JARUS ground risk model and any boundary chosen was expected to have a similiar problem. Please refer to Annex F for determination of a more representative iGRC for a given operation.
421		2.3.2	33	745	If the distance is less than 5 km, use 5 km.	If this distance is considered as less than or equal to 5km, the resulting impact seems minor. I suggest rephrasing as "less than or equal to 5km, use 5km".		Rejected	The different uses cases are now presented in 4.8.3, and differentiate between less than 5 km, more than 35 km and between 5 and 35 km.
422		2.3.2	33	753	If the applicant or competent authority considers the previous criteria are not appropriate for determining the size of the adjacent area, the competent authority may ask for or accept an alternative means of calculating the adjacent area.	In which circumstances should an operator expect the authority to ask for an alternative means? It would be beneficial to list some criteria for when the stated means of determining the size of the adjacent area would be invalid.		Partially accepted	We have removed the sentence.
423		2	30-32			The proposed method of calculating GRC is more restrictive. At FlyingBasket, it raises the final GRC of previously conducted operations, which were approved by several appropriate authorites. The iGRC for up to 250ppl/sqkm (which is considered sparsley populated in the table below) in the 3m class is 5. According to SORA 2.0 the iGRC for sparsely populated and BVLOS in the 3m class is 4. Appplying the same mitigation M1 on low (-1) will result in a higher final GRC of 4 (was 3 in SORA 2.0) and a higher SAIL of III (was II). Effectively, this change will move most operations in 3m class in sparsely populated areas from SAIL II to III with all related consequences. It is unclear why the method of calculating the GRC has become more restrictive when the safety of previously conducted operations were not compromised. In addition, there seem to be no advantages being provided to the operator in this case, for example, a larger operational volume.		Acknowledged	The new table is considered to reflect more accurately the ground risk model and it is expected that some mitigations are easier to apply than in versoin 2.0, resulting in many similiar SAIL scores.

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424		2.5.3	44-46	1112	New OSO; old OSO	I would suggest removing the old OSO numbers and only adding the new OSO numbers to remove any ambiguity and avoid the grandfathering technique.		Acknowledged	The OSOs numbering has been kept as in SORA 2.0. For simplificatiom, the OSOs with multiple number assigned have kept only the first number.
425		2.3.4	35-36	837-842	Mitigations might be applied to reduce the GRC of the adjacent area. Mitigations that may be used for the adjacent area GRC without additional justification:	A table listing the values for low, medium, and high robustness against M1 and M2 mitigations for adjacent area GRC is required.		Accepted	Done on SORA Main Body restructured version, same Table 4 (Migitations to reduce the GRC) may be applied for the Adjacent Area GRC: "Adjacent area (a) Identify the applicable mitigations listed in table 4, that could lower the iGRC of the adjacent area. (b) Calculate the final GRC of the adjacent area after mitigations have been applied." This is now part of the alternative method to be found in Annex F.
426		2.3.3	34-35			Clarify High+ for M2 mitigation for ground risk in SORA main body. In addition, M1(A) high is equivalent to M2 with respect to order of magnitude. A possibility could be to have lower criterion for high in M1(A) in order to standardise it in a way similar to M2.		Acknowledged	M2 High+ has been removed from the main body mitigations table and a new principle has been added in chapter 1 of Annex B. This explains that when a higher level of integrity is shown, it can be used to gain more benefit from a mitigation.
427		2.4.2.2	39	935	If the applicant or Competent Authority considers the previous criteria are not appropriate for determining the size of an adjacent area and airspace, the Competent Authority may ask for or accept an alternative means of calculating the size of the adjacent area or airspace.	In which circumstances should an operator expect the authority to ask for an alternative means? It would be beneficial to list some criteria for when the stated means would be invalid.		Partially accepted	We have removed the sentence.
428		2.4.2.2			Determination of adjacent airspace size	Section 2.4.2.2 is very conservative. In most cases, especially with a payload, it would be very difficult to climb at the maximum rate and reach the calculated maximum altitude.		Rejected	Airspace containment was removed for simplification.
429		2.4.4.2	41	1004, 1011	moderate "likelihood"	How are the various categories of likelihoods differentiated? Will a quantitative approach to likelihoods be developed in the future?		Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
430		2.5.1	42	1062	OSOs to be complied with (see Table 6)	Reference should be changed to table 10		Accepted	Table numbering updated.
431		2.3.3	35	833	Sheltering as a reduction of people at risk in M1(A) in Annex B	Sheltering only allows the operator to reduce the iGRC by 1 in case of low robustness. Does the 90% in criterion #2 refer to the order of magnitude or another parameter? A reduction in risk to the population by 1/2/3 orders of magnitude due to sheltering will be difficult to demonstrate. and it must be clarified if dynamic density maps are required for this purpose. The assumptions for sheltering must be well-defined.		Acknowledged	The mitigations have been split and the requirement of dynamic density maps is not necessary for sheltering.
432	Again, safety case explanation is missing. There should be a clear explanation about the documentation to be provide (if needed) together with the operations manual. In SORA 2.0 the equivalent was the safety portfolio and together with the operations manu	2.6	47	1137	In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator.	Latter phrase of sentence missing	*Example:* *In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) describing a delineation of responsibilities between the Service Provider(s) and the operator should be provided.*	Accepted	Text has been updated to align with the comment.
433		2.6	47	1137	In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the Service and should be included as part of the Safety Portfolio.	Provide supporting material on how the operator can establish the required SLAs. It may be cumbersome and time-consuming to obtain this information depending on the external service. SLA'S should not be required for all kind of external services, e.g. not for publicly available services like GNSS.		Acknowledged	The SORA is not in the position to dictate the specific information within an SLA. The requirements for SLA are specific to the external service being used for safety critical tasks during operation. In terms of external services where SLA's do not exists (i.e. GNSS), text has been added to ensure that the hazards associated with the deterioration or loss of the service are still covered under OSO #13.
434		2.3.1	32	696-699	The iGRC Footprint, defined in section 2.3.1 (c) should be used to determine the population 697 density. It is expected that for many flight operations, the iGRC footprint may cover segments 698 with different population densities. The segment with the highest population density should 699 be used when determining the iGRC.	Assuming the maxmimum population density to determine the iGRC on the one hand but not defining the resolution of the population density map on the other hand will lead to very different iGRC results for the same area depending on the map resolution due to hyperlocal effects. Considering that future population density maps will have higher resolution, it can be expected that the iGRC for the same area will increase in the future only by increasing the level of detail.In order to get consistent results with increased reliability for higher resolution maps the average population density should be assumed. Also, the average population density is a better representation of the actual ground risk by UA crashing at a random location within the OV and buffer. There are no failure scenarios in which the UA will aim for the location with the highest population density.	The iGRC Footprint, defined in section 2.3.1 (c) should be used to determine the population density. It is expected that for many flight operations, the iGRC footprint may cover segments with different population densities. Average population density should be used when determining the iGRC.	Rejected	Please refer to Annex F guidance for overflying small areas of higher population density.
435		2.3.1	32	700	Determining the population density to calculate the iGRC in Step #2 needs to be done using the highest resolution static maps appropriate to the operation and available to the operator.	To ensure correct and consistent results in different areas and countries and with developing population density maps, the basic assumptions (raster size, how is population defined, by residence?) for these maps have to be defined.		Acknowledged	Guidance for maps was included in the "Population density information" section.
436	major	n/a	n/a	n/a	n/a	major - the SORA does not yet cover operations with 'lighter-than-air' or swarm of drones. I would recommend to clarify its limits clearly in the introduction or in the applicability section.		Partially accepted	The Applicability section has been generally updated. The definition of swarms has also been clarified.
437	operator vs applicant	Executive Summary	13	114	The SORA provides structure and guidance to both the competent authority and the operator to support an application to operate a specific UAS in a given operational environment.	Minor - the guidance can also be used by manufacturers (in isolation or in cooperation with operators). Better to remain vague and to mention 'applicant'… This is also better considering the new table for OSOs	The SORA provides structure and guidance to both the competent authority and the applicant operator to 115 support an application to operate a specific UAS in a given operational environment.	Accepted	"operator" has been replaced by "applicant".

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438	operator vs applicant	Executive Summary	13	116-211	The benefit of this process is that both the operator and competent authority can spend their available resources and time proportional to the risk of the operation.	Minor - the guidance can also be used by manufacturers (in isolation or in cooperation with operators). Better to remain vague and to mention 'applicant'… This is also better considering the new table for OSOs. There are also other occurrences in the document, if this comment is accepted, a clean check is needed.	The benefit of 116 this process is that both the applicant operator and competent authority can spend their available resources 117 and time proportional to the risk of the operation.	Accepted	"operator" has been replaced by "applicant".
439	terminology	Executive Summary	13	118	The SORA uses a holistic/total safety risk management process to evaluate the risks (…)	Editorial - 'total' safety risk management might not be correct. Indeed, we do not consider ALL the possible sources of risk (e.g. risk of drone collision with another drone and subsequent crash over people)	The SORA uses a holistic/total safety risk management process to evaluate the risks (…)	Accepted	"total" has been removed.
440	terminology	Executive Summary	13	121 - 123	(…) crewed aviation(…)	Editorial - 'crewed aviation' seems a strange term. Why do not simply use 'manned aviation'?	(…) crewed manned aviation (…)	Rejected	Whilst unmanned aircraft may be remotely controlled or self-controlled by onboard computers. the term crewed aircraft / crewed aviation is more traditionally referring to onboard pilot,
441	outdated reference	1.2 Purpose of the document	16	footnote	This category of operations is further defined in the European Union Aviation Safety Agency (EASA) Opinion 01/2018.	Minor - better to use the latest available document	This category of operations is further defined in the ~~European Union Aviation Safety Agency (EASA) Opinion 01/2018~~ article 5 of Regulation (EU) 2019/947	Accepted	Text updated
442	Major	Step 1	13	146	Documentation of the proposed operation(s)	This title is still confusing. The documetation is defined in Step 10	Description of the proposed operation(s)	Partially accepted	The title has been updated to increase clarity of the intented output of Step #1.
443	Major	Applicability	17	279		SORA does not addrees risks such as the when operating over an industry	UAS operator should assess the additional risks not covered by SORA when conducting the UAS operations over special area such as industrial areas	Partially accepted	The SORA states that it does not cover all apects and further considerations might be needed. Please refer to the restructured Section 1.
444	terminology	1.4.1 Semantic model	19	341	(…) where the outcome of the situation highly relies on providence (…)	Minor - I would recommend a reword of this sentence. As a matter of fact, we want to state that the outcome is totally outside the control of the operator….and therefore that there is no more control. I made a proposal. We rely on providence every day, but this is another story…	(…) where the outcome of the situation ~~highly relies on providence~~ is outside the control of the operator(…)	Rejected	Text kept as it expressed the initial intent.
445	terminology	1.4.1 Semantic model	19	333-352		minor - here we use; abnormal/contingency and emergency procedures. I believe that we should restructure a bit the paragraph. Maybe we can say that we have normal and abnormal procedures. Among the abnormal procedures there are the procedures to be used when entering the 'contingency' area, or right before entering, and the procedures to be used in case of 'loss of control' (=> emergency procedures)	normal and abnormal procedures only. Among abnormal procedures there are the 'contingency' and 'emergency' procedures.	Accepted	Text has been updated to better show the difference between "operation in control" and "operation out of control". The procedures have been assigned accordingly.
446	medium level of assurance	1.4.2	22	420	Medium level of assurance is one where the applicant provides supporting evidence that the required level of integrity has been achieved	Please correct all Annexes coherently: "the applicant has supporting evidence" should be corrected in "the applicant provides supporting evidence". The applicant should not keep it for themselves just in case the authority ask for it, they should make it available with the application.	correct Annexes for all recurrences	Acknowledged	Comment accepted
447	terminology	1.5 Roles and Responsibilities	23	447	The operator has received an operational approval from the competent authority. It allows (…)	minor - the definition proposed does not seem very clear.	~~The operator has received an operational approval from the competent authority It allows (…)~~ the operator is an applicant that has obtained the operational approval from the competent authority. Such approval allows (…)	Accepted	Text updated.
448	clarity	2.2.2. The phases of the SORA process	27	577	n/a	minor - I would add one sentence to re-assure the experienced applicants	(…) If wished, experienced applicants might skip the 'phase 1'.	Acknowledged	The phased approach is recommended by WG-SRM as the method to undertake the SORA. A competent authority may determine these phases are not required for a given operation.
449	readability	2.3.1 Step #2	30	652	The intrinsic UAS ground risk relates to the risk of a person being fatally struck by the UAS (in the case where the UAS operation is out of control) absent any mitigations being present	minor - rewording proposed to clarify the meaning of the sentence	The intrinsic UAS ground risk relates to the risk of a person being fatally struck by the UAS (in the case where the UAS operation is out of control)assuming that no mitigations have been applied ~~absent any mitigations being present~~	Accepted	Change incorporated in the original text and then restructured.
450	clarity	2.3.1 Step #2	30	656	(…) the maximum cruise speed and the knowledge of the maximum population density intended to be flown over.	minor - rewording proposed to improve clarity. Normally the we do not intend to overfly persons in the contingency area but we need to consider also them.	(…) the maximum cruise speed and the knowledge of the maximum population density in the Operational Volume plus risk buffer footprint ~~intended to be flown over~~.	Accepted	Change incorporated in the original text and then restructured.
451	clarity	2.3.1 Step #2	30	668	the maximum population density in the area;	minor - improve clarity	the maximum population density in the area at risk as defined above;	Accepted	Change incorporated in the original text and then restructured.
452	clarity	2.3.1 Step #3	30	669 - 670	(..)	minor - points (c) IV and (c) V should be merged as they refer to the same issue (i.e. how to determine the ground risk buffer)	(..)	Accepted	Change incorporated in the original text and then restructured.
453	formatting	2.3.1 Step #2	31	682	(..)	editorial - for clarity purposes, the point (d) should became a subpoint of the point (c)	(..)	Accepted	Change incorporated in the original text and then restructured.
454	editorial	2.3.1 Step #2	31	688	1m / 3m / 8m / 20m / 40m	minor - instead of providing a fix measure in the second line of the table 2, it might be more intuitive to provide ranges. Additionally, it is not clear what does it happen for max dimension above 40m even if I doubt that there are drones having such dimensions	below 1m / between 1m and 3m / between 3m and 8m / between 8m and 20m / above 20m (or between 20m and 40m?)	Rejected	Values are left as a "less than" rather than a range as this allows easier mapping if a drone doesn't align with both the max UA dim and max speed in a single column. For drones larger than 40m the applicant should use Annex F to determine iGRC score.
455	minor	2.3.1 Step #2	31	688	table 2	in some part of the world maps with the 300 ppl sqkm are commonly used. Increasing a little the value may also reduce the concern from some operator on the increase of the GRC compared to SORA 2.5	Assess the impact in increasing the values up to 30, 300, 3000	Partially accepted	Increased values to factors of 5, which encompass the factors of 3.
456	granularity issue	2.3.1 Step #2	32	702-704	Guidance in the Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation8.	major - the copied text seems to provide an answer to the comment related to granularity range. However, as it is written, the answer is too criptic for the intended users of the SORA and pointing them to a rather technical document of 224 pages does not help. Pls consider to reword this part making it clearly understandable	Guidance in the Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation8. (pls clarify with simple words what does it mean dispersion area of an operation)	Acknowledged	Removed sentence referenced and added additional guidance in the "Population density information" section and suggested optimal grid sizes in Table #4

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457	population density maps	2.3.1 Step #2	32	701	population density maps	major - here we might have a fundamental issue. Static maps are indicating where citizens have their residence and therefore, typically, the high population density on a static map is providing information almost useless (=> everybody will be covered by roofs and possibly not at risk + the information might be correct only during night when persons are normally at home). If static maps are to be used, the probable margin of error in determining the population density in one location could easily invalidate all the subsequent assessments. The overall 'quantitative method' can payoff only if dinamyc maps (corrected as needed to consider also children etc) are available. Availability of reliable dynamic maps, de facto, is a pre-condition to move toward the quantitative method for iGRC calculation.	reference to static map should be removed	Rejected	While census maps are where people live, there may exist other static mapping products that assess where people generally are throughout the day and could be used to a high enough level of accuracy to perform this assessment.
458	clarity	2.3.1 Step #2	32	711	the assurance that there will be uninvolved persons in the area of operation is under full responsibility of the operator.	minor - my understanding is that the operator has to ensure that there will NOT be uninvolved persons in a controlled ground area	the assurance that there will not be uninvolved persons in the area of operation is under full responsibility of the operator.	Accepted	Change incorporated in the original text and then restructured.
459	editorial	2.3.1 Step #2	32	720	the applicant should choose the left most column that meets both criteria or provide substantiation for the chosen column.	editorial - sentence needs some improvement	a conservative approach should be taken. Generally, this means that the applicant should choose the most left column meeting both criteria or provide substantiation for the chosen column.	Partially accepted	The sentence was updated for clarity.
460	minor	2.3.1 Step #2	34	786		minor - points (f) and (g) are somehow a repetition. They could be merged and shortened	merge and shorten (f) and (g)	Accepted	Change incorporated in the original text and then restructured.
461	minor	2.3.3 Step #3	35	811	When applying mitigation M1,(…)	minor- please clarify which M1 is considered for this point. M1(A)? Or M1(A) + (B) or M1(B)…?	When applying mitigation M1(A) or M1(B)? or both?,(…)	Partially accepted	Text updated.
462	major	2.4.4.1 EVLOS	40	972	In general, all VLOS requirements are applicable to Extended Visual Line of Sight(EVLOS).	EVLOS can be used to mitigate both ground and air risk. It should be more linked to a BVLOS, rather than VLOS	EVLOS should be a subset of BVLOS	Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0
463	major		43	1078	enhanced contaiment never mandatory for Air risk	We think that in case of inspections of a runway in an airport with multiple runways enhaced containment is required	Add a clause specifiyng that may be corner cases where enhanced containment is required	Acknowledged	Medium or high containment not required, even in most extreme corner cases evaluated for on-airport operations.
464	editorial		43	1088	Basic containment sets a floor probability for fly-away events of 10-4	add /FH to the probability	Basic containment sets a floor probability for fly-away events of 10-4 /FH	Accepted	/fh added to the probability. This discussion has been moved to Annex F
465	editorial	2.5.3 Step #9	44	1097 - 1105 - 1111	table 6	editorial - the table number has changed	table 10	Accepted	Table numbering updated.
466	major	2.5.3 Step #9	45	table 10	new OSO IV	major - to my understanding, especially for complex systems, the operator alone cannot be in position to develop alone the operational procedures (normal/abnormal or even emergency) These procedures are typically developed by the manufacturer and, if needed, adjusted by the operator. Therefore, I suggest to add an 'x' also to the manufactuer column in correspondence of the new OSO IV	new OSO IV (add x on Manufacturer column)	Accepted	Cross added in the "Designer" column as well.
467		Table #10	44	1112	"# V (#03) UAS maintained by competent and/or proven entity (…) Operator Crit. 1 Crit. 2 Manufacturer Crit. 1"	There is an inconsistency between Table 10 and OSO #V is Annex E. There is currently no maufacturer requirement in OSO #V and all requirements apply to Operators. Unless a manufacturer requirement is added, "Crit. 1" in the 'Manufacturer' column should be removed.	"# V #03 UAS maintained by competent and/or proven entity (…) Operator ~~Crit. 1~~ ~~Crit. 2~~ X Manufacturer ~~Crit.~~ 1"	Partially accepted	Maintenances schedules/instructions are typically provided by the manufacturer. Annex E OSO #3 mentions that the UAS Operator may just reuse the UAS designer instructions and requirements for maintenance.
468		Table #10	44	1112	"# XIII #05 UAS is designed considering system safety and reliability SAIL I NR SAIL II NR SAIL III L (…)"	If the ICA requirement is added under OSO #XIII, the table needs to be modified to ensure that the Low Level of Integrity requirements apply also to SAIL I and II operations. Then, the current Low Level of Integrity criterion of OSO #XIII (i.e. "The equipment, systems and installations are designed to…") should be transferred to the Medium Level of Integrity, such that the ICA is the only criterion in the Low category. Consequently, the table is also to be amended to have 'M' for SAIL III in respect of OSO #XIII. The only consequence is for SAIL III: this would render the existing 'medium' criterion (i.e. "... the strategy for detection, alerting and management of any malfunction…") also applicable for SAIL III.	"# XIII #05 UAS is designed considering system safety and reliability SAIL I L ~~NR~~ SAIL II L ~~NR~~ SAIL III M ~~L~~ (…)"	Acknowledged	Please refer to the updated wording and robustness of OSO 5.
469		Table 10	46	1112	OSO XII applies from SAIL IV onward	The inclusion of FTB / D&R methods in Annex E highlight even more the inconsistency of an ex-OSO#4 N/A at SAIL III. If the theory says that the required number of FHs to be flown to demonstrate a certain level of reliability is 3.000 , then it should not be possible to say that this reliability level is so low that one could just do nothing.	It is suggested to bring ex OSO 4 to L for SAIL III and to not indicate 30.000 FHs for D&R / FTB for SAIL IV as the method is not adequate to cater for that risk level.	Rejected	OSO#4 is the airworthiness design standard OSO. OSO#4 not being applicable at SAIL III is not equivalent to saying that no system requirements are required. OSO #5, #6, #7, (previous) #10/#12, #18, #19, and #24 all contain functional performance or safety and reliabiltiy requirements at SAIL III, despite OSO#4 not being applicable. A hazard rate of 0.001 per flight hour (1000 hour MTTF) is not a reliability so low that it requires nothing, but also not necessarily high enough to require an ADS. Please refer to Annex E for further clarification on the FTB and applicability for OSO 4.
470		Table 10	46	1112	new title of OSO XII is " UAS components essential for safe operation…"	It is not consiered appropriate to concentrate at the level of component. Compoents might all be OK but the overall system design may not provide the required TLOS as for example the architecture is not designed appropriately.	It is suggested to continue to use the title of the old OSO#4	Acknowledged	Although the intent of the comment is understood, the text introducing OSO #4, in particular (b) and (c), indicate that this is referring to an ADS, which may cover the entire aircraft system.
471		expanator y note				Easa supports to restrucure SORA as proposed in the appendix to the explanatory note		Acknowledged	Document has been updated as per the example provided in the explanatory note of the external consultation.
472	Determining population density value	Ruling	32	699	The segment with the highest population density should be used when determining the iGRC	It is too conservative that if a small part of the operational volume is over a high populated area, the whole operational volume becomes high populated area. It should be proportinal to the area affected.	The segment with the highest population density will only be proportinal to the percentage of the area that occupies over the operational volume.	Rejected	Please refer to Annex F guidance for overflying small areas of higher population density.

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473	Determination of the adjacent area size	Ruling	33	739	The adjacent area size models a reasonably probable ground area where an UA may fly or crash after a flyaway	The adjacent area analysis should take into account that exists already geofence system (independent from the UA like parachute systems that stop the UA and release a parachute if the UA leaves the operational volume) that would have to fail in order to permit a fly-away of the UAV.It would require to fail the UA and the Geofence to permit a fly-away.	The adjacent area size models a reasonably probable ground area where an UA may fly or crash after a flyaway. If the UA contains an independent system that can avoid a single-failure fly-away, the final adjacent area will be defined as not needed.	Partially accepted	See answer to comment 221.
474			14	161	The intrinsic GRC is determined for both the area at risk (section 2.3.1) and the adjacent area (section 2.3.2) respectively.	For the sake of consistency, replace "area at risk" by "area of operation" Area at risk is not deterministic enough.	The intrinsic GRC is determined for both the area of operation (section 2.3.1) and the adjacent area (section 2.3.2) respectively.	Partially accepted	Modified as "as well as the at-risk population density in the operational volume and ground risk buffer. (Adjacent Area GRC is handled in Step#8)
475			14	168-169	Mitigations intended to reduce the effect of a ground impact once the control of operation is lost	For clarity, insert "the" before "operation".	Mitigations intended to reduce the effect of a ground impact once the control of the operation is lost	Accepted	Text updated.
476			14	170	same as comment #1	same as comment #1	same as comment #1	Rejected	Unclear to which comment is being referred to.
477			14	173	same as comment #1	same as comment #1	same as comment #1	Rejected	Unclear to which comment is being referred to.
478			14	190-192	Tactical mitigations are applied during the conduct of the operation, and are used to mitigate the identified residual risk of a mid-air collision that may remain after the strategic mitigations have been applied.	For clarity. Insert "of a mid air collision with manned air traffic". Potential MAC with other UAS hare currrently out of the scope of the SORA	Tactical mitigations are applied during the conduct of the operation, and are used to mitigate the identified residual risk of a mid-air collision with manned air traffic that may remain after the strategic mitigations have been applied.	Partially accepted	Text updated to add "with manned air traffic".
479			15	200-202	The ground risk (in the adjacent area) and air risk in the adjacent airspace dictate the level of safety requirements to be met by containment design features and operational procedures.	The SAIL is also a determining factor in containment requirements, insert "SAIL"	The SAIL of the intended operation, the ground risk (in the adjacent area) and air risk in the adjacent airspace dictate the level of safety requirements to be met by containment design features and operational procedures.	Rejected	Text updated as per Step8 final version.
480			15	219	SORA assessment.	The SORA is already an "assessment" (Specific Operations Risk Assessment". Omit "assessment" from text.	SORA.	Accepted	Text updated
481			16	247-249	Therefore, the SORA provides a consistent approach to assess the additional risks associated with the expanded and new operations not covered by the “open” category.	Omit "new operations" - this terminology is not deterministic and "new" operations are not exclusive to the specific category.	Therefore, the SORA provides a consistent approach to assess the additional risks associated with the expanded operations not covered by the “open” category.	Accepted	Text updated accordingly.
482			17	286-287	The risk of collision between two UA or between a UA and a UA carrying people is currently deemed to be small	"deemed to be small" is not deterministic enough from a safety/risk perspective. Replace by "negligible"	The risk of collision between two UA or between a UA and a UA carrying people is currently deemed to be negligible	Partially accepted	Text updated .
483			17	288-289	It is recommended that concurrent high volume operators have a deconfliction strategy for their own UA.	In operations conducted with more than one UA, a possible collusion may result in uncalculated projectile motion and therefore exceedance of the GRB, particulary in narrow operational volumes.	It is recommended that concurrent high volume operators have a deconfliction strategy for their own UA and/or ground risk buffer calculation shall be done considering projectile motions resulted from a possible collison. (a concurrent calculation methodology which adresses this issue is better to be added to the GRB calcualtion (annex F))	Rejected	The UA to UA collision has not been addressed in this update of SORA. Comment to be considered in future updates of SORA.
484			19	345-347	The “loss of control” state is also entered, if a UA loses flight control and crashes or if a flight termination sequence is executed, even if this happens inside the operational volume.	Controlled/safe flight termination is possible, e.g. ditching the UAV over water, controlled crash into predfinded area in OV. No imminent danger of fatatlities amoung uninvolved persons (in low risk operations), situation does not rely on providence.	Omit the whole sentence or define "flight control".	Partially accepted	Text updated.
485			19	345-346	The “loss of control” state is also entered, if a UA loses flight control	For clarification: define "flight control"		Acknowledged	Text updated.
486			19	355-356	decoupled from the Emergency Procedures, as it does not deal with the control of the UA.	insert "UAS operation" control of UA is not in line with previous terminology.	decoupled from the Emergency Procedures, as it does not deal with the control of the UAS operation	Acknowledged	Text has been updated to better show the difference between "operation in control" and "operation out of control". The procedures have been assigned accordingly.
487			20	364-366	The main SORA process is applied to the operational volume and ground risk buffer. In order to protect the surrounding areas and airspace the operation should be contained within the operational volume.	The terms "surrounding areas and airspace" are not in line with pervious terminology concerning containment. This is misleading/can be confused with adjacent area and airspace. Also, containment applies to the area of operation (OV+buffers) for adj. Area and OV for adj. airspace	The main SORA process is applied to the operational volume and ground risk buffer. In order to protect the adjacent area and airspace the operation should be contained.	Accepted	Text updated.
488			20	388-390	The containment requirements determined in Step #8 are intended to ensure an acceptable level of safety for those at risk in these adjacent areas.	"adjacent areas" is confusing since in this context, it refers to borh adj areas and adj airspace.	The containment requirements determined in Step #8 are intended to ensure an acceptable level of safety for those at risk in these adjacent areas and airspaces.	Acknowledged	Text updated.
489			20	392-394	The Adjacent Area is the ground area adjacent to the Ground Risk Buffer. The extent of the adjacent area depends on the particular UA performance and the resulting likelihood of flying into an area with an increased ground risk.	It should be elaborated/defined if the adjacent area has the same ground risk level with the operational volume.	NA	Partially accepted	Second part of the sentence removed, since the size of the adjacent area is independent from its risk.
490			20	395-397	The Adjacent Airspace is the airspace adjacent to Operational Volume and depends on the particular UA performance and the resulting likelihood of flying into an airspace with an increased air risk.	It should be elaborated/defined if the adjacent airspace has the same air risk level with the operational volume.	NA	Partially accepted	Second part of the sentence removed, since the size of the adjacent area is independent from its risk.
491			25	512	Fatal injuries to third parties on the ground5é;	possible typo -> é	Fatal injuries to third parties on the ground5	Accepted	Text updated
492			27	573	SAIL as well as the risk level of the adjacent area	insert "adjacent area and airspace"	SAIL as well as the risk level of the adjacent area and adjacent airspace	Partially accepted	The outputs at the end of Phase 1 have been updated.
493			27	576	complete comprehensive safety portfolio for submission to the competent authority.	insert "official" since this is what distinguishes Phase 1 and 2 - the official submission for operational authorisation	complete comprehensive safety portfolio for official submission to the competent authority.	Rejected	Whilst the comment's intent is understood, the guidelines here do not intend to make any document/process "official". If a competent authority wishes to label the submission of documentation at the end of Step #10 "official" that is their prerogative.
494			28	585-586	ii. Compliance evidence, iii. SORA safety case.	Compliance evidence is prepared after SORA usually as a part of safety portfolio (SORA Step #10), and may be provided as attachment/appendix. (Moreover, evidence may not be prepared, i.e. in low robustness)	ii. SORA safety case, iii. Compliance evidence.	Acknowledged	The section commented on was removed to improve usability during the reorganization of the document.
495			28	587-588	The operator manual is an operator-centred document which is intended to collect and present all information and data, such that:	a reference (as a footnote etc.) might be good to SORA 2.0, to emphasize the relation between ConOps (in SORA 2.0) and Operator Manual (in current version) and hence preventing misunderstandings during the transitional period (from SORA 2.0 to 2.5)	The operator manual" is an operator-centred document which is intended to collect and present all information and data, such that: * The operator manual in SORA 2.5 is a comprehensive document containing all the information specified in ConOps and operational volume in SORA 2.0.	Acknowledged	Operator Manual is no longer used in this way and now reflects the intent of the majority of comments (an operator centric document to operate a system)

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496			29	621-623	The structure of the operator manual should allow the identification of the elements/sections verified by the competent authority and the elements/sections not verified.	Statement is not clear. Please elaborate.	NA	Acknowledged	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.
497			29	624-625	The applicant should only put information into the operator manual and compliance evidence document as it is required by the items mentioned above.	Necessary compliance evidence documents shall be determined after identification of SORA Step #9, and may be part of Safety Portfolio. Consider moving this statment to either Step #9 or Step #10, or refer to regarding SORA steps.	NA	Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process. Please refer also to Phase 1 updated description, including required data to support the deriving of a preliminary SAIL and containment requirements. Step #10 now contains the information regarding compliance evidence.
498			30	646-647	i. Changes requiring prior approval by competent authority, ii. Changes not requiring prior approval by competent authority.	Criteria of the changes might be elaborated.	i. Changes requiring prior approval by competent authority, (Major changes: i.e. changes that have an impact on SAIL determination, operational volume coordinates, ERP etc.) ii. Changes not requiring prior approval by competent authority. (Minor changes: other changes)	Acknowledged	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.
499			30	657	The applicant needs to have defined the area at risk when conducting the operation including	same as comment #1	same as comment #1	Rejected	Unclear to which comment is being referred to.
500			30	664	The area at risk is defined to be the iGRC footprint, which is composed from the	same as comment #1	same as comment #1	Rejected	Unclear to which comment is being referred to.
501			30	670	v. A smaller ground risk buffer value may be proven by the applicant;	reference to Annex F might be good	v. A smaller ground risk buffer value may be proven by the applicant (see annex F);	Accepted	Reference to Annex F was added where applicable during the reorganization.
502			32	720	the applicant should choose the left most column that meets both	surely here the right most column is meant? - higher risk, more conservative	the applicant should choose the right most column that meets both	Rejected	Both criteria are met at the most left column, so a big UA (8m) with low cruise speed (25 m/s) would meet both criteria in the left most column, at max dim 8m and max speed 75 m/s. This would be the 1st column that both criteria are met if starting from the left (max dim 1m) and moving right (towards max dim 40m).
503			32	734	calculate the actual critical area applying a mathematical model defined in Annex.	insert Annex F	calculate the actual critical area applying a mathematical model defined in Annex F.	Accepted	Change incorporated in the original text and then restructured.
504			33	740	crash after a flyaway.	substitute with "loss of containment" - more in line with terminology.	crash after a loss of containment.	Partially accepted	The original text has already been changed.
505			33	744	the distance flown in 3 minutes at maximum cruise speed of the UA	Clarification needed: Apart from fixed wing UAVs, which failure conditions in rotary wing UAV may lead to a loss of containment with subsequent flyaway for 3 mins?	the distance flown in 3 minutes at maximum cruise speed of the UA for fixed wing UA, or conservative assumption with acceptable methodology for rotary wing UA	Acknowledged	The assumption is taking a worst case outcome for a fly-away event. Modelling is not assummed to be accurate for all UA types, but sufficient for detection of higher risk in surrounding areas.
506			33	762-763	Identify potential locations for non-sheltered assemblies of people 1km beyond the outer limits of the operational volume during the time of operation.	1 km seems taken arbritarily, furthermore sheltering does not reduce the likelihood of fatalities with regards to operations with UAVs with high impact energy.	Omit the entire sentence	Acknowledged	Rationale on 1 km: see answer to comment 275. Sheltering: This is now part of the alternative method to be found in Annex F.
507			34	778	is used as it is a reasonable assumption that the likelihood of a flyaway event occurring in	replace "flyaway event" by "loss of containment"	is used as it is a reasonable assumption that the likelihood of a loss of containment occurring in	Rejected	What should be assessed is the probability of UAS escape of the volume of the operation, not the loss of the containment function.
508			33, 34	766 780-785	1.2.1. < 25,000 ppl/km^2 if the assembly of people exceeds ~20,000 ppl9;	Elaborate (or cite) the reason behind the difference with the quantitative interpretion of "assemblies of people" for adjacent area and for ground risk class defined in footnote 7 on page 32. This difference is easily confusable and may cause miscalculations. Defining various levels of assembly of people criteria may solve the problem.	NA	Rejected	The probability of impacting an assembly of people in the adjacent area is less than that of one within the operational volume and ground risk buffer. Therefore only larger assemblies of people are meaningful in the adjacent areas.
509			35	Table 4	(High robustness of M2 column) -2 / -3	varying reduction values in M2 high level robustness need to be elaborated or referenced.	NA	Acknowledged	M2 High+ has been removed from the main body mitigations table and a new principle has been added in chapter 1 of Annex B. This explains that when a higher level of integrity is shown, it can be used to gain more benefit from a mitigation.
510			38	926	Calculate the altitude gained in 3 minutes using the maximum climb rate of the UA	Clarification needed: Apart from fixed wing UAVs, which failure conditions in rotary wing UAV may lead to a loss of containment with subsequent flyaway for 3 mins?	Calculate the altitude gained in 3 minutes using the maximum climb rate of the UA, or conservative assumption with acceptable methodology	Rejected	Airspace containment considerations have been removed for simplification.
511			38	930-931	Minimum Altitude: if the operational volume does not reach the ground, any airspace below the operational volume is considered adjacent airspace.	Clarification needed: If this is the case, how do you deal with mitigating the risk to manned air traffic below your OV after flight termination has been triggered in your OV? (example: rotary wing UA falls in a ballistic curve through potentially high risk airspace below). current mitigations for adjacent area/airspace do not apply.	Omit the sentence or clarify further	Acknowledged	Airspace containment was removed for simplification.
512			39	Figure 8	Figure 8 – Determination of the vertical outer limits of the 934 adjacent airspace	the name of the cases shown in Figure 8 do not match the "vertical limits" criteria presented in (c)(1) & (c)(2). Moreover in figure 8 it looks like there are two case (a)b which is confusing. Name of the max Achievable UA altitude should be Case(a)c, and an explanorty text should be added as (c)(1)(3).	case (a)a. -> (c)(1)(1) case (a)b. -> (c)(1)(2) case (a)c. -> (c)(1)(3) case(b) -> (c)(2)	Accepted	Airspace containment was removed for simplification.
513			39	950-952	The strategic mitigation by operational limitation (restriction by boundary and chronology) may be used to reduce the air risk by one class in the case of VLOS operations with a considerably low time of exposure13.	New Annex C is not available. Up to now, ARC could be reduced by 2 classes with srategic mitigations as delineated in the current Annex C. Since the NEW Annex C is not published, this sentence is irrelevant.	Omit the entire sentence	Rejected	A note has been added to mention that this update will be reflected in the future update of Annex C. Since the document was not part of the SORA v2.5, the Annex C could not be updated at this point in time.
514			43	1070	Table 7 – Adjacent Area Containment Requirements	The reason behind the decreasing containment requirements with increasing SAIL should be elaborated. The footnote 16 is not enough.	NA		The SAIL is representative of the Loss of Control of Opertion likelihood, while a loss of containment is always a subset. If with rising SAIL loss of control becomes less likely, it is assumed to proportionally decrease loss of containment, thus lowering the containment requirements. This is now explained in Annex F.
515			44	1105	Table 6 is a consolidated list of…	paragraph refers to Table 10	Table 10 is a consolidated list of…	Accepted	Table numbering updated.
516			44	1111	Table 6 is a consolidated list of…	paragraph refers to Table 10	Table 10 is a consolidated list of…	Accepted	Table numbering updated.

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517			45	1120-1122	ii. Compliance evidence(s) (e.g. tests of a parachute, report of table-top exercise), and iii. Documentation of the SORA process (including the compliance matrix with the SORA, an example is provided in Annex A).	Compliance evidence is prepared after SORA usually as a part of safety portfolio (SORA Step #10), and may be provided as attachment/appendix. (Moreover, evidence may not be prepared, i.e. in low robustness)	ii. Documentation of the SORA process (including the compliance matrix with the SORA, an example is provided in Annex A), and iii. Compliance evidence(s) (e.g. tests of a parachute, report of table-top exercise).	Acknowledged	The text of Step #10 has been reworded, and the intent of this comment (that the derivation of requirements are presented before the compliance evidence) has been incorporated into this rewording.
518			47	1137-1140	(c) In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service and should be included as part of the Safety Portfolio.	First sentence of paragraph ends abruptly. It should be combined with second sentence.	(c) In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator, should also detail the functionality, limitations and performance of the service and should be included as part of the Safety Portfolio.	Accepted	Text has been updated taking into consideration this comment.
519		Executive summary	13	145	The SORA methodology consists of ten systematic steps:	The methodology consists of 10 steps with the the generation of a operator manual to	The method consists of 10 steps that identify the operation, the risks and the required mitigation measures. The result of this method are documents in which all the information is recorded, such as the operator manual, any additional evidence documents if applicable and the risk analysis itself. The applicant is encouraged to start drafting the operator manual from the first step and use the document as a primary tool of communication with the competent authority to evaluate the proposed operation and agree upon the required evidence required to demonstrate compliance with the applicable Operational Safety Objectives (OSO).	Rejected	Refer to the major update of Step#1, Step#10, Phased process and Annex A.
520		Executive summary	13	146	Step #1: Documentation of the proposed operation(s)	The documentation of the operation and the risk mitigations is a continues task paralell to the execution of the SORA. The concrete first step is to identify the main characteristics of the operations.	Step #1: Identification of the characteristics of the operation	Rejected	Refer to the major update of Step#1, Step#10, Phased process and Annex A.
521		Executive summary	13	147-157	Step#1 constitutes the primary tool of communication ...that do not form part of the operator manual, i.e. test data and evaluation.	With the current text, the step describeds the continues administrative task that should be done during the executions of the SORA and describes details that might be relevant at a later stage but not at this moment. Revise the first step the explicitly state what should be the end goal of this step.	Step#1 constitutes the identification of the characteristics of the intended operation. The characteristics of the operation are important to determine the risks relevant to the intended operation. The characteristics may include the following data: - the characteristics of the UAS - the area to be over-flown - the possible number of persons at risk - the altitude at which the aircraft is flown - whether the UAS is flown in sight or out of sight of the pilot - the airspace in which the operation is being conducted It is recommended to record these initial characteristics directly in the draft operator manual.	Rejected	Refer to the major update of Step#1, Step#10, Phased process and Annex A.
522		1.4.1	21	402	None	Remove the blocks with the labels "Contingency Procedures" and "Emergency Procedures". The current view does not represent the text which states that the procedures can also be initiated before the boundaries of the flight geography and contingency volume		Rejected	Even if the remote pilot may decide to start an emergency procedure before the boundaries of the contingency volume, the intent is to state clearly that as soon as this boundary is reached, they must be initiated.
523		1.4.1	20	373	total system error (TSE) of the UA.	should be the total system error of the UAS	total system error (TSE) of the UA**S**.	Accepted	Text updated.
524		1.4.1	20	393	of the adjacent area depends on		of the adjacent area to be considered depends	Acknowledged	Text updated.
525		1.4.1	20	395-397	i. The adjacent Airspace is the airspace adjacent to Operational Volume and depends on the particular UA performance and the resulting likelihood of flying into an airspace with an increased air risk.		i. The adjacent Airspace is the airspace adjacent to Operational Volume. The extent of the adjacent airspace to be considered depends on the particular UA performance and the resulting likelihood of flying into an airspace with an increased air risk.	Partially accepted	Second part of the sentence removed, since the size of the adjacent area is independent from its risk.
526		1.4.2	22	404	How SORA measures risk mitigations	measures does not seem to be the appropritate term	How SORA values risk mitigations	Acknowledged	Text updated.
527			22	410	(i.e. how much confidence....)	reword	(i.e. the degree of certainty with which the integrity is ensured.)	Accepted	Text updated accordingly.
528		1.4.2	22	423-424	integrity has been found to be acceptable by a competent third party	Not in line with OSO texts	integrity **has been validated** by a competent third party	Partially accepted	Text updated to indicate the involvement of the competent third party
529			28	578	Preliminary agreement by the authority	The methodology should be clear and straightforward enough that the outcomes of steps 1 through 8 are fixed for a given situation, and ideally the entire methodology yields fixed outcomes for a given situation. Limiting the number of options will benefit both operators and competent authorities, especially for relatively simple operations with low inherent risk. Simplification will reduce administrative burdens and lower the barrier to innovation. Even the simplest check by competent authorities (such as a yes/no decision) must be documented and recorded, and the terms of the decision must be communicated.	At least add the word “optional”, but rather overthink the methodology from the perspective of practicality, simplicity and predictability as to avoid the necessity of these intermediate checks.	Acknowledged	The phased approach is recommended by WG-SRM as the method to undertake the SORA. A competent authority may determine these phases are not required for a given operation.
530		2.3.1	31	655	the maximum cruise speed and the knowledge of the maximum population density intended to be flown over.	The number of people at risk is not always proportional to the population density of an area. In rural area there could be a large number of people present due to an event which could be the sole reason for the operation. Consider to revise to "people at risk". That could be based on the population density of an area but also on the number of people at a specific location at a specific location.	the maximum cruise speed and **the numer of people at risk.**	Rejected	The ground risk is proportional to the number of people expected to be impacted by the aircraft during a loss of control event, which is the number of people at risk but it can be represented by population density. Please refer to Annex F for further guidance.
531		2.3.1	31	688	Different IGRCs for a controlled ground area.	In a controlled ground area the dimensions or the speed does not effect the number of people at risk. Therefore the IGRC should be the same.	IGRC for a controlled ground area should be 1 value.	Partially accepted	Partially Accepted, some increase in iGRC score was done for larger wingspans for additional risk, but none higher than iGRC of 3 (SAIL II)

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532		2.3.1	31	688	Proposed table for iGRC	Too many options in levels of GR (11!). The fact that only a slight change in ConOps may affect the value of iGRC should be avoided. Mitigation measures in the end may hardly change but the associated Operational Authorisation may be required to be changed resulting in avoidable costs and administrative action. When the engineers behind the proposed changes find it necessary to introduce this many possibilities to cater for the needs of containment requirements modeling, then consider the possibility that the solution to one problem may introduce new problems. In this case the model further increases in complexity. Make containment robust or not so robust, like it is in SORA 2.0. No containment requirements may never be an option as you would accept uncontrollable flights.	Limit the number of possible values by introducing the same value for the combinations of the number of people at risk and the characteristics of the UA being used that result in more or less the same mitigating measures and round off to the safe side where needed. Consider requiring the more stringent measures at the top-end of a category created in this manner to enable the broadest range of operations within that category while at the same time avoiding measures that are too expensive or too robust for a given operation (over the top). Find the sweet spot. In general: Use a coarse-grained proportionate approach in the identification of mitigating measures related to the risk levels. Possibly (re)consider staying in line with manned aviation when associating risks with ground characteristics; congested areas, non-congested areas and assemblies of people, while adhering to controlled ground area. This result is a practical and simple approach. Simplicity usually works better.	Rejected	Values were chosen based on the JARUS ground risk model.
533		2.3.1	31	688	Proposed table for iGRC	The area of a squared kilometer may be too large for the identification of assemblies of people. Think for example of street markets or fairs.	Leave the definition of assemblies of people as it is (SORA 2.0)	Rejected	Please note that the total number depends on the alittude of the UA to be risk appropriate.
534		2.3.1	32	736	An assembly of people is expected to be over 10,000 people	Way too high a number! And think of the combination of low population density with a high number of people being at risk when actually present.		Acknowledged	The single number has been removed from the Main Body. It is a population density for a grid size, so the total number depends on the alittude of the UA to be risk appropriate.
535		2.3.2	33	737-738	Determination of the adjacent area size and adjacent area intrinsic GRC	The entire approach of adjacent ground and airspace considerations is too complicated for practical application by the average operator. This is actually true for SORA in its entirety. The engineering is good, but use the methodology only to justify having to meet certain requirements applicable to human/machine/organisation and relate them to a limited number of characteristics that are easily understood by the drone community. In this case when flying in proximity of an area or airspace with (considerably) more risk, one has to meet a more stringent set of requirements. Start thinking of the concept “risk based rules” where SORA is the global foundation for identifying which set of rules is applicable. In the end the system should be fit for purpose.		Accepted	We have changed the approach retaining the same assumptions as before. Containment has thus been simplified and reintegrated into a single step. The new concept features operational limit which have to be observed by the operator. It is now also possible to identify those limits based on the available containment systems of an operation.
536		2.3.2	33	754-755	the competent authority may ask for or accept an alternative means of calculating the adjacent area	And yet another option. When you state in the introduction of SORA that an alternative approach is always an option then it is not necessary to mention it at individual elements.		Partially accepted	The general statement has been updated in Chapter 1.2 (f) and further such references has been included only when needed to emphasize.
537		2.3.2	34	790	Final GRC Determination	The model lacks tactical mitigation options related to ground risk. It is therefore not completely suitable for European operations as in no way the end result meets the essential requirement, stipulated in paragraph 2.4.3 of annex IX of the Basic Regulation; “Operations with unmanned aircraft must ensure the safety of third parties on the ground and of other airspace users and minimise the risks resulting from adverse external and internal conditions, including environmental conditions, through maintaining appropriate separation distance during all phases of the flight.”		Acknowledged	Mitigation M1(C) tactical mitigations adresses active avoidance of people. Direct compatibility with local regulations is not considered for JARUS recommendations.
538		2.3.3		806-810	90% reduction	When iGRC is determined by population density (qualitative approach) then the actual number of people at risk is not known. Supporting the GRC reduction by justifying a reduction of 90% of people at risk is therefore not possible.		Rejected	The mitigations have been split and mitigations do not always require quantitative evidence for achieving the effect. The 90% is the intent which can be shown to be complied with quantitatively or qualitatively.
539		2.3.3		827	the applicant can work with the Competent Authority	Yet another example of flexibility within the methodology that has a negative impact on the efficiency of the permitting process, overall oversight, and clarity for the operator. The competent authority is not a sparring partner for individual applicants. There simply is no capacity for this and it is not in line with the responsibilities of the competent authorities. Work towards a stakeholder friendly, effective and simple system. In general there are several potential drawbacks to a risk-based system with a lot of room for individual customization in permit granting and oversight, including: Lack of consistency: If there is too much room for individual customization, it can lead to a lack of consistency in permit granting and oversight. This can undermine the credibility of the system and can lead to unequal treatment of permit applicants. Time-intensive: Identifying mitigating measures for each risk can be time-consuming and can result in a lengthy permitting process. This can lead to delays in starting activities and can hinder a company's operations. Costs: The costs of identifying and implementing mitigating measures can be high, especially when individual customization is involved. This can lead to higher costs for both the permit applicant and the regulatory authority. Possible safety risks: If mitigating measures are not adequately identified and implemented, it can lead to safety risks for workers and the environment. Possible legal challenges: A risk-based system with a lot of room		Rejected	Local regulatory aspects are not considered in JARUS recommendations.

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540		2.3.4	35	837	without additional justification	not clear		Accepted	"without additional justification" has been removed, as the level of justification differs depending on the M1 or M2 criteria and level of robustness, which are detailed on SORA Annex B. This is now part of the alternative method to be found in Annex F.
541		2.3.4	36	840-841	M2 mitigations based on passive designs or inherent UA characteristics, like frangibility, may be used to lower the adjacent area intrinsic GRC	not clear		Partially accepted	The link to SORA Annex B for more details is made now, though the explicit mention stating that Table 4 may be applied also for Mitigations to reduce the Adjacent Areas GRC. This is now part of the alternative method to be found in Annex F.
542		2.3.4	36	841-842	M2 mitigations like parachutes or special descent manoeuvres may not be used by default.	not clear		Acknowledged	This statement "M2 mitigations like parachutes or special descent manoeuvres may not be used by default." stands because (b) and (c) have to be considered in case of a fly away scenario (adjacent area). This is now part of the alternative method to be found in Annex F.
543		2.3.4	36	843-844	Applicants may provide justification to the Competent Authority for additional mitigations as long as they are still applicable and in a fly away scenario	not clear		Accepted	We have updated the text as followed: "Applicants may justify additional mitigations to the Competent Authority as long as they are still applicable in a fly away scenario". This is now part of the alternate method for containment that now resides in Annex F.
544		2.3.4	36	845	Mitigations whose failures would lead to a fly away scenario should not be given credit	not clear or extremely obvious.		Partially accepted	For clarification, the sentence has been rephrased. This is now part of the alternative method to be found in Annex F.
545		2.3.4	36	845	For example, if the flight termination system triggers a parachute, in the event of a fly away, it is assumed the parachute system has failed, unless proven otherwise by the applicant.	Foot note not clear at all.		Partially accepted	The sentence has been rephrased, therefore the related footnote should be more comprehensive now: "If a failure of an M2 GRC mitigation would lead to a malfunction of flight termination resulting in a fly away scenario, this mitigation cannot be used for computing the adjacent area final GRC". The flight termination system should keep the UA within the operational volume. This is now part of the alternative method to be found in Annex F.
546		2.4.2.2	38	923	The lateral limit of the adjacent airspace is the same as for the adjacent area		The lateral limit of the adjacent airspace that needs to be taken into consideration is the same as that for the adjacent area.	Accepted	We have removed airspace containment by setting the minimum containment requirement to "low". Separate Airspace containment will be discussed in the Explanatory Note and might become part of the future Annex G (Air Risk Model)
547		2.4.2.2	39	935-937	If the applicant or Competent Authority considers the previous criteria are not appropriate for determining the size of an adjacent area and airspace, the Competent Authority may ask for or accept an alternative means of calculating the size of the adjacent area or airspace.	In general that's true for the entire model right? Introduce the terms and conditions related to flexibility at the beginning and do not repeat.		Accepted	This sentence was removed
548		2.4.3	39	944	the UAS Operational Volume may have a collision risk that differs from the Initial ARC	That is always true		Acknowledged	Local assessments are expected to be used to assess the appropriate value.
549		2.4.3	39	946	an applicant considers	how would he know?		Rejected	The local conditions may vary and justify a reduction. Further guidance is to be found in Annex C.
550		2.4.3	39	948	an applicant considers	how would he know?		Rejected	The expectation is that the applicant has the understanding of the environment in which intends to operate. Further guidance may be added in future developments of the SORA.
551		2.4.3	39	952	For note "This information will be reflected in a later version of Annex C"	Then don't mention it now		Rejected	Since the document was not part of the SORA v2.5, the Annex C could not be updated at this point in time. WG-SRM has included it in the document in advance to enable its usage before the update.
552		2.5.2	43	1072-1076	N = No containment, L = Low containment, M = Medium containment, H = High containment, C = Consult with authority	At least in Europe no containment requirement is unacceptable for any unmanned aircraft operation. It would allow uncontrollable flight. In Europe operations with unmanned aircraft must ensure the safety of third parties on the ground and of other airspace users and minimise the risks resulting from adverse external and internal conditions, including environmental conditions, through maintaining appropriate separation distance during all phases of the flight. Besides this the proposed changes result in too many options. What is this section of the model trying to cater for? Either containment is important or it is not so important, but adding more possible values, including the one requiring consultation with the authority, increases the complexity of model and can be avoided.		Rejected	Low Containment is now the new minimum in the main body. No Containment only becomes possible with an alternative process described in Annex F.

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553		2.6	47	1145	—	Why are the following paragraph removed from SORA 2.5? *The satisfactory substantiation of the mitigations and objectives required by the SORA process provides* (change this in "should provide") *a sufficient level of confidence that the proposed operation can be safely conducted.* *The UAS operator should be sure to address any additional requirements that were not identified by the SORA process (e.g. for security, environmental protection, etc.) and identify the relevant stakeholders (e.g. environmental protection agencies, national security bodies, etc.). The activities performed within the SORA process will likely address those additional needs, but they may not be considered to be sufficient at all times.* *The UAS operator should ensure the consistency between the SORA safety case and the actual operational conditions (i.e. at the time of the flight)*		Acknowledged	These concepts are either already covered by other paragraphs or out of the current scope.
554			17	282	(a) The methodology presented in this document is aimed at evaluating the safety risks involved with the operation of one or multiple[2] UAS of any class and size and type of operation (including military, experimental, R&D and prototyping). It is particularly suited, but not limited to UAS operations for which a hazard and risk assessment is required. The methodology is designed to be applicable to all levels of automation.	This methodology is not specific developed for operations such as military or R&D. This paragraph might suggest that it is a methodology that covers this kind of operations, and they require additional considerations.	(a) The methodology presented in this document is aimed at evaluating the safety risks involved with the operation of one or multiple[2] UAS of any class and size and type of operation (including military, experimental, R&D and prototyping). It is particularly suited, but not limited to UAS operations for which a hazard and risk assessment is required. The methodology is designed to be applicable to all levels of automation. Add a note: military, experimental, R&D and prototyping operations require additional development to take into account their particularities.	Partially accepted	Text updated not to include specific mentionings and indicate the fact that additional considerations might be needed depending on the operation.
555			17	297	(d) Security aspects are covered in the supplemental Cyber Annex for Annex E and are not limited to those confined by the airworthiness of the systems (e.g. aspects relevant to the protection from unlawful electromagnetic interference).	Only cyber?	(d) Cyber Security aspects are covered in the supplemental Cyber Annex for Annex E and are not limited to those confined by the airworthiness of the systems (e.g. aspects relevant to the protection from unlawful electromagnetic interference).	Acknowledged	Text updated accordingly.
556			19	335	In an Abnormal Situation it is no longer possible to continue the flight using normal procedures, but the safety of the aircraft or persons on the ground or in the air is not in danger.	To be consistent with what it is set in line 325, we suggest adding "immediate" before "danger".	In an Abnormal Situation it is no longer possible to continue the flight using normal procedures, but the safety of the aircraft or persons on the ground or in the air is not in inmediate danger.	Accepted	Text updated.
557			19	348	Emergency Procedures are executed by the remote crew and may be supported by automated features of the UAS and are intended to mitigate the effect of failures that cause or lead to an emergency condition. They deal with affecting the UA to either return to a state where the operation is "in control" or to minimise hazards until the flight has ended.	Could the emergency procedures be executed automatically? This sentence suggests that always should be executed by a pilot.	Emergency Procedures are executed by the remote crew and may be supported by automated features, or vice versa (executed by automated featuresthe r and may be supported by remote crew), of the UAS and are intended to mitigate the effect of failures that cause or lead to an emergency condition. They deal with affecting the UA to either return to a state where the operation is "in control" or to minimise hazards until the flight has ended.	Partially accepted	Text updated to include "vice versa".
558			20	381	If an operation loses control in a way that the UA exits the Operational Volume, it shall be contained to end its flight inside the Ground Risk Buffer.	The operator is the one who loses the control of operation.	If the operator loses control of the operation in a way that the UA exits the Operational Volume, it shall be contained to end its flight inside the Ground Risk Buffer.	Acknowledged	Text updated
559			22	417	The SORA proposes three different levels of robustness: Low, Medium and High, commensurate with risk:	Do these criteria always apply ?	The SORA proposes three different levels of robustness: Low, Medium and High, commensurate with risk. General guidance for the level of assurance is provided below:	Partially accepted	Please refer to paragraph 2.4 (h) for the indication of possible deviation.
560			27	570	It is recommended that the applicant gets in contact as early as possible with the competent authority in order to present the available information and reach a common initial understanding on the final GRC, Residual ARC, subsequent SAIL as well as the risk level of the adjacent area.	In some states due the administrative procedure is not possible to establish easily an informal pre-evaluation of the application.	It is recommended, depending on the capacity and administrative procedures of the competent authority, that the applicant gets in contact as early as possible with the competent authority in order to present the available information and reach a common initial understanding on the final GRC, Residual ARC, subsequent SAIL as well as the risk level of the adjacent area.	Acknowledged	The phased approach is recommended by WG-SRM as the method to undertake the SORA. A competent authority may determine these phases are not required for a given operation.
561			29	618	Developing an operator manual together with the SORA safety case is an iterative process. As the process is applied, additional mitigations and limitations may be identified, 618 requiring additional associated operational and technical information to be provided/updated in the operator manual. This should result with an operator manual that comprehensively describes the proposed operation as envisioned.	Where should be the Technical description of the UAS included ? in the OM or in the Compliance evidences? Clarify		Acknowledged	Operator Manual is no longer used in this way and now reflects the intent of the majority of comments (an operator centric document to operate a system). The technical description and the OM are both part of the compliance evidence used to satisfy SORA requirements.
562			30	647	ii. Changes not requiring prior approval by competent authority.	Changes not not requiring prior approval by competent authority could be classified into two subgroups: changes that should be communicated to the competent authority and that should not. In addition, We suggest move this paragraph to Annex J.		Acknowledged	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.
563			31	689	(f) An UA weighing less than 250g and having a maximum cruise speed less than 25m/s is considered to have iGRC of 1 regardless of the population density.	Size vs weight. What is the rationale behind this criteria? Clarify.		Acknowledged	UA of this weight and speed are expected to be non-lethal, thus an iGRC of 1. This is intended to simplify these applications and optimise the work needed to justify an M2 mitigation for both applicants and authorities.
564			32	720	The GRC is found at the intersection of the applicable maximum population density and the column matching both the max UA characteristic dimension and the maximum cruise speed expected. In case of a mismatch between the Max UAS characteristic dimension and the maximum cruise speed, the applicant should choose the left most column that meets both criteria or provide substantiation for the chosen column.	¿left or right?	The GRC is found at the intersection of the applicable maximum population density and the column matching both the max UA characteristic dimension and the maximum cruise speed expected. In case of a mismatch between the Max UAS characteristic dimension and the maximum cruise speed, the applicant should choose the right most column that meets both criteria or provide substantiation for the chosen column.	Rejected	Both criteria are met at the most left column, so a big UA (8m) with low cruise speed (25 m/s) would meet both criteria in the left most column, at max dim 8m and max speed 75 m/s. This would be the 1st column that both criteria are met if starting from the left (max dim 1m) and moving right (towards max dim 40m).

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565			32	734	(o) A generally conservative size of the critical area for most UAS can be anticipated by considering both the size and speed used in the iGRC determination. The applicant may feel that the iGRC is too conservative for their operation. Therefore, an applicant may decide to calculate the actual critical area applying a mathematical model defined in Annex. If the calculated critical area corresponds to the critical area identified in Annex F for a UA of a smaller size, then the applicant may use the corresponding iGRC.	Annex F?	(o) A generally conservative size of the critical area for most UAS can be anticipated by considering both the size and speed used in the iGRC determination. The applicant may feel that the iGRC is too conservative for their operation. Therefore, an applicant may decide to calculate the actual critical area applying a mathematical model defined in Annex F. If the calculated critical area corresponds to the critical area identified in Annex F for a UA of a smaller size, then the applicant may use the corresponding iGRC.	Accepted	"F" incorporated in the original text and then restructured.
566		Footer line	32		An assembly of people is expected to be over 10,000 people, which is the minimum number of people needed to treat a grouping of people as an assembly of people).	10,000 (ppl/km2) ?	An assembly of people is expected to be over 10,000 people/ km2, which is the minimum number of people needed to treat a grouping of people as an assembly of people).	Rejected	The intent was to define a total number of people so that it was clear that a small group of people gathering would not be interpreted as an assembly of people. The single number has been removed from the Main Body. It is a population density for a grid size, so the total number depends on the alitttude of the UA to be risk appropriate.
567			33	741	(b) The lateral outer limit of the adjacent area is calculated from the operational volume as: 1. either the maximum range remaining of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume, or	These criteria could drive operators to limit the endurance of the UAs instead of improving their capabilities (for example, enhanced containment). AESA Spain proposes to use an Excel template with which the operator can easily estimate the size of the adjacent area based on different parameters. AESA Spain has develop one for that purpose.		Rejected	The first case is removed as it was added without knowledge 5 km being intentionally the smallest possible adjacent area. The size of an adjacent area is not only determined because of the UA characteristics, but also because of mapping related smoothing boundary effects.
568			33	755	If the applicant or competent authority considers the previous criteria are not appropriate for determining the size of the adjacent area, the competent authority may ask for or accept an alternative means of calculating the adjacent area. The UA's inherent flight characteristics in a loss of control situation can be used to argue for a different size of the adjacent area.	AESA Spain proposes to use an Excel template with which the operator can easily estimate the size of the adjacent area based on different parameters. AESA Spain has develop one for that purpose.		Partially accepted	We have changed the approach retaining the same assumptions as before. Containment has thus been simplified and reintegrated into a single step. The new concept features operational limit which have to be observed by the operator. It is now also possible to identify those limits based on the available containment systems of an operation.
569		Table 4	35		M1(B) - Visual Line of Sight (VLOS) - avoid flying over people	I will be very difficult for the pilot to see both, the UA and the people on ground, at the same time.		Acknowledged	The mitigation for ground observation has been updated.
570			35	811	When applying mitigation M1, the GRC cannot be reduced to a value lower than the lowest value in the applicable column in Table 2. This is because it is not possible to reduce the number of people at risk below that of a controlled area	Could be considered an exemption for particular places like test centers?		Acknowledged	The values for controlled ground areas in the iGRC table have been lowered to address the possibility of conducting testing in SAIL II.
571			36	864	As part of the SORA process, the Operator should cooperate with the relevant service provider for the airspace (e.g. ANSP or UTM/U-Space service provider) and obtain the necessary authorizations. Additionally, generic local authorizations or local procedures allowing access to a certain portion of controlled airspace may be used if available (e.g. Low Altitude Authorization and Notification Capability – LAANC – system used in the United States).	"a certain portion of controlled airspace or FIZ".	As part of the SORA process, the Operator should cooperate with the relevant service provider for the airspace (e.g. ANSP or UTM/U-Space service provider) and obtain the necessary authorizations. Additionally, generic local authorizations or local procedures allowing access to a certain portion of controlled airspace or FIZ may be used if available (e.g. Low Altitude Authorization and Notification Capability – LAANC – system used in the United States).	Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
572		Figure 8				The different cases are described using numbers in the text (1.1, 1.2, 2) and appear in the Figure 8 with letters (a (a), a(b) a)).		Acknowledged	The figure has been reviewed.
573			40	979	In case the remote pilot relies on detection by observers, the use of phraseology will have to be described as well.	In case the remote pilot relies on detection by observers, what is the different between EVLOS and BVLOS with visual aids (sky scanners) operations?	In case the remote pilot relies on detection by sky sacnners, the use of phraseology will have to be described as well.	Acknowledged	Changes to air risk terminology were out of scope for version 2.5.
574			44	1090		No training requirements are required.		Rejected	N/A - wrong reference.
575	General					Without Annex A, C, D, J and G it is not possible to properly comment		Acknowledged	Annex C, D have not been modified as part of this updated. Together with Annex G (unpublished yet) they will be considered for future updates of the SORA. Annex J has not been published at this time.
576			14	181	… as an input to Step#9 (containment requirements)	Wrong refference	… as an input to Step#8 (containment requirements)	Accepted	Comment accepted.
577	General					Adjacent area and adjacent airspace concepts are not actually defined in Annex I, a proper explanation of these concepts should be provided		Accepted	Definitions included in Annex I
578			38	290		Adjacet airspace should be justified, in particular the vertical limits. There are several Class A airspace with lower limits at 1000ft AGL, so a minimun of 500m of vertical adjacet airpaces would difficult VLL UAS operations below Class A airspace wich is not even considerer on the decision tree of Step #4 in SORA (Why not a minimum of 250m of vertical limits?)		Rejected	No proposed text suggested. Rationale is addressed in Explanatory Note to SORA 2.5.
579			30	651-652	The intrinsic UAS ground risk relates to the risk of a person being fatally struck by the UAS (in the case where the UAS operation is out of control) absent any mitigations being present.	Due to the addition of the GRC of the adjacent area, I would clarify the definiton of iGRC as the risk of beign struck by the UAS inside the flight geography. Also, as described in the definition of the GRC of the adjacent area (lines 739-740), the fly away is what leads the UA to be in the adjacent area. So, this should be taken into account in the definition of the iGRC excluding the fly away from the possible cases that leads to an UAS operation to be out of control inside the flight geography.	The intrinsic UAS ground risk relates to the risk of a person being fatally struck by the UAS inside the flight geography (in the case where the UAS operation is out of control, except fly away to the adjacent area) absent any mitigations being present.	Acknowledged	This sentence was removed for readability as it was duplicating information.
580			32	717-721	In case of a mismatch between the Max UAS characteristic dimension and the maximum cruise speed,the applicant should choose the left most column that meets both criteria or provide substantiation for the chosen column.	Big UA with low cruise speed matching first column of GRC does not make too much sense. In case of failure, the damage is more related to the weight than with cruise speed, an the weight usually is more related to the dimension. I think in case of mismatch right column should be used.	In case of a mismatch between the Max UAS characteristic dimension and the maximum cruise speed,the applicant should choose the right most column that meets both criteria or provide substantiation for the chosen column.	Rejected	It is the left most column where both criteria are met, so a big UA (8m) with low cruise speed (25 m/s) would meet both criteria in the left most column at max dim 8m and max speed 75 m/s.
581			35	805	M1(B) – Visual Line of Sight (VLOS) - avoid flying over people	This mitigation should be renamed. Current name seems that maintaining VLOS is enoguh, while it's only the first bullet of the integrity.		Accepted	Mitigation renamed M1(C) - tactical mitigations - ground observation

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582	M1(A) and M1(B) mitigations are not related between eachother. It would make more sense to rename it as M1 and M2, and current M2 as M3. For example.							Rejected	M1 mitigations are intended to reduce the number of people at risk. M2 mitigations reduce the severity of impact.
583	When applying GRC table to zeppelins or free balloons, the resulting GRC due to its size is not according to the real risk. The GRC of this kind of UAS should be assesed in the same way?							Acknowledged	This issue is generic for lighter-than-air (LTA) and other unconventional configurations (e.g. ultra-light, extra-wide wingspan aircraft). Please refer to part (b) in "Identification of the iGRC" section and Appendix A in Annex F.
584	Take in count the limited availability od the population density data	Step #2 – Determination of the intrinsic UAS Ground Risk 650 Class (GRC)	32	702, 703, 704	Guidance in the Flight Safety Analysis Handbook suggest that cell resolution should be approximately equivalent to the dispersion area of and operation	Currently, Population density data is not an easy information to get and so then you can´t choose the best resolution for your operation. Maybe in a future this coud be possible but currently this option is not applicable for the most of the countries.	The operator shoud choose the highest resolution population density data and resize up it for the operation scale if needed.	Partially accepted	The sentence the comment referenced was removed and guidance for maps was included in the "Population density information" section.
585	Authorities always should promote the highest resolution for the Population density data	Step #2 – Determination of the intrinsic UAS Ground Risk 650 Class (GRC)	32	706	If high resolution or dynamic maps are to be used, the 706 operator must justify the usage of the maps and show the reduction of risk.	Taking in count that the iGRC implies that the hihgest population density should be used the use of the highest resolucion only takes benefits. The higest resolution avoid that a data outside the flight geography can be include inside the flight geography because the lack of resolution. If the highest resolution is not chosen, the data may be distorted.	The operator should choose the highest resoluction data available or dinamic maps	Partially accepted	Guidance for maps was included in the "Population density information" section.
586	The maximum cruise speed is conservatively defined as the maximum possible commanded 713 airspeed of the UA, as defined by the manufacture	Step #2 – Determination of the intrinsic UAS Ground Risk 650 Class (GRC)	32	712-716	The maximum cruise speed is conservatively defined as the maximum possible commanded 713 airspeed of the UA, as defined by the manufacturer. This is not the mission specific maximum 714 commanded airspeed of the UA as reducing the mission airspeed may not necessarily reduce 715 the impact area. See Annex F, for more details. Mitigations that limit the airspeed below this 716 value during an impact can be accounted for in Annex B, part of Step #3	Is not proportional set the maximun speed to calculate the iGRC. It should be quantificated the probability to exceed the flight geography at maximun speed instead of the operational speed.	To calculate the IGRC it should be used the mission typical mision airspeed of the UA .	Rejected	Maximum commanded speed is used to account for user error, etc. Please refer to M2 mitigations, if applicable.
587	Paragraph repeated	Step #2 – Determination of the intrinsic UAS Ground Risk 650 Class (GRC)	32	731-732	A generally conservative size of the critical area for most UAS can be anticipated by 732 considering both the size and speed used in the iGRC determination.	Paragraph repeated	Remove duplicated text	Accepted	Change incorporated in the original text and then restructured.
588	Is not explained in which cases we should choose one option or another	Determination of the adjacent area size and adjacent area 738 intrinsic GRC	33	742-747	1. either the maximum range remaining of the UA once it leaves the operational 743 volume if it is less than 5 km from the edge of the operational volume, or	Is not explained the difference between the case 1.1 and 1.2.1 Additionally is not proportionate calculate the maximum exceeding distance without taking into account the different mitigation layers that the operator has to avoid this like technical contention, operational procedures etc. And the reduction of probability to keep in flight each time the UA go further. An alternative mean of determine the adjacent distance is provided. 'Adjacent distance calculation simplified_v06' developed by the Spanish aviation authority taking in account the exceeding probability and the operational and technical means to avoid a fly away.	1. either the distance travelled of the UA d in base of the operational speed autonomy and the technical and operational mitigations already stablished by the operator (Enhanced contention, SAIL Level, etc) using an accepted methodology by the NAA. 2. or the distance flown in 3 minutes at maximum cruise speed of the UA: 2.1. If the distance is less than 5 km, use 5 km. 2.2. If the distance is between 5 km and 35 km, use the distance calculated. 7 2.3. If the distance is more than 35 km, use 35 km	Rejected	The different uses cases are now presented in 4.8.3, and differentiate between less than 5 km, more than 35 km and between 5 and 35 km.
589	This comment should be included in the paragraph 741 as is described in the previous comment	Determination of the adjacent area size and adjacent area 738 intrinsic GRC	33	753-756	(c) If the applicant or competent authority considers the previous criteria are not appropriate for 754 determining the size of the adjacent area, the competent authority may ask for or accept an 755 alternative means of calculating the adjacent area. The UA's inherent flight characteristics in 756 a loss of control situation can be used to argue for a different size of the adjacent area.	Remove this paragraph and include it in the lines 742 and 743	1. either the distance travelled of the UA d in base of the operational speed autonomy and the technical and operational mitigations already stablished by the operator (Enhanced contention, SAIL Level, etc) using the an accepted methodology by the NAA. 2. or the distance flown in 3 minutes at maximum cruise speed of the UA: 2.1. If the distance is less than 5 km, use 5 km. 2.2. If the distance is between 5 km and 35 km, use the distance calculated. 7 2.3. If the distance is more than 35 km, use 35 km	Rejected	This sentence was removed
590	Is not possible determine the dimension of the assemblie of people if this is not happenning at the moment, because in the paragraph 762 the text refers to locations not assemblies	Determination of the adjacent area size and adjacent area 738 intrinsic GRC	33	766	1.2.1. < 25,000 ppl/km^2 if the assembly of people exceeds ~20,000 ppl9 766	Indicate that for generic authorisations the operator can choose the population gathering that better fits with the operation	As per comment		For static assemblies (e.g. stadiums), the maximum capacity of the typical locations of those assemblies should be used. For dynamic assemblies (e.g. strikes in big enough cities), the competent authority (or local authorities, such as the police) might impose additional requirements for the evaluation of the latter before individual operations.

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591	It should be given a metodology to calculate the average population density based in GIS tools instead of talk about conservative simplifications.	Determination of the adjacent area size and adjacent area 738 intrinsic GRC	34	776-779	776 (f) Conservative simplifications for calculating the average population density should be 777 accepted to allow more practical calculation means. Unlike the iGRC table, the average value 778 is used as it is a reasonable assumption that the likelihood of a flyaway event occurring in 779 different portions of the Adjacent Area is close to uniform.	Include a methodology to calculate the density population data instead of refer to conservative simplifications. The tools and procedures should be given as far as possible. From AESA have metodology and examples to calculate the population density using open sources that can be taken as frame to clarify this point.	The average population density data would be calculated using geographical layers with the information about the population density: This layers could have different resolution depending the resources of each region or country. The population information of the adjacent area will be extracted from the layer and used to calculate the population density of the data within the boundaries of the adjacent area.	Accepted	We a have a discussion on mapping materials in the new Annex F both for GRC and adjacent area calculations.
592	include the option in which the operator nave enhanced contention	2.3.2 Determination of the adjacent area size and adjacent area intrinsic GRC	33	756	No text included	is not included in the calculation of adjacent area the case in which the UA is equipped with enhanced containment. In this case the adjacent area should be Zero because the probability to exceed the operational volume is too low. This text is writed from the point of view of what are the technical requirements to operate in a precise location in base of the risk and this can be mitigated with a enhanced containment suposing this is not equipped initially in the UA but it should be included the option of a UA that already have instaled an enhanced containment in which case the adjacent area should be zero.	In case of the UA is already equipped with a enhanced contaiment is not likelihood it exceed the operational volume so in that cases the adjacent ares would be Zero. The type of contention should modify the adjacent area.	Partially accepted	We have changed the approach retaining the same assumptions as before. Containment has thus been simplified and reintegrated into a single step. The new concept features operational limit which have to be observed by the operator. It is now also possible to identify those limits based on the available containment systems of an operation.
593	Determination of the adjacent area size and adjacent area	Determination of the adjacent area size and adjacent area 738 intrinsic GRC	33	744	Adjacent Area Ground Risk Assumptions and Airspace sizing: 2. the distance flown in 3 minutes at maximum cruise speed of the UA	It is unrealistic to estimate a range of 3 minutes for all types of aircraft once control is lost to estimate the adjacent area. Fixed wings naturally are going to need more and airships are spcial cases.	2. the distance flown in 3 minutes at maximum cruise speed of the UA for multi-rotors and 10 minutes for fixed wings. Special consideration to airships	Rejected	The first case is removed as it was added without knowledge 5km being intentionally the smallest possible adjacent area. The size of an adjacent area is not only determined because of the UA characteristics, but also because of mapping related smoothing boundary effects.
594	Concerning the concept of maximum cruise speed	MAXIMUN CRUISE SPEED	32	712-715	The maximum cruise speed is conservatively defined as the maximum possible commanded airspeed of the UA, as defined by the manufacturer. This is not the mission specific maximum commanded airspeed of the UA as reducing the mission airspeed may not necessarily reduce the impact area.	the maximum commanded speed should be estimated by the operator on the basis of tests or test flights, and must be within the limits established by the manufacturer.	The maximum cruise speed is conservatively defined as the maximum possible commanded airspeed of the UA, as defined by the applicant, based on trials and test flights, being within the limits set by the manufacturer. This is not the mission specific maximum commanded airspeed of the UA as reducing the mission airspeed may not necessarily reduce the impact area.	Rejected	The use of the designer defined maximum commanded airspeed was consider optimal to use for both operators and authorities. Please refer also to M2 mitigation, if applicable.
595	THE CONCEPT OF TLOS IS NOT ADEQUATELY EXPLAINED	TLOS	16	120-124,130,136,231-236	The TLOS of operations under the categories covered by SORA is equivalent to that of the category A “open” and C “certified” categories	This concept needs to be properly defined and a probability table needs to be made based on the probability of occurrence according to the category of operation. As an alternative a clear reference to the specific point in 1309 should be added. Add also TLOS definition to annex I	This concept needs to be properly defined and a probability table needs to be made based on the probability of occurrence according to the category of operation. As an alternative a clear reference to the specific point in 1309 should be added	Partially accepted	Text updated to clarify the category refered to. The information regarding probabilities has not been deemed to add significant added value in the context of the Main Body.
596	Applicable aircraft types of the methodology	Step #2 – Determination of the intrinsic UAS Ground Risk 650 Class (GRC)	30-34	650-789	Absent	Aircraft such as airships have not been considered throughout the proposed methodology. There should be an explicit consideration about this. Perhaps to large airships the iGRC should be calculated considering only the rigid core and if containment is required it should be always and enhanced containment.	In the case of airships special considerations must be considered to consider the iGRC (large but light aircraft) and the adjacent airspace (floating unless some FTS is effectively applied).	Partially accepted	This issue is generic for lighter-than-air (LTA) and other unconventional configurations (e.g. ultra-light, extra-wide wingspan aircraft). Please refer to Part (b) in "Identification of the iGRC" section and Appendix A in Annex F for guidance on edge cases.
597	Take in count the limited availability od the population density data	Step #2 – Determination of the intrinsic UAS Ground Risk 650 Class (GRC)	32	702, 703, 704	If high resolution or dynamic maps are to be used, the 706 operator must justify the usage of the maps and show the reduction of risk.	In calculating the average density, it should be noted that for certain areas, such as coastal areas for example, it would not be valid to lower the population density by estimating the maritime areas.	operator must justify the usage of the maps and show the reduction of risk. In coastal or similar areas, the operator should refrain to stablish an area that dilute the population at risk by the expedient of taken advance of artificial operational volumes.	Rejected	The highest population density is used to mitigate this in the iGRC footprint, so a larger operational volume will not have any effect. For the adjacent area where it is averaged, all areas should be averaged in order to reflect the risk.
598	Explanatory notes		5		For lower SAIL the operator manual is expected to be of small size, the content increases with the SAIL. The operator should avoid including in this document information not relevant to conducting the operation.	The content increases with the different locations and type of operations apart the sail level. A operator can have a very big MO if develop a whide variety of operations in diferent locations even in SAIL II	For lower SAIL the operator manual is expected to be of small size, the content increases with the SAIL, whit the different CONOPS authorised and with the precise autorisations given to the operator. The operator should avoid including in this document information not relevant to conducting the operation.	Rejected	This is intended as a general statement on relative size and not to capture all the ways in which the operator manual can grow in size.
599	Explanatory notes		5		The operator is expected to use population density maps taking into consideration the fluctuations happening in different times of the year or of the day (e.g. during day business centres are more populated while during night residential centres are). In cases when accurate maps are not available, a proposed correspondence with the qualitative identification of the population density is provided.	This sentence is very optimistic at this time. The technology regarding live population density is not so advanced. Currently the main option is static layers with more or less resolution. It should be reflected the state of the art in the paragraph.	The operator is expected to use the most accurate population density maps available. Since currently the main option is the use of static layers with higher or lower density the best is the use of dynamic population when possible. This dinamic info take into consideration the fluctuations happening in different times of the year or of the day (e.g. during day business centres are more populated while during night residential centres are). In cases when accurate maps are not available, a proposed correspondence with the qualitative identification of the population density is provided.	Rejected	Use of dynamic maps are not considered required for Step 2, but instead a potential mitigation.

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600	Explanatory notes		6		A new M1b has been introduced for VLOS operations, while VLOS/BVLOS criteria have been removed from Step #2.	The new revision of the VLOS is against the definition of VLOS in the glossary. This change supose a whide reduction of the operations that can be performed under VLOS conditions, so this mitigation should be removed or transformed into an mild controled area (The pilot or ancillary personal controls the flight and the terrain)		Accepted	Term VLOS removed from the migation. Mitigation renamed as ground observation.
601	Explanatory notes	A.1.1.3 Maximum Size of Adjacent Area	12		Highlighted in green are distances that are starting to exceed the size of even the largest cities on earth and therefore will certainly be counterproductive definitions. If the area measured is larger than a city then the measured population density will start to always lower and not be useful in distinguishing between high and low population density areas.	The target of this point sholud be calculate the spected operational population density in the most probable adjacent area, not find the highest population density arround a flight geography.	for the calculation of this area should be taking into account from the operational speed (not the maximun) to the level of containment including the reduction of probability of remain in flight as the UA is further of the initial loss of control point.	Rejected	The failure modes of various types and designs of UA are impossible to be modelled accurately. Any strong assumptions on the shape of the probability distribution for fly-aways was considered overly complicated in relation to impact on risk. However, the more accurately measured population densities can be calculated much easier if the probability weighting is equal over the adjacent area.
602	Explanatory notes		13		In the examples of population density is written volume radius when in the text below seens that data shuld be diameter.	Volume radius --> diameter The adjacent areas of 22,5km and 30km "this would be the radious value"	Volume diameter	Acknowledged	This has been moved to Annex F
603	Explanatory notes		Several pages		* - Areas showing no population were assumed to have a density of 10 ppl/km	Why this assumption?	* - Areas showing no population were assumed to have a density of 0 ppl/km	Acknowledged	The assumption is set for a very low population density simply because claiming no people would require a controlled ground area and this would have been impossible in such a large area. This section has been moved to Annex F
604	Explanatory notes		18		3,6 km --> 872,3 population density	Example #5 shows how the biggest population density could be achieved at distances lower than 5 km.	for the calculation of the adjacent area should be taking into account from the operational speed (not the maximun) to the level of containment including the reduction of probability of remain in flight as the UA is further of the initial loss of control point. A low boundary of 5 km should not be take in count in order to be proportional.	Acknowledged	The minimum definition of 5km for adjacent area size was set to exclude very large density estimates coming from large proportional changes at the smalles siye definitions for adjacent areas. The area sizes were standardized to a point for consitency in setting thresholds for requirements.
605	Explanatory notes	Evaluating Gatherings of People in the Adjacent Areas	19		This type of an event is very easy to predict and detect by a UAS operator.	Generic authorisation process is not conveniently explained In this cases the operator could apply for an operational autorisation in a supposed worst case even. Aditionally How can easily an operator get the information of population density in before a manifestation or a event like a sport trial? This procedure should be included in the operation manual in the part of evaluation of local conditions.	The operator should in cases of generic autorisations set a value of maximun population density related with the adjacent area and tking this into account set the required level of containment in treis UAS. Before flight the operator should evaluate the local conditions including the possible gatherings of people for the intended operation and this should be explained in the OM.	Accepted	We have implemented your proposal in a newly organised Step 8
606	Explanatory notes		22		?($_{LoC A}$ | ??) is the probability of a loss of control event occurring within the adjacent area, resulting in an impact with the ground. As a conservative assumption, it is assumed that the aircraft will impact the ground in the adjacent area at some point (i.e. ?($_{LoC A}$ | ??) = 1).	Here is not taking into account that further away the UA is less probability to keep in flight acoording to a normal distribution. This could be integrated in the way that each increse of order of mangnitude reduces the probability of fall and hit somebody. 500m --> 10(-1) 5000m --> 10(-2) 50000m -->10(-3)	In order to calculate the expected casualty rate in the adjacent area the reduction of probability to remain flying should be take into account. (for example) 500m --> 10(-1) 5000m --> 10(-2) 50000m -->10(-3)	Rejected	Different approaches to mathematical modeling were considered but ultimately the simplest and reasonably conservative approach was chosen.
607	Explanatory notes		22		Containment Requirements as a Function of final GRC in the Adjacent Area	Containment should be related with the size of the adjacent area and not backwards. In this approximation the adjacent area is calculated without taking into account the level of contention os the UAS but is not proportional think that even having the enhanced contaiment your adyacent area would remain. The adjacent area should be recalculated according to the UAS level of containment.	As per comment	Accepted	We have fundamentally restructured containment in order to simplify the workflow.
608	ASD global feedback					ASD expresses its consensus on the approach adopted by JARUS for the updated SORA 2.5 recognizing the general values of simplification, flexibility and clarity as well as the specific modifications on quantitative approach for ground risk, containment, ground risk mitigations, functional test based approach and removal of air risk buffer. Nevertheless ASD is concerned by the fact that such a key element of the drone operation centric, risk-based, performance based regulation implementation is not completely revised excluding air risk model update which will be object of the way forward called SORA 3.0. The risk that we foresee is that changing partially the AMC/GM after only a few months of experience with current applicable SORA 2.0 will not allow the stabilization, harmonization and standardization of the drone sector between all the stakeholders. ASD would like EASA to consider this risk and to propose mitigations means such as transitional provisions to reduce the impact for stakeholders.		Rejected	This comment relates to EU requirements and is not in the competency or JARUS.
609	ASD global feedback					ASD understanding is that EASA does not plan any consultation of the amended AMC1 to Article 11 after adoption of SORA 2.5, this JARUS consultation is the unique possibility for stakeholders like ASD to provide comments for the future AMC, for this reason, it is important that JARUS with the support of EASA provides an answer for each comment through a CRD or equivalent		Acknowledged	This comment relates to EU requirements and is not in the competency or JARUS.

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610		The SORA approach	13	127	TLOS for the air risk at 10-9/FH or 10-7/FH is expressed in MAC/FH (as written in the main body) and not Fatalities/FH. In this case, the example of the explanatory note where a drone operation near an airport does not reach the required level of safety. Indeed, we are no longer at 2.75 10-10/FH from MAC/FH, but at 2.75 10-9 MAC/FH (if we consider the hypothesis of the example p(Fatality|MAC) = 0.1.)	Difference between main body TLOS "the TLOS is one mid-air collision per billion flight hours (1E-9 mid-air collisions per flight hour)." and explanatory note "P(fatalities/FH) (e.g. page 33)		Acknowledged	Corrected TLOS wording in the SORA document
611		Operational Volume	20	372-374	The outer boundary of the Flight geography shall include the total system error (TSE) of the UA. The UAS operator should, therefore, establish sufficient margins to cater for such errors	What is TSE? How it is evaluated/calculated? This TSE was not quoted in the previous version of the SORA. No indication is given on the way to calculate it. Does this correspond to the global probability of the UA exiting the Operational Volume ?		Acknowledged	Text not updated in this version. To be considered in v3.0.
612		2.3.1	32	720-721	In case of a mismatch between the Max UAS characteristic dimension and the maximum cruise speed, **the applicant should choose the left most column that meets both criteria or provide substantiation for the chosen column**	if mismatch between max dimension and max cruise speed, then how it can meet both criteria? **=> Wording to be reworked**		Accepted	Wording updated and removed "mismatch" and related wording.
613		2.3.1	32	725-726	A generally conservative size of the critical area for most UAS can be anticipated by considering both the size and speed used in the iGRC determination. There are certain cases or design aspects that are non-typical and may have a significant effect on the critical area of the UAS such as fuel, high-energy rotors/propellers, etc **These may not have been considered in the iGRC table, but may lead to an increase in iGRC**	how to understand this comment? How they are taken into account when evaluating the iGRC?		Acknowledged	Sentence was removed.
614			32	703-704	Guidance in the Flight Safety AnalysisHandbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation	What is the dispersion are of an operation ? Please could you define accurately this term in SORA. Indeed FAA doc thalks abour impact dispersion, not area		Acknowledged	The sentence the comment referenced was removed and guidance for maps was included in the "Population density information" section.
615			32	701	(i) Determining the population density to calculate the iGRC in Step #2 needs to be done using the highest resolution static maps appropriate to the operation and available to the operator, unless maps for Step #2 are required by the authority.	It could be clarified / recalled that the map has to be current.	(i) Determining the population density to calculate the iGRC in Step #2 needs to be done using the up-to-date / most recent or latest published highest resolution static maps appropriate to the operation and available to the operator, unless maps for Step #2 are required by the authority.	Rejected	While the intent is understood, there is no agreed upon definition of currency when it comes to maps for this purpose.
616		2.5.2	43	1069	Adjacent area final GRC table	Regarding Concept of operation, iGRC & SAIL, containment is most of the time Low/None. Why such a difference of requirements with SORA 2.0 ?		Acknowledged	If you take into account the air risk requirements, the containment level will be "Low" in most cases and only becomes "None" in remote locations. The big deviation to SORA 2.0 has become necessary, as the triggering mechanism of SORA 2.0 often resulted in containment requirements that were too conservative and could not be explained with the updated GRC model of Annex F. Therefore, containment triggers were completely reengineered and verified. We have set containment minimum to "Low" to be able to skip the airspace assessment.
617		2.5.2	43	1079	Adjacent Airspace Containment Requirements	For SAIL I, II, III, IV => Only operations under a huge atypical area (ARC-a) or operations above FL600 could guarantee a highest adjacent airspace of "None". All other operations will reach a adjacent arispace containment requirement "Low"	For SAIL I, II, III, IV => Only one line: Low. For SAIL V, VI => Only one line : None	Rejected	This comment is no longer applicable. The adjacent airspace evaluation has been removed.
618		Ground Risk Buffer	20	384-385	The footprint of the Operational Volume plus the Ground Risk Buffer is the reference area to determine the Ground Risk Class	New as previously in 2.0, Ground risk Buffer was not considered for iGRC but within M1		Rejected	The Risk Buffer was considered for the iGRC calculation also in SORA 2.0 (ref to SORA 2.0 semantic model).
619		2.3.1	31	681	f. UA performance.	such as climb or descent rate? or controlla/maneuvrabilty?	Give example of UA performance	Rejected	A list was not included as it may include many factors and be UA specific.
620		2.3.1	31	685	Table 2 illustrates the iGRC used in the iGRC Determination. The iGRC is found at the 686 intersection of the applicable maximum population density and the column matching both the 687 max UA characteristic dimension and the maximum cruise speed expected	When an UAV has a speed in column 1 and a wingspan a bit higher than column two, we cannot take column two anymore ? We must justify from annex F calcualtion ?		Acknowledged	The applicant may use the equations in Annex F to justify the chosen column.
621		2.3.1	32	712-713	The maximum cruise speed is conservatively defined as the maximum possible commanded airspeed of the UA, as defined by the manufacturer.	could be limited by the system (e.g .FCS) or is VNE?		Acknowledged	Theoretically it could be a designer implimented limit (e.g. FCS). For operator implimented limits refer to M2 mitigation, if applicable.
622		2.3.1	32	734	Therefore, an applicant may decide to calculate the actual critical area applying a mathematical model defined in Annex	Annex F?	model defined in Annex F	Accepted	Change incorporated in the original text and then restructured.
623		2.3.1	32	736	An assembly of people is expected to be over 10,000 people, which is the minimum number of people needed to treat a grouping of people as an assembly of people)	on line 694 : Assembly of people >250 000 => Clarification needed		Acknowledged	The total value of 10,000 people has been removed.
624		2.3.2	33	759	Determine the average population density value	Complicated to do when there are many difference between pop density all along the flight => Results Approximation ? Harmonisation on the density calculation ? How will it be perceived by NAA ?		Acknowledged	Each authority needs to define procedure or service to provide such information. Different options may be considereed such as the coordination with the entity respsonsible for the organsiation of the events in the area (in this specific example) or the definition of a real ime population density map service. Please also see comment 590.

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625		2.3.2 & 2.4.2.2	33 & 39	750 & 932	Figure 6 & Figure 8	By adding an equipment that prevent the UAS to escape from the ground Risk Buffer (lateral) and operational volume (vertical), can we skip the STEP 8 containment ? Or automatically go to the "None" containment requirement		Partially accepted	We have changed the approach retaining the same assumptions as before. Containment has thus been simplified and reintegrated into a single step. The new concept features operational limit which have to be observed by the operator. It is now also possible to identify those limits based on the available containment systems of an operation.
626		2.3.4	36	843-844	(b) Applicants may provide justification to the Competent Authority for additional mitigations as long as they are still applicable and in a fly away scenario.	If the analysis provides evidence that the UA shall not fly beyond the ground risk buffer edge, what extra mitigation means do you propose / imagine ? The mitigation means M1 & M2 used for the "loss of control" event can consider a FTS / shutdown of the UA, leading to the determination of the Critical Area and the Ground Risk Buffer. This is not applicable for a fly away scenario, as the point of impact of the UA cannot be determined. Does EASA have any additional explanations?		Rejected	Consult Authority has now been replaced by "out of scope". In these cases opertors need to either modify their operational volume or alternatively accept a higher SAIL.
627		2.4.4.2	40			In this § and in Annex C, it is not indicated whether the detection rate (50% ARC-b, 90% ARC-c, ...) is to be met in the Flight Geography or Operational Volume ?		Rejected	The reference is made in the determination of the initial ARC which refers to the operational volume. Please refer to 4.4.3(c)
628		2.4.4.2	40	985	Operations under a DAA System - Tactical Mitigation Performance Requirement (TMPR)	Does TMPR is only supported by DAA ? to manage residual ARC (tactical deconfliction) : UTM ATCS/ or DAA ground/board. So, TMPR does not concern only DAA : the title is confusing		Accepted	Text has been updated and sections restructured accordingy.
629		Step#6 - TMPR	40	957	N/A	The fact that the TMPR concerns only "manned aircraft" should be more clear in the text of main body, and Annex D		Acknowledged	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
630			40	955-956	2.4.4 Step #6 – Tactical Mitigation Performance Requirement 956 (TMPR) and Robustness Levels	we have the impression in this § that the TMPR, whatever the space controlled or not, only concerns the requirements for the operator DAA. Is it the case ?		Acknowledged	SORA Step #6 is integral to the SORA process and does not only apply for a specific DAA system.
631		Figure 6		750	In figure 6, there is no ground buffer between OV and adjacent area. Add the buffer or replace it by iGRC footprint		Replace Operational Volume into Ground Risk Buffer	Accepted	Figure 6 has been updated.
632			All	All	meter and feet	The use of meter and feet as unit can be confusing, no ?	Harmonization needed	Acknowledged	Both feet and metres have been used in the relevant context.
633			All	950-951	950 (d) The strategic mitigation by operational limitation (restriction by boundary and chronology) may be used to reduce the air risk by one class in the case of VLOS operations with a considerably low time of exposure	So no restriction in the case of BVLOS operations concerns the strategic mitigation with a low time exposure ?		Acknowledged	Text has been updated to clarify the intent of the mitigation. The assumption is that by applying VLOS both before and during the complete duration of the operation, the crew has the ability to assess the other aircraft activity in the airspace and therefore is able to lower the encounter rate
634	For some UAS operation circumstance, The highest adjacent airspace containment requirements of "low" is not high enough to describe the actual air risk that a UAS may encounter.	2.5.2 Step #8 – Identification of containment requirements	43	1079	table 8 - "adjacent airspace containment requirements". Within this table, the highest adjacent airspace containment requirements is "low"	For some UAS operation circumstance, The highest adjacent airspace containment requirements of "low" is not high enough to describe the actual air risk that a UAS may encounter. For example,the fix-wing cargo UAS of SF express is intended to be operated in integrated airspace (also non-segragated airspace) and sparsely-populated environments, the manned general aircraft and our UAS is expected to be operated simultaneously. Therefore, we do not think that the adjacent airspace containment requirements of "low" is high enough to describe the actual air risk we may encounter.	Recommend that change the highest adjacent airspace containment requirements "low" to "high" to reflect the actual risk.	Rejected	Added Note (d) on p. 60. Rationale is addressed in Explanatory Note to SORA 2.5.
635	The determination of some adjacent area containment requirements should be independent of SAILs level	2.5.2 Step #8 – Identification of containment requirements	43	1069	table 7 - "Adjacent Area Containment Requirements"	The Criterion #1 -Operational Volume Containment of containments requirements as prescribed in Annex E is a hard requirement need to be satisfied in all the conditions where the adjacent areas are populated to some extent, irrespective of what SAILs level the UAS operation need to be achieved. also, the required SAILs level may not take full credit in evaluating the containment capabilities of certain UAS. Hence, the determination process of adjacent area containment requirements may need to be reconsidered.	For the containment Criterion #1 -Operational Volume Containment of containments requirements, the table 7 in SORA main body used to determinate containment requirements is not applied, a separate table may be developed where the adjacent area condition is the sole factor need to be considered.	Rejected	There are two layers in containment. The first layer ensures that the drone stays inside the operational volume. The second layer ensures that it does not crash outside the ground risk buffer. While the second layer is SAIL independent, the first layer is only independent for SAIL I & II as the requirements for the first layer is driven by the Criterian #1. For SAIL III & higher the performance should increase as the assumed Loss of Control of Operation Rate becomes 10E-3 & lower. The inner layer thus becomes more effective with raising SAIL.
636		2.3.1 (J)	32	710-711	the assurance that there will be uninvolved persons in the area of operation is under full responsibility of the operator	We believe this should state "no" uninvolved persons.	the assurance that there will be no uninvolved persons in the area of operation is under full responsibility of the operator	Accepted	Change incorporated in the original text and then restructured.
637		Table 2	31		Max UA characteristics dimension 1m 3m 8m 20m 40m Max cruise speed 25m/s 35m/s 75m/s 150m/s 200m/s	Because there is no less than (<) like you have put against the population density characteristics, this indicates that you need to match these parameters. SORA Version 2.0 used "<" against the kinetic energy values, these two parameters should have the less than "<" or less than or equal to "≤" before each value. This indicates there is a window for a UA to fall within, rather than an exact amount.	Max UA characteristics dimension: ≤1m ≤3m <8m ≤20m≤40m Max cruise speed ≤25m/s ≤35m/s ≤75m/s ≤150m/s ≤200m/s	Rejected	In SORA 2.0 it was Typical Kinetic Energy Expected used in conjunction with <, but it was replaced by Maximum speed and no use of ≤ to stay consistent with using the term Maximum without ≤.
638		2.3.1 (L)	32	720	the applicant should choose the left most column that meets both	This indicates that your characteristic must match the exact dimensions or Cruise speeds listed in the table.	Please refer to comment above about the table labelling. Then the text should read "the applicant should choose the left most column that the UA falls within."	Partially accepted	Wording of sentence updated to increase usability inline with the intent of this comment.
639		2.3.2 (b) 1	33	742-742	either the maximum range remaining of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume, or	Uncertain how this value is calculated prior to flight. Remaining range would be dependant on many parameters and at what stage of the flight it leaves the operational volume. Suggest removing the word "remaining".	either the maximum range ~~remaining~~ of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume, or	Accepted	The complete sentence ~~word "remaining"~~ has been deleted. Remaining range would be dependant on many parameters and at what stage of the flight it leaves the operational volume.
640	General comment about the term operator	All	Various	Various	"Operator"	The term "operator" in Europe is understood to mean the "operating organisation". In Australia, that could be misunderstood to meant the pilot operating the UA "the operator".	Recommend defining what JARUS is referring to when you use the terminology of "operator". Pilot, Maintenance, operations?	Accepted	Text updated. Refer also to definition in Annex I for "UAS Operator".

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641	General Comment about SORA 2.5 and its alignment / progression to full aviation capability	OSO's	44	1110 - 1111	other organisations such as manufacturers or training organisations according to the distribution identified in Table 6	It is understood that the "operator" organisation includes the Pilot and crew. However the use of the term "operator" in SORA 2.5 joins several key areas together, there ***may*** be value in adding an additional column for the individual human "operator" / "crew" since these people will need to be appropriately trained and duly authorised. To remove further ambiguity, there may be some benefit in breaking "operator" (the organisation) into separate functions within an organisation, such as Maintenance, approved aircraft, approved operations, flight approvals, Quality Control, approved pilot, approved operating organisation, and internal training are some suggestions.	manufacturers, (remote pilot, support crew) or training organisations according to the distribution identified in Table 6	Acknowledged	Although the comment does identify more detailed responsibilties, they are all still operator responsibilities and hence the overarching term operator is considered appropriate.
642	Comments Regarding proposed Structure	Appendix B, Prposal example for reconstruction of SORA Main Body	50-52			•Coloured bars for guidance/recommendations are clear, suggest hashing/shading so it also works if printed in B&W. •Consider moving the Guidance Outcome before the Recommended Task Description so the first bit reads: Introduction, Purpose, Outcome(s).		Acknowledged	Document has been updated as per the example provided in the explanatory note of the external consultation.
643	Query as to the required documentation required in Step #1 of SORA		13	148-149	The documentation created consists of operator manual, compliance evidence and risk assessment.	This step used to refer to the "Concept of Operations", a document that CASA interpreted as a general overview of the operational context (where, how, when, who, what etc.) that provided enough detail to undertake the steps necessary to derive the requirements to be complied with (i.e. Steps #2, #3, #4, #5, #6, #7, #8 and #9). The final step in SORA (Step #10) seemed to be the region in which the compliance evidence (operational procedures/policies/governance, personnel competency and training, technical system design/manufacturing/certification/maintenance etc.) were provided to the regulator. With this sentence, it appears that some of the evidence provided in Step #10 is **now required** in Step #1 (i.e. the "operator manual" which appears, based on 2.2.3(b), to require a complete suite of auditable evidence for an authority to assess and issue approvals against.). In CASA's experience, Step #1 is **not** the place to gather this information. Yes an applicant may have this information - but it is not necessary particularly if the operator is trying to understand what is required to develop the evidence - but the evidence itself should be be provided at the final step of the SORA process. It is noted that 2.2.2 of the new SORA Main Body does have some indication of the Process that CASA is most used to receiving --> that is an iterative risk assessment allowing an applicant to arrive at a CONOPs that they think is possible for them to provide the SORA evidence necessary for an approval, however this clashes with line 148-149. It may be that this is just a clarification point. Could it be clarified exactly what is **mandatory** and what is **useful** to have at Step #1 of the SORA? and the definition of what these things consist of? How		Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process. Please refer also to Phase 1 updated description, including required data to support the deriving of a preliminary SAIL and containment requirements.
644			13	148-149	The documentation created consists of operator manual, compliance evidence and risk assessment.	Note that the term "operator manual" will likely confuse a lot of regulators as this term is used already in aviation that describes a different suite of information than that defined in 2.2.3 (b). Not that this should stop the use of the term, but just for JARUS to understand the potential issues with using an already extant word in a different context.		Accepted	Operator Manual is no longer used in this way and has been used to reflect the intent of this comment (an operator centric document to operate a system)
645			13	148-149	The documentation created consists of operator manual, compliance evidence and risk assessment.	Later on in 2.2.3 of SORA, the "risk assessment" appears to be called the "SORA Safety Case". Suggest aligning terminology.		Accepted	Text updated.
646	CASA Australia appreciates the ERP being moved from the mitigations, it was difficult to assess at any level but medium and this move to the OSO seems much more reasonable	1.4.1(c)(ii)	19	353-358				Acknowledged	Comment noted.
647		1.4.1(d)(ii)	20	375		In the previous version of SORA (V2.0) it was possible to use M1 to strategically plan a flight around areas of higher population density to reduce the risk. If an applicant had used M1 like this, the "original flight geography" is modified into a "M1 reduced flight geography". In these cases the contingency volumes applied to the reduced flight geographies can actually exist within the original flight geography. As Annex F has reduced the ability to do this in SORA v2.5, is there needed some clarification for applicants that may use the term flight geography to cover different iterations of the flight geography?		Acknowledged	The issue highlighted does not affect the definition provided in the semantic model. Please refer to Step 3 for further details on the application of M1.
648		1.4.1(d)(ii)	20	375		CASA has found that one of the most difficult parts of an application for applicants is defining accurately the contingency volume. Would it be possible for JARUS to propose effective means for applicants to undertake an analysis to define the boundaries? Perhaps pushed to one of the annexes?		Acknowledged	Further guidance may be developed after the publication of SORA 2.5.

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649		2.2.1(ii)	27	550	If the operation is covered by a "standard scenario" recognized by the competent authority	In Australia we have found a substantial number of applications "using" a standard scenario are in alignment with that scenario by 70-90%.		Acknowledged	Comment noted.
650		2.2.3(k)	30	640-645	The operator manual and the accompanying compliance evidence is the basis for the issue of an operational approval.	This is coming dangerously close to dictating how a competent authority should undertake approvals of operations. CASA agrees that the "operator manual" as defined in 2.2.3(b) and the compliance evidence are **part** of an operational approval, however there are always additional evidences that can be required for an approval based on an authority's legal obligations under their State's legislation.		Acknowledged	This document is intended to provide requirements to satisfy the SORA process, not determine regulatory mechanism to approve SORA assessments. Text has been updated to indicate that the competent authority maydecide what should or should not be reviewed. Statements of compliance form part of the compliance evidence, but not necessary of the operations manual, as this may not help the crew use their system.
651		2.2.3(k)	30	646-647	(i) Changes requiring prior approval by competent authority (ii) Changes not requiring prior approval by competent authority	CASA would suggest that it is the authority's prerogative to determine what elements of an approval require (or do not require) prior approval to implement. Could the text please reflect that the applicant may "identify" but not define what meets this threshold?		Accepted	Text has been updated with regards to changes that need to be reviewed. The decision making of what should or should not be reveiwed is with the competent authority.
652	Intrinsic Ground Risk Assessment Table - Controlled Ground Area	2.3.1(e)	31	687	Table 2 Row for "Controlled Ground Area"	The iGRC values used for the "Controlled Ground Area" here align with a population density of <0.25 people per km^2. The term "Controlled Ground Area" can also refer to areas with **zero** persons within them (leading to an iGRC of -infinity). Conflating "Controlled Ground Area" with a population density leads to issues when applying the SORA methodology to true Test Range Activities. CASA Australia would suggest to remove the wording of "controlled ground area" and deal with these separately to prevent issues when applying the SORA to test range activities (i.e. if a Large RPAS >20m undertaking flight test or R&D operations is flying over **noone** in the operational volume, Table 2 applies an iGRC of 5 to this operation (i.e. this operation will be required to demonstrate SAIL IV OSOs to be able to operate). Mathematically this makes no sense (the iGRC should be -infinity), and logically it prevents any R&D operations (i.e. those to demonstrate some functionality or reliability to get to a point where there is confidence in the systems to actually operate at SAIL IV).	Change the term "Controlled Ground Area" in Table 2 to "< 0.25"	Rejected	Partially Accepted, some increase in iGRC score was done for larger wingspans for additional risk, but none higher than iGRC of 3 (SAIL II)
653	Adjacent Airspace Containment Requirements Explanatory Note	A1.2.2	33 and 39	750 and 932		Whilst CASA is appreciative of the issuance of definitions for adjacent areas, there is some issue with the airspace containment model which defines Table 8 of the Main Body. Firstly there is an allocation of encounter rate to an ARC class (ARC-a = 10^-4, ARC-b = 10^-2, ARC-c = 1, ARC-d = 10) do not align with the TMPR requirements (ARC-b RR = 0.66, ARC-c = 0.33, ARC-d = 0.1), and it should be noted that the ARC-a rate is dependent on the "encounter class" (i.e. Type 1 or Type 2 encounter rate). Secondly P(MAC|NMAC) of 0.01 is only valid for combined wingspans below about 100ft, however this depends on the UAS (which can range beyond 40m in wingspan using the iGRC table) and the encountered aircraft (which depends on the airspace flown within). Another issue is the use of a paper on P(fatality|MAC), which was heavily biased towards **small** UAS impacting aircraft. It is **very unlikely** that this probability is valid for all impacts between UAS and crewed aircraft within the specific category. There also seems to be an assumption of a flight "being ended" upon exiting the contained volume (which appears to be used as the time of exposure), which would not occur if there is a loss of containment absent a flight termination (which would appear to be the intent of a fly-away). Finally, whilst it is likely that higher ARCs and airspace classes are correllated, the attribution of ARC-a and ARC-b to a TLOS of 10^-7 and ARC-c and ARC-d to 10^-9 does not always hold true. There is nothing in the definition of ARC that leads them to be applied this discreted to classes of airspace. It is recommended that this model used to derive the table is revisited taking into consideration these comments.		Acknowledged	Rationale for airspace containment is addressed in Explanatory Note to SORA 2.5. The TLOS for the ARC are part of Annex G, which is still under development.
654			14	178	The parameters that define the four categories of ARC (a, b, c, d) are: if the airspace is atypical (e.g. segregated),	atypical is not always segregated	remove (eg segregated)	Rejected	Text kept as "segregated" in this case is provided only as example.
655			17	272	(g) The competent authority may request additional measures or requirements to what the SORA stipulates for operations.	This can lead to unreasonable and disproportionate requests from the competent authority.	remove sentence.	Rejected	The JARUS SORA is a standard framework that NAAs can adopt for their own national requirements and does not impose legal requirements. The methodology might need to be adapted where necessary to accommodate local requirements.
656			17	277	The methodology, related processes, and values proposed in this document are intended to guide an applicant when performing a risk assessment of an intended operation for the purpose of obtaining an operational approval by the competent authority. For that purpose, the competent authority could decide to adapt any section of this document into their regulatory framework.	Methodology and values proposed in the document should not be adapted by the competent authority, they should be adopted?	remove word 'adapt'	Rejected	The JARUS SORA is a standard framework that NAAs can adopt for their own national requirements and does not impose legal requirements. The methodology might need to be adapted where necessary to accommodate local requirements.

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657			17	281	2 A multiple UA operation (different from a swarm operation) is one where more than one UA, assigned to separated sections of the flight geography and controlled independently from one another, are used at the same time to perform the intended operation.	The methodology needs to account for 'one to many' drone operation; where multiple drones are controlled by one operator (RP PIC) in the same geography. Eg 2 drones flying the same flight route but 5/10 minutes apart. This would help sustain repeatable commercial scheduled drone delivery flights.	Multiple UA operations needs to be redefined to be more inclusive.	Rejected	This aspect has not been in the scope of SORA 2.5 and will be refered for future developments of SORA.
658			17	290	The carriage of dangerous goods on board the UAS (e.g. weapons, munitions of war, explosives, hazardous medical samples) that present additional hazards are excluded from the scope of this methodology and might require additional safety considerations (e.g. demonstration of the container characteristics and the ability to contain the dangerous good). Additional, separate approval for the carriage of dangerous goods is required to be made by the applicant as part of an overall application for an operational approval to the competent authority.	DG should be considered in this revision, in particular for medical use cases that have clear and immediate social benefit. Whilst Skyports already have UK DG approval, we will imminently be working with Norway to get similar approval using existing documentation and manual handling procedures. Having a defined process in place, particularly for biological substances Cat B as a benchmark to built on will be of value for the industry.	Consider a change in stance on this.	Rejected	The issue of carriage of DG are expected to be addressed by the NAAs and their applicable regulatory requirements. DG has separate regulations that need to be adhered too. Comment refered for future developments of SORA.
659			29	584	(a) The purpose of this step is to describe the documentation set that should be compiled and presented to the competent authority for assessment after Step #10 completion. This usually consists of the: I. Operator manual, ii. Compliance evidence, iii. SORA safety case.	Describing the requirement for an Operations Manual is causing confusion as it appears to be replacing the older ConOps reference. If so, suggest this is renamed to something else as most operators will have a robust and detailed operations manual that is separate to this requirement. Suggest Operational Area, Mission description or ConOps to make the differentiation clearer. Also this does not consider those operators who hold an LUC. To constantly iterate an operations manual as opposed to having separate conops to complement, reference and support a ConOps will cause unnecessary work for both the operator and regulator.	Rescope the new Operations Manual requirement, as it is causing confusion.	Accepted	Operator Manual is no longer used in this way and now reflects the intent of the majority of comments (an operator centric document to operate a system). Step #1 now reflects the commenters notion that the contextual information required to define who, what, when, how, where to ensure a correct SORA assessment.
660					The operator manual and the accompanying compliance evidence is the basis for the issue of an operational approval. The operator manual should be kept up to date and all changes introduced should be properly traced. Any change with an impact on the SAIL determination may require prior approval by the competent authority. The management of changes should be described in the operator manual and the following categories should be identified: I. Changes requiring prior approval by competent authority, ii. Changes not requiring prior approval by competent authority.	To provide clarity to this requirement an example should be share for those operators with multiple UAS and multiple Conops.	Greater clarity required	Rejected	An example is out of scope of this versoin of SORA.
661			30	648	The Ground Risk Process	Whilst it is great to specify population density, what are the approved sources of data an operator can use as most are dated and potentially inaccurate. Guidance on approved platforms will be useful here (census data is usually dated etc).	Greater clarity required	Rejected	To the group's knowledge there is currently no single solution that could be applicable in every place of the world and therefore it is being addressed at a national/regional level. Guidance may be considered in the future.
662					Determining the population density to calculate the iGRC in Step #2 needs to be done using the highest resolution static maps appropriate to the operation and available to the operator, unless maps for Step #2 are required by the authority. Guidance in the Flight Safety Analysis Handbook suggests that cell resolution should be approximately equivalent to the dispersion area of an operation. Competent authorities may require specific maps to be used for determining population densities. If high resolution or dynamic maps are to be used, the operator must justify the usage of the maps and show the reduction of risk. See Annex F for additional information.	Suggest specific platforms are suggested for each EU country. The French utilise a great platform that helped us operate under our LUC with clarity. Suggest they are the benchmark to work from.	Greater clarity required	Rejected	EU specific issue.
663			33	737	Determination of the adjacent area size and adjacent area intrinsic GRC	This method of calculation is completely unrealistic and provides a disproportionate buffer. There is no consideration here for UAS with geofencing and independent FTS systems that would never breech the operational volume. Operators should be allowed to utilise lower speeds to decrease this buffer (don't base it on maximum speed).	Adjacent area needs complete rescoping to be less operationally restrictive.	Partially accepted	The purpose of the containment section is to identify the need for and the robustness of a containment system. A geofence system (dependent or independent) can then form a part of the solution to comply with the resulting containment requirements. If a drone system already features containment that meets the highest requirement for the SAIL, the adjacent area determination may actually be skipped. A large adjacent area also tends to lower the average population density and will result in lower requirements. This has been clarified in the release version.
664			36	845	c) Mitigations whose failures would lead to a fly away scenario should not be given credit	This is far to restrictive and does not take into account a real and significant mitigation.	Reconsider this as a mitigation.	Partially accepted	The sentence has been rephrased for clarification: "If a failure of an M2 GRC mitigation would lead to a malfunction of flight termination resulting in a fly away scenario, this mitigation cannot be used for computing the adjacent area final GRC". The associated footnote #12 gives flexibility if the applicant can provide justifications "unless proven otherwise by the applicant" This is now part of the alternative method to be found in Annex F.

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665			37	887	airspace over urban versus rural areas, and lastly atypical (e.g. segregated) versus typical airspace	Atypical is not always segregated	remove eg	Rejected	The example is meant to say that a segregated airspace could be considered atypical and not to imply the reverse.
666			38	925	Maximum Altitude	UAS with independent FTS and geofencing capability should be considered in this determination. Using an arbitrary 3 minutes at maximum climb and having no consideration to the technical mitigations on the UAS is not proportionate.	Reconsider this to be less operationally restrictive.	Rejected	The adjacent volume dimensions must be determined on the base of the UA leaving the operational volume / ground buffer. If the UA leaves the OV, then the containment means (FTS, ...) have not functioned appropriately. We have removed airspace containment for simplification of the SORA main body.
667			44	1089	Adjacent area containment requirements	Adjacent Area requirements are too high and heavily weighted.		Rejected	The proposed methodology has been checked with real use cases and the result seems reasonably proportional and not harder than SORA 2.0.
668			47	1137	In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service and should be included as part of the Safety Portfolio.	This can prove difficult to obtain due to service provider confidentiality and willingness to provide this information.	Suggest this requirement is removed.	Rejected	The JARUS SORA guidance is intended to provide the necessary safety requirements to be met given the ground and air risk assessments. Whilst important, IP considerations are outside the scope of this document.
669	Adjacent Area calculation need to be reconsidered.	2.3.2	33	741-756	(b) The lateral outer limit of the adjacent area is calculated from the operational volume as: 1. either the maximum range remaining of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume, or 2. the distance flown in 3 minutes at maximum cruise speed of the UA: 2.1. If the distance is less than 5 km, use 5 km. 2.2. If the distance is between 5 km and 35 km, use the distance calculated. 2.3. If the distance is more than 35 km, use 35 km. The inner limit of the adjacent area is the outer limit of the ground risk buffer (i.e. the ground risk buffer is not part of the adjacent area). (c) If the applicant or competent authority considers the previous criteria are not appropriate for determining the size of the adjacent area, the competent authority may ask for or accept an alternative means of calculating the adjacent area. The UA's inherent flight characteristics in a loss of control situation can be used to argue for a different size of the adjacent area.	The approach in point (b) does not take into account the UA control mode. If the UA is flown in a manual control mode and the UA is not stable by design without the direct manual control commands from the RP, it will not be able to cruise for 3 mins as it will lose stability right after the manual command is lost. Therefore, control mode should be considered.	- Proposal 1: Use a lower cruise time value for the manual control mode representing the expected worst-case time to lose stability; or -Proposal 2: Add to point (c) a statement that supports the manual control mode for a UA which is not stable without direct RP command, such as 'The UA's control mode can be used to argue for a different size of the adjacent area."	Partially accepted	This sentence was removed. Smaller adjacent areas usually lead to higher containment requirements.
670	Adjacent Area and population density calculation	2.3.2	33-34	757-773	(d) In order to determine the intrinsic ground risk for the adjacent area, the applicant needs to complete the following steps: 1. Determine the average population density value 1.1. Calculate the average population density of the adjacent area identified in the previous section, 1.2. Identify potential locations for non-sheltered assemblies of people 1km beyond the outer limits of the operational volume during the time of operation. If the adjacent area has assemblies of people then assign the following average population density: 1.2.1. < 25,000 ppl/km^2 if the assembly of people exceeds ~20,000 ppl9; 1.2.2. < 250,000 ppl/km^2 if the assembly 767 of people exceeds ~200,000 ppl10; 1.3. Use the higher value of bullet 1 and 2 above for the Adjacent Area Average Population Density Value. 2. Calculate Adjacent Area Ground Risk Class Score by assigning an adjacent area intrinsic GRC to the adjacent area based on the identified average population density value, using Table 2, the UA platform characteristics, and the average population density.	The operator needs to calculate the average population based small squares defined by the authorities for an area of around 78 km2, this will result in checking around 1,900 squares if 200m*200m squares were used.	It is recommended to have a more simplified way of calculating the average density in the adjacent area or provide a common tool to be used by all operators and remote pilots.	Acknowledged	See answer to comment 183.
671	All the following comments are for the explanatory note (there is not xls for that and JARUS secretariat told me to use this xls).							Acknowledged	Please note the corresponding updates in the Main Body sections. and the corresponding updated explanatory note.
672	There is extensive use of the word "chance", which is unfortunately in this context.	Appendix A			"chance"	Change chance to probability.	"probability" is much better.	Acknowledged	The term chance has been replaced with probability. This section has been moved to Annex F.
673		A.1.1.10	24		The first equation has P_{Low,FC=i}	Presumably, FC=i means the i'th potential failure condition. However, this is not at all clear, and should be added as explantion.		Acknowledged	The commenter is correct, and the text has been updated to clarify the meaning of F_{low,FC=i} This section has been moved to Annex F

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674	Unclear formulation	A.1.1.10	24		"It should be noted that this does not mean that there is no benefit for the escape of the operational volume when implementing Low Robustness containment at SAILs greater than II, rather that the evidence is likely there already due to the SAIL objectives, and would need to be validated through the containment analysis to ensure they are available and effective."	This is hard to read and understand. Clarification would be good.		Accepted	The sentence is modified as "in other words, the higher is the SAIL, the lower is the LoC probability. As the event of leaving the operational volume is a LoC event, the higher the SAIL, the higher is the inherent protection from the event of leaving the operational volume" This section was moved to Annex F, section 5.
675		A.1.1.10	24		The term "flat" is use a couple of times.	Unclear what this word signifies.		Accepted	The term has been updated to "constant" as per the comment. This section has been moved to Annex F.
676	Unclear formulation	A.1.1.10	24		"For the probability of exiting the ground risk buffer at Low Robustness containment ($P_{Low}(\neg ADJ \mid OV)$), only a flat, order of magnitude reduction in exiting the ground risk buffer:"	This is hard to read and understand. Clarification would be good.		Accepted	The sentence is modified as "The probability of exiting the ground risk buffer, on the condition the aircraft has left the operational volume, with a Low Robustness containment system is conservative set to 1 in 10 (10-1)". This section was moved to Annex F, section 5.
677	Unclear formulation	A.1.1.10	24		The conclusion of A.1.1.10 are two figures (10^-4 and 10^-SAIL-2).	It is not clear how these have been calculcated. Perhaps this is due to the unclearness of the preceeding text.		Acknowledged	This is the explanation: if Plow (-OV) as calculated under A.1.1.10 is clear (we understand it is) then you just add the Plow(adj I OV) = 10^{-1} This section was moved to Annex F, section 5.
678		A.1.1.10 A.1.1.11 A.1.1.12	24, 25		The last equation in A.1.1.10, first in A.1.1.11 and two in A.1.1.12 use the "for all" symbol before "SAIL".	This is unnecessary and slightly confusing. SAIL is a number, not a set.	SAIL <= II SAIL > II	Acknowledged	the observation is correct, however this will not lead to any misunderstanding.and we do not see necessary to change it. This section was moved to Annex F, section 5.
679	Unknown symbol	A.1.1.11	24		The symbol P_bas is new here.	Do not know what it means. Perhaps it should have been P_Low		Accepted	The udnerstanding is right, the symbol is changed to Plow. This part was moved to Annex F, section 5.
680	Unclear formulation	A.1.1.12	24		"Medium Robustness containment only provides additional benefit to the probability of exiting the ground risk buffer compared to Low Robustness containment"	This is hard to read and understand. Clarification would be good.		Accepted	The sentence will be modified as "medium robustness containment provides the same probability of exiting the OV as the low robustness containment, but providies a better (smaller) probability of exiting the GB". This part was moved to Annex F, section 5.
681		A.1.1.12	25		It is unclear how the last equation of A.1.1.11 is derived. It seems that P_Med(ADJ) = P_Med(not OV) * P_Med(ADJ | not OV), which makes sense. This is also seen in A.1.1.13 (kinda at least).	It would be useful with a bit more eloboration (same issue as with P_Low in A.1.1.10). Perhaps write explicitely the multiplication formula.		Accepted	The better explanation will be provided modifying the sentence "we can summarize the effect of medium robustness containment below" in "the effect of medium robustness containment on the probauility of exit in the ADJ areas can be obtained multiplying Pmed(-OV) by Pmed(adj I -OV)" This part was moved to Annex F, section 5.
682		A.1.1.7	23			Agree with the assumption on 1/10 leads to a flyaway.		Accepted	Thank you, Anders!
683	Unclear derivation	A.1.1.6	22		First three equations in A.1.1.6	The step from the second inequality to the third in A.1.1.6 is somewhat unclear. It is described as "restating", which is an odd term here. If it is possible to derive this using math, I would recommend this, preferably with reference to the math in Annex F on ground risk. If it is simply another way of writing P(ADJ), why the first two inequlities?		Accepted	Additional steps of the derivation have been added to make the relationship between equations clearer. This section has been moved to Annex F.
684	Odd formula	A.1.1.6	23		The first formula on page 23.	This equation seems wrong. According to Bayes formula, a multiplication with P(not OV|ADJ) is missing on the right hand side (or division on the left hand side). Of course, this probability may well be 1. Alternatively, this is the equation for conditional probability [P(A|B)P(B)=P(A joint B)], in which case P(ADJ joint (not OV)) = P(ADJ), meaning that (not OV) is completely contained in ADJ. In either case, it seems that this is a trivially true formula, and it is not clear what the purpose of this equation is, i.e., what is achieved in terms on knowledge about the issue.		Acknowledged	Yes the commenter is correct that this is trivially true, but needed such that we can attribute operational effectiveness to both; prevent the breach of the contingency volume and to prevent an escape from the ground risk buffer. This section has been moved to Annex F.
685		A.1.1.13	26		First equation on the page.	So this ineq comes from the last ineq on p 22, plus the first eq on p 23. But why is is necessary to involve the p 23 equation here?		Acknowledged	Page 23 has more than 1 equation so your comment is not sufficiently precise. In case you refer to the first equation of page 23, the explanation is that at page 26 we are looking for the global result: P(adj): the probability of entering the adjacent areas; and this is provided by the first equation at page 23. This part was moved to Annex F, section 5.
686		A.1.1.19	24		Criterion #1, #2, and #3	Unclear what these criteria are. Presumably, those on p 44 in Annex E. Perhaps make a reference.		Accepted	The sentence "note that criterion #1 deals with $P_{Med}(\neg ADJ \mid OV)$, whilst criteria #2, and #3 deal with $P_{Med}(ADJ \mid \neg OV)$" can be deleted as it is not necessary for the overal comprehension. This part was moved to Annex F, section 5.
687	Copy paste error	A.1.1.13	27	Second line	$$ equation	Copy past error from LaTeX.		Accepted	Editorial will be fixed deleting "$$" This part was moved to Annex F, section 5.

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688		A.1.1.13	26		Table 5	It is not clear how the values in each cell is computed. This must come from a specific formula that is independent of SAIL? The coloring presumably comes from a division in to low, medium, and high? And why is SAIL I/iGRC 4 yellow? According to the low robustness on page 24, the threshold is 10^-4. MAYBE this comes from before it was decided to separate SAIL I out as special for the purpose of containment?		Acknowledged	The values come from the direct link between SAIL and GRC. So the required containment numbers are the difference between GRC for the operational volume and the adjacent area. Colour for the SAIL I jumping two orders of magnitude is an artifact of Low robustness containment requiring more performance from a SAIL I UA than SAIL II UA.
689		A.1.1.13	28		Table 7	This is a very useful table and follows nicely from the math. However, the mathematical derivations are NOT the easiest to follow (as per comments above). It is also easy to read (at least if you do not mind 6 columns in a table ;-)) and will be a good contribution to step #8 in the main body.		Acknowledged	Thank you; we have addressed your comments above.
690	This is an explanatory note. I do hope it will be published along with the SORA 2.5 since the derivation for table 7 in the main body should be publicly available.							Acknowledged	The final SORA 2.5 package publication contains an explanatory note.
691		2.3.1 (e) table II	31	685-688	iGRC table	There is a gap inbetween 25 ppl/km2 to Controlled ground area of 2 points GRC. Our operations will be over uninhabited forests with Ground risk buffer within the forest. Operations will take place mostly over 0 ppl/km2. As a reference, Sweden, Finland and Norway has as countries average population of less than 25 ppl/km2. In other words, the gap between 25 to controlled area is to big, and results in an unmitigated GRC that is unreasonably high for these types of operations.	Either add another step in the iGRC chart between controlled ground area and 25ppl/km2, or add mitigations means clearly to cover these very low populated areas.	Accepted	A row was added between the old 25 ppl/km2 (now 50) and controlled ground area. Additionally, if this value is still too large, Annex F may be used to determine the iGRC with the actual population density.
692		1.4.1 (b)ii and (c)	19-20	333-361	Normal, Contingency, Emergency procedures	Suggest moving Abnormal situations to under the section (c) loss of control and renaming "Loss of control opertion" to "Abnormal operations". In other words - Normal procedures wich cover all normal procedures and then as a new section Abnormal procedures that covers escalation from contingency to emergency and potentially initiation of ERP. The pilot reference gap from Normal to Abnormal procedures is greater than that from Abnormal to emergency. In this way the operational procedures are adapted to aviation industry standard with a good research base and long experience of pilots capacity and behaviour when exposed to different levels of Abnormal procedures. Also see question below as reference.	Section Normal procedures as ONLY normal procedures. Section Abnormal operations then covers contingency, containment, emergency and when applicable ERP initialization.	Partially accepted	Text has been updated to better show the difference between "operation in control" and "operation out of control". The procedures have been assigned accordingly.
693		1.4.1 figure 1	21	400	Semantic model	The semantic model is based on the "control state of operation" and refers to that emergency procedures only happen in adjacent are/airspace. The question is how the volume/area can define the procedure to be used. Ex - We are within the flight geography but the drone is not answering to inputs. In this case we would immediately initiate "contingency" and possibly "emergency" procedures even before the drone has left the flight geography.	Keep the semantic model of different areas and volumes/geogrphy. But separate the relation to operational procedures. In other words The Normal, Abnormal, contingency, emergency procedures should be used based on the control state of operation and other contingency and emergency situations.	Partially accepted	Text has been updated to better show the difference between "operation in control" and "operation out of control". The procedures have been assigned accordingly.
694			28	580	UAS characteristic, intended operation and risk mitigation	To synchronise with statement in the figure 4 with line 580	Documentation of the proposed operation(s)	Acknowledged	Text updated as part of document restructuring.
695				577	Figure 4 – The SORA Stages	To be align with main statement	Figure 4 – The SORA Phases	Accepted	Updated as per the comment
696	Last level of containment	Step 8	15	204	"…high (previous SORA 2.0 Ch. 2.5.3.(c) and to consult with the authority. In general,…"	It seems like "to consult with" is the fifth and final level of containment after "none", "low", "medium" and "high", but this is not clear. It may be more clear in the Annex material.	Suggest using the label "consult" to show the final level of containment. The text would read "……high (previous SORA 2.0 Ch. 2.5.3.(c) and consult (operator consults with appropriate authority). In general,...	Rejected	Refer to Step#8 update. Option "C" has been removed.
697	Target Level of Safety	1.1.a	16	236	"The TLOS of operations under the categories covered by SORA is equivalent to that of the category A "open" and C "certified" categories."	The use of "categories covered by SORA" and then category A and category C is confusing. SORA should address (cover) category B "specific". The TLOS statement should also reference ground and air risk since the TLOS varies between ground and air risk as stated elsewhere in the document.	Suggest using the following: "The TLOS of operations covered by SORA is equivalent to that of the category A "open" and C "certified" categories for the ground and air risk applicable to the proposed operation."	Partially accepted	Text updated to clarify the category refered to. The information regarding probabilities has not been deemed to add significant added value in the context of the Main Body.
698	Loss of control	1.4.1.c	19	342	(a) Loss of control of the operation is a state that corresponds to situations: where the outcome of the situation highly relies on providence; or which could not be handled by a contingency procedure; or when there is imminent grave and imminent danger fatalities among uninvolved persons. In the context of the semantic model, this includes situations where a UA has exited the operational volume and is potentially operating over or in an area of higher ground or air risk for which it is not suited...	Largely editorial corrections suggested for greater clarity.	(a) Loss of control of the operation is a state that corresponds to situations: where the outcome of the situation highly relies on providence; or which could not be handled by a contingency procedure; or when there is imminent and grave danger of fatalities to people not involved in the operation. In the context of the semantic model, this includes situations where a UA has exited the operational volume and is potentially operating over or in an area of higher ground or air risk for which it is not suited...	Partially accepted	The reference to imminent and grave danger of fatalities to people has been deleted.
699	total system error definition	1.4.d.i	20	373	"…Flight geography shall include the total system error (TSE) of the UA."	Total system error is often expressed as a the maximum deviation from the planned flight trajectory that the aircraft will not exceed during 95% of the planned flight time. If this document does not define TSE in the applicable Annex, then a definition should be provided. A parenthetical definition could also be used here.	"…"…Flight geography shall include the total system error (TSE) of the UA (i.e. maximum deviation from planned trajectory during 95% of flight time)."	Rejected	Text has been updated to better reflect the errors to be taken into account, without a specific mention of the TSE.
700	Operational volume footprint	Figure 1	21	400	The "Operational Volume" box under the Intrinsic GRC footprint	For operational volume to relate to the GRC footprint, it should be relabeled "Operational Volume footprint"	Change label of "Operational Volume" under the Intrinsic GRC footprint section of Figure 1 to "Operational Volume footprint"	Partially accepted	Figure updated.
701	levels of robustness	1.4.2.d	22	418, 420, 423	"A Low level of assurance…" "A Medium level of assurance…" "A High level of assurance…"	It is levels of robustness (integrity and asurance) that are being described in these trhee bullets. Robustness should be used instead of assurance.	"A Low level of robustness…" "A Medium level of robustness…" "A High level of robustness…"	Partially accepted	Text updated to indicate that the list refers to levels of assurance.
702	Depict ground risk buffer	Figure 6	33	752		Figure 6 does not include the ground risk buffer. Prior text indicated that it is not part of the footprint under the Operational volume and it is not part of the adjacent area.		Accepted	Figure updated.

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703	General		15	216		The "process step" illustration does not meet the actual workflow order. In many practical cases the applicant won't perform step 10 right after step 9 which is implied through the flow chart and the word "step". The update of the OM and other relevant documents acc. to the risk assessment (step 1-9) usually takes place in between.	You may supplement the word "step" by "action" or update the flow chart order figure 3.	Rejected	Refer to the major update of Step#1, Step#10, Phased process and Annex A.
704	Define	main body	17	292	…additional hazards are excluded from the scope of this methodology…	Are risks due to additional hazards excluded from SORA, i.e. ignored? So, are dangerous goods allowed to be brought on board as long as the container provides sufficient protection in case of an accident? How is adequate protection defined and validated for medical goods, for example? Is it necessary for the container to withstand the effects of altitude at all times? How is accidental release accounted for? Note or reference to be made.		Rejected	The issue of carriage of DG are expected to be addressed by the NAAs and their applicable regulatory requirements. DG has separate regulations that need to be adhered too. Comment refered for future developments of SORA.
705	Ruling incomplete	main body	22	427	National specificities could include national sensitive infrastructure, protection of environmental areas etc.	The impact/type of the possible national interests/territories should be integrated into SORA. An operator wants to plan a flight in such a way that one permit is granted and not each state invents distinctive rules and requirements that are also contradictory to the safety requirements. In the case of safety measures: Any glider or ultralight may use cameras and fly over national parks and sensitive areas without additional permission. Why is another permit required if the operation maintains a certain altitude? All NAAs should be required to cap geozones. Unmanned aviation is discriminated against when the same sensors are authorized for manned aircraft in the same area. Geozones should only be set by NAAs so operators from other states can find them. The Departments of Energy, Agriculture, and Environmental Protection should not be allowed to invent their own rules.		Rejected	This comment relates to EU requirements and is not in the competency of JARUS.
706	General		22	429	National specificities could include nationally sensitive infrastructure, protection of environmental areas, etc.	SORA focuses on safety (safe operation). National aspects on e.g. security should not be brought in (direct) connection with SORA. The sentence conflicts with the idea of common EU safety standards and formats. For example cross border operations based on a granted authorization (in the country of registration) could become more difficult, due to various additional SORA requirements coming from national interpretations.	Delete this sentence.	Rejected	This comment relates to EU requirements and is not in the competency or JARUS.
707	General		28	577	Flow Chart Figure 4	Figure 3 is not a good addition to figure 4, from an applicants perspective. The word "step" indicates a sequence. But workflows are displayed to happen in parallel.		Partially accepted	Flow charts have been replaced with the Phase diagram
708		Table 2	31	685	The lowest "maximum cruise speed" is 25m/s	Intrinsic UAS Ground Risc Class => lower Vmax specifications with correspondingly lower risk assessment of the iGRC, would be much closer to reality for applications listed above	Add column for low speed mode equivalent to open category (CAT A) with max size of 1m and GRC of max 5 even at 250.000 ppl/km2	Rejected	Please refer to the iGRC forumla in Annex F if the iGRC obtained with the table is considered not representative of the risk of the operation.
709	General		31	687		UAS operators that have an authorization to fly over populated areas (in cities) for e.g. in SAIL II will most probably have not the same privilege/requirements with SORA 2.5. anymore. M1 Mitigation (Low) and VLOS Mitigations also entail new demanding requirements. The entire change will effect quite a number of operators and have a big impact on existing authorizations.		Acknowledged	The new table is considered to reflect more accurately the ground risk model and it is expected that some mitigations are easier to apply than in versoin 2.0, resulting in many similiar SAIL scores.The previous "VLOS requirement" is now refered to as ground mitigation and has been updated accordingly.
710	Ruling	main body	31	687	Initial ground risk table	The initial ground risk for flying in urban areas like Berlin has increased from 5 to 7 in SORA 2.5 This increases the burden on operators tremendously. Flying in urban areas was almost impossible before and will be even rarer now, even though the greatest need for flying UAS is in urban areas. Why is flying in urban areas considered to increase risk by a factor of 100? Is this proportionate and have people been proven to be injured, is it a feeling, or is there evidence that the risk to people on the ground from UAS is higher than in general aviation? The risk on the ground may not be rated as higher than in general aviation. Manufacturers are already trying to meet the requirements. Increasing the factor 100 would eliminate UAS for most applications and dependent on mitigations. Operators will rather go for certified than taking the burden and unsecurity of a n SAIL 5 operation. In other words, the table kills specific category in urban areas if not msaller than 900gr. Reduce initial ground risk to values of SORA 2.0 and show assumptions as to why the GRC is so high. Current table leads to SAIL 5 and above in urban areas with curent technology.	Decrease the table by 1E-1 to avoid voiding SORA in urban areas and requiring operators to fly in the certified category in the future. Compare the safety record of helicopters and UAS and the number of people killed on the ground.	Rejected	The new table is considered to reflect more accurately the ground risk model and it is expected that some mitigations are easier to apply than in versoin 2.0, resulting in many similiar SAIL scores.
711	Use cases of geomatics, agriculture, inspection, film and photo are not represented in the calculation bases of GRC/ARC, the minimum assumptions are set much too high, which means that the reduction measures will be disproportionate (costs vs. benefits).		31	687				Acknowledged	The SORA is a risk assessment method which is independent of the purpose of the mission. Some of the missions referred in the comment might even be conducted out of the "specific" category.
712		Table 2	31	689	A UA weighting less than 250g and having a maximum cruise speed of less than 25 m/s is considered to have a iGRC of 1 regardless of teh population density.	Add UA up to 4kg when CE compliant (CAT C0, C1, C2) and in low speed mode.	A UA weighting less than 250g and having a maximum cruise speed of less than 25 m/s or is compliant to CE category C0,C1, C2 with low speed mode is considered to have a iGRC of 1 regardless of the population density.	Rejected	The comment addresses a EU specific matter and could not be addressed by JARUS.
713	General		32	734	Defined in Annex	Which Annex?	Annex XY.	Accepted	"F" incorporated in the original text and then restructured.

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714	General		33	750	Case 1.1, Case 1.2.1, Case 1.2.2, Case 1.2.2	No logical sequence in case numbering. 1.2 is missing.	Redefine numbering.		This has been resolved as part of reformatting the document.
715		Figure 6	33	750	(b) The lateral outer limit of the adjacent area is calculated from the operational volume as: 1. either the maximum range remaining of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume, or 2. the distance flown in 3 minutes at maximum cruise speed of the UA: 2.1. If the distance is less than 5 km, use 5 km. 2.2. If the distance is between 5 km and 35 km, use the distance calculated. 2.3. If the distance is more than 35 km, use 35 km. The inner limit of the adjacent area is the outer limit of the ground risk buffer (i.e. the ground risk buffer is not part of the adjacent area). Figure 6 – Adjacent Area Lateral Distance Calculation	Adjacent areas need to be reduced by 50 - 95% for UAS applications such as geomatics, inspection, film, photography. Justification: These UAS are deployed with severely limited flight speeds, which makes the distance, in case of an unforeseen event resulting from the response time, until the flight is terminated, a few hundred meters at most. Neither the 3 minutes flight time nor the minimum 5km correspond to reality. Eiter technology can show to avoid fly aways or geofencing and other system that prevent a breach of buffer will limit the fly away. Forcing everyone, even those who do not make a horizontal movement, to keep these distances because 1E-9 of the UA have a flyaway does not increase safety adequatly.	The lateral outer limit of teh adjacent area is calculated from the operational value as: 0.1 the same size of the ground risk buffer for operations in low speed mode or with no horizontal movements or if theathered.	Rejected	Agreed. For very slow flying drones, 5km is not a realisitc distance and this might be considered by the Compentent Authority. However, keep in mind that smaller adjacent areas tend to increase average GRC in populous areas, thus increasing containment requirements. Your proposal would most likely increase containment requirements.
716			33	753	(c) If the applicant or competent authority considers the previous criteria are not appropriate for determining the size of the adjacent area, the competent authority may ask for or accept an alternative means of calculating the adjacent area. The UA's inherent flight characteristics in a loss of control situation can be used to argue for a different size of the adjacent area.	Formulated too vaguely and leaves too much room for arbitrary decisions by the authorities. Clear, measurable parameters should be used. That a UAS leaves the risk buffer with a 100% probability in case of an error is given in critical situations at most in autonomous BVLOS operation. In a flight monitored by a PIC in the VLOS area, experience has shown that it is possible to intervene without any problems and take the necessary countermeasures.	(c) If the applicant shows the previous criteria are not appropriate for determining the size of the adjacent area, the competent authority may accept an alternative means of calculating that leads to smaller adjacent area. The UA's inherent flight characteristics, additional measures as well es test reaults of a loss of control situation can be used to argue for a different size of the adjacent area.	Partially accepted	This sentence was removed
717	ruling	comment 9	33	766	Sports event at a stadium, concert, large assemblies in beaches/parks	If BVLOS operations are to account for sporting events at a stadium, concerts, large gatherings at beaches/parks, and sporting events, these events must be reported by the state with date, time, and location. On a 50+km flight, it is simply impossible to analyze all events in the vicinity at the exact time of the flight. Berlin has over 360 gatherings per year (basically at least one every day) that do not even follow the planned route. If required, it is strongly recommended to define a service for reporting gatherings, selling tickets for sporting events and outdoor spectacles before activating this requirement otherwise urabn flying is void. Demonstrate that unmanned aerial vehicles are not discriminated against relative to other aerial vehicles.	Delete and install restricted areas ED-R or by NOTAM to void aviation over large assemblies.	Acknowledged	Each authority needs to define procedure or service to provide such information. Different options may be considereed such as the coordination with the entity respsonsible for the organsiation of the events in the area (in this specific example) or the definition of a real ime population density map service. Please also see comment 590.
718			34	791	The intrinsic risk of a person being struck by a UAS can be reduced by means of acceptable mitigations.	Fuzzy: Define acceptable mitigations	The inherent risk of a person being struck by a UAS can be reduced by mitigation measures that have been determined to be effective, proven by tests, or acceptable by the risk analysis.	Rejected	A definition of acceptability has not been added as it can be different for each regulatory system.
719	General	figure 7	37	892		Align altitude values/labels of figure 7 and Annex C. Different height values (OPS Volume and Flight Geography) are used.	Improve labels.	Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
720	details missing	table 7	43	1069		The impact of a higher containment solution than required is not described. How does a higher containment feedback into the GRC or Adjacent Area. Define a mitigation table accordingly.	Add formular or table to reduce GRC and adjacent area when overexeeding containment solution.	Rejected	Contaiment solutions do not affect GRC in the operational volume. They are indepenedent.
721	definition	main body	43	1069	missing factor	Risk exposition time (standard procedure of all functional safety methodes worldwide) is not implemented in Ground Risk and Adjacent area. When a flight passes an urban area for 1% of the flight time, risk should be rated accordingly.		Acknowledged	Please refer to Annex F guidance for overflying small areas of higher population density.
722	definition	main body table 10	46	1113	Producer or designer	Headline of chart: what is meant with manufacturer? Produces or designer…? Compare with Annex E line 100 OSO #II Clarify definition of manufacturer, production designer, maintainer, operator, trainer. (Table 10)		Acknowledged	Please refer to the definitions in the Main Body Section 2.5
723	Disproportionately towards the open category in presumably proportional 'risk based' reqiurements		30, 43	669…, 1067…	An appropriate ground risk buffer with at least a 1-to-1 principle and 2.5.2 Step #8 – Identification of containment requirements	Disproportionately towards the open category, especially A1 and A2. There are no containment requirements in A1, A2 and A3, and there are also no ground risk buffer requirements in A1. In other words, in A1 you can be on the edge of a 'assembly of people' (horizontal distance 0m form assembly). For the same operation in specific due to, for example, desired height over 120m AGL, in accordance with SORA, the operation is not possible at all without taking GRB into account and without 'enhanced' (medium) containment reqiurements, (when using mitigations to SAIL II, ERP, operation manual, add training)....	The only solution is to take an open category as the starting point for setting up SORA. Otherwise, the result is a total disproportionality between open and specific in EU- I assume that the open restrictions are similar outside the EU as well. If I were to check the requirements of A1 and A2 with the current SORA 2.0 (not much different with 2.5), A1 falls in SAIL IV, A2 in SAIL V. Proportionality would require changes to the iGRC system (lowering the GRC in the iGRC table), mitigations for VLOS,... to ensure proportionality	Rejected	The proportionality has been improved by the new containment step. By reorganizing it, it becomes obvious that most small VLOS drones do not need more than low containment which is met by most small drones.

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724	Increasing of the number of operational scenarios (max iGRC pop. dens.) from 4 (2.0) to 7 (2.5) Human factors principe in construction of OM… Deadlines for NAA		31	687	Table 2 – Intrinsic Ground Risk Class (GRC) Determination	It would be appropriate for one operator with more than one UAS types and several 'con ops' (SORAs) to have one Operations manual. The OM construction, which is the only logical one according to the of human factors principles, is for the operator to make operational procedures in the form of e.g. procedures for the operation in populated, and for a similar operation in sparsely populated, he makes exceptions - deviations from the procedures for 'populated'. Anything else is impractical. Such a way was already very difficult to achieve for most 'new' operators, with the increase in the number of classes (density), it will be even more difficult. Ideas to approve an operation at a specific location with a single SORA are unfeasible (too long deadlines). The operator must have a 'approved' (declared) system with SORA, he chooses the locations himself in accordance with the approved (declared,…) systems, and the NAA performs oversight with the help of record keeping requirements. With the new SORA, the number of these scenarios increases from 4 to 7 and it will be even more difficult to make elevations for individual population density.	Reduction in the number of population densities classes. I don't see any other option, without a concrete change to the SORA system (so that the entire operation no longer depends on risk analysis, but only parts of the operation). Something that is common with manned aviation (AOC…)	Rejected	The SORA is a risk assessment tool, as such the application is not necessarily linked to one specific geographic location, but may be use to assess the risk of a "generic" location. Please refer to the updated Step 1 and 10 of SORA, as well as Annex A.
725	Use of mitigations in the adjacent area (M1(A))		35 36	838 839	Mitigations might be applied to reduce the GRC of the adjacent area. Mitigations that may be used for the adjacent area GRC without additional justification: i. M1 for using the assumption of sheltering;	Very limited ability to use M1(A) for a 5km radius area? Lots of subjectivity. The aforementioned (and many other aspects of SORA) decrease any serious possibility for the recognition of operational authorizations in cross-border ops. It increases the part of 'local operations' and reduces the part of 'common regulations'.	**Replacing the system of imaginary 'flexibility' with a system of 'actual rules' with the possibility of exception.** **I don't see much chance that the FAA, CASA,..., whoever will actually be using SORA in the future, will be able to use SORA 'directly'.** **With such a subjective risk assessment, everybody will make their own more detailed requirements from SORA, similarly as from for example ICAO Annex (6) to Regulation (EU) 965/2012 (in the EU)...**	Partially accepted	"without additional justification" is removed, and more work is performed on Annex B to provide more guidance. This is now part of the alternative method to be found in Annex F.
726	Determination of the adjacent area size, actual required area to calculate the average density of people, distance from a group of people,…		33-34	737-789		There is a bit of confusion regarding the scheme for ground risk in adjacent area. Some calculations start with taking GRB into account, others not All very confusing.	Perhaps it would be appropriate to have everything shown in figure 6 (contingency and emergency situation), or perhaps a potential change to one of the definitions.		We have added clarififying text and have updated figure 6
727	TMPR with 'VLOS'		40…	955…		Does this chapter also need to be adjusted, given that there is no longer a VLOS / BVLOS split in the iGRC table. Only M1(B) remains, which has additional requirements regarding ground risk (avoidance of flying over people), if you want to use it…		Acknowledged	VLOS has been kept as a air risk mitigation only for TMPR. All mentions of VLOS for grouns risk and ground risk mitigations have been removed.
728	The use of JARUS quantitative ground risk model to assess the iGRC can in some cases result in a lower iGRC value than that which would come from only considering the characteristic dimensions of the UA in reference to table 2. A note to clarify that the `critical area` calculated based on the methods outlined in Annex F can be used to justify an iGRC assessment would be highly appreciated.	2.3.1	31	688	NA	For Airborne Wind Energy applications this is an important consideration as the airborne systems (both soft kites and rigid wing types) typically have large characteristic dimensions in relation to their mass and max airspeed. The strict application of the characteristic dimension limits can result in a too high iGRC evalation, resulting in a too high SAIL, especially for applications performed over controlled ground area where ground risks are already effectively mitigated.	The applicant may propose a lower iGRC than what would be assessed based on the characteristic dimension of the UA supported by the quantitative ground risk model outlined in Annex F.	Accepted	Please refer to part (b) in "Indentification of the iGRC" in section 4.2.4
729	M2 mitigations (like a parachute) can help to reduce the critical area in the event of a crash. Through the use of the ground risk model in Annex F such a mitigation could reduce the GRC. A note to highlight that this type of reduction is possible would be highly appreciated.	2.3.3	35	835	NA	Suggest to add a point iv. to point (i).	Use of M2 mitigations (like parachutes) to reduce the critical area may be applied by the applicant with justification based on Annex F.	Acknowledged	Section removed to reduce duplication and not highlight any particulare mitigations.
730	Statement that SAIL is not quantitive is in contradicting to the explaination of the SAIL which has been included in the SC-LUAS MOC document (FTB MOC SC Light-UAS). In this document (page 2, first line) the following explanation for the SAIL is given: The maximum allowable rate of loss of control of the operation per flight hour (FH) is linked with the SAIL (10-SAIL / FH) and achieved by means of Operational Safety Objectives (OSOs) This quantiative explanation of the SAIL is very helpful in understanding the overall SORA methodology.	2.5.1	42	1061	The SAIL is not quantitative but instead corresponds to: i. OSOs to be complied with (see Table 6), ii. Description of activities that might support compliance with those objectives, and iii. The evidence that indicates the objectives have been satisfied.	Remove the statement that SAIL is not quantitative and include additional point (iv) referencing the quantitative explanation with the same (very helpful!) footnote from the SC-LUAS MOC document.	The SAIL corresponds to: i. OSOs to be complied with (see Table 6), ii. Description of activities that might support compliance with those objectives, and iii. The evidence that indicates the objectives have been satisfied, iv. The maximum allowable rate of loss of the control of the operation is 10^(-SAIL) per flight hour (FH).	Acknowledged	Please refer to the updated Step 9 and new structure. SC-LUAS MoC is not a JARUS document and therefore cannot be referenced/updated.

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731	Adjacent area of a minimum of 5km (and similarly to adjacent airspace) is not reasonable e.g. for a tethered UAS which is unpowered if the tether ruptures (tether in our case has electrical cables, the UAS has no batteries for its engines). We have exactly this case (http://www.kitekraft.de). Because unpowered when the tether ruptured, the UAS (kite) is physically unable to ever glide that far (and it has mitigations to avoid to glide away) and it physically unable to climb higher than a few meters higher than the tether is long. I suggest to take out this minimum 5km/3min requirement or that one can apply mitigations to reduce the adjacent area and airspace e.g. with a powered tether and no battery on the UAS connected to the engines/motors.	2.3.2	33	745	NA	Add footnote to statement `2.1. If the distance is less than 5km, use 5km` to allow for cases where a smaller adacent area is justified due to the specific nature of the UAS.	In the case of tethered UAS where the sole source of propulsion power is provided over the tether, the applicant may attempt to justify a smaller adjacent area.	Rejected	This situation is already covered in Case A (former 1.1), and Annex E lays out how containment objectives from low to high can be met by using a tether. The adjacent area in this case would determine the level of robustness for the tether.
732		Table 2	31	688		The ground risk posed by a UAV depends on its mass as well as its maximum dimension.	Classify UAV by mass as well as (or instead of) by maximum dimension.	Rejected	Mass is a larger factor in lethality/sheltering (which are mitigations) than critical area (which is driven by speed and size). Please refer to Annex F for further guidance.
733		Table 2	31	688		Following a serious incident involving a UAS operated by Swiss Post in May 2019, EASA NPA 2020-07 proposed that operations of UAS with an MTOM of more than 4 kg over a populated area and UAS with a kinetic energy of more than 80 J over an assembly of people should be be considered to be SAIL VI. As far as I can see, JARUS SORA would have assessed the risk of the Swiss Post operation as around SAIL IV.	Either the OSO requirements for SAIL IV need to be made more robust, or Table 2 needs to be modified to increase the ground risk class of such UAS.	Acknowledged	The methodology has been updated with respect to ground risk class, please refer to Step 2 of the SORA. However, this is not in direct connection to incidents/accidents as individual events are subject to investigations by appropriate organisations.
734		Table 6	42	1066		The size of the fleet is not taken into account when determining the SAIL. This is inconsistent with SC-VTOL, which sets the same safety objectives for Category Enhanced VTOL aircraft as for large airliners (CS-25) because of the large number of VTOL aircraft that are expected to be operated over urban areas. It would be inconsistent to take the size of the fleet into account when setting the safety objectives for VTOL aircraft operated over urban areas, but not for UAS operated in much larger number over the same urban areas.	Take the size of the fleet into account when determining the SAIL.	Rejected	The comment addressed a local implementation of the regulation which is not under the responsibility of JARUS.
735	Abbreviations	n/a	n/a	n/a	n/a	For intrinsic ground risk class, the abbrevition iGRC is used. I would suggest to do the same for final grc, initial arc and residual arc	Final Ground Risk Class: fGRC, Initial Air Risk Class: iARC, Residual Air Risk Class: rARC	Rejected	For continuity with v2.0 and since minimal work was done to air risk sections and Annexes, the initials were left for consistency consistent. May be revisited in future versions when air risk sections are updated.
736	Atypical airspace	n/a	n/a	n/a	n/a	Under PDRAs, Atypical airspace seems to be "50 m horizontal to an object and 15 m above the object, when the object has a height of more than 105 m", while the general definition is "within 30 m from an object, both horizontally and vertically". This may be confusing to operators. Is there a way to make this consistent (e.g. only use one definition)?	< -- Use one of the two definitions to avoid confusion	Rejected	The text of the SORA is kept general to allow for further tailoring depending on the use case. Comment refered to PDRA TF.
737	AMC/GM for computations	n/a	n/a	671-672	n/a	Please provide AMC/GM (source) for the determination of the Contingency volume, the Ground Risk Buffer, the ballistic method, the KE impact computation	na	Rejected	This is an EU specific request.
738	iGRC determination table	n/a	n/a	687-688	n/a	Changes to the iGRC determination table:Two different iGRCs need to be determined, why not provide a table for both the 'area of operations iGRC' and the 'adjacent area iGRC'. Also, please add both quantitative and qualitative population density in the table.	see to the right -->	Rejected	The reason for calculating the GRC for the adjacent area and the iGRC footprint is to evaluate the risk difference between the areas in order to determine the containment requirements. The relation between quantitative and qualitative population densities are indicated in table 3 and are not included in one table due to the amount of information provided in both Tables 2 and 3.
739	exclude more UA from iGRC determination table	n/a	n/a	691		Under SORA 2.5 it is proposed to exclude drones < 250 gr and < 25 m/s from the iGRC table. Why not exclude a bit heavier UA from the table, comparable to sub A1 of the Open category? See proposed text to the right -->	"A UA weighing less than 900g and having a maximum cruise speed less than 25 m/s is considered to have iGRC 1, unless the UA is operated over assemblies of people. In the case of an operation over assemblies of people, iGRC 4 is assigned."	Rejected	This is EU specific. A note is there for a UA weighing less than 250g and having a maximum speed less than or equal to 25 m/s.
740	Quantitative vs qualitative pop. density data	n/a	n/a	700-707	n/a	During the EASA SORA 2.5 workshop it was mentioned that under SORA 2.5, qualitative densitiy data may be used in case there are no representative sources for determining the population density based on quantitative data. Looking at the new iGRC table, three rows are assigned to populated area (< 2 500 suburban, < 25 000 urban and < 250 000 dense urban). Which one to use when no quantitative data is available?	n/a	Acknowledged	Please refer to the area description added to the qualitative descriptors section.
741	Add a "High+" column	n/a	n/a	804-805	n/a	only low, medium and high robustness are mentioned, while M2 may be applied with high+ robustness	add an extra "High+" column to step #3 table	Rejected	M2 High+ has been removed from the main body mitigations table and a new principle has been added in chapter 1 of Annex B. This explains that when a higher level of integrity is shown, it can be used to gain more benefit from a mitigation.
742	change the name	n/a	n/a	1058-1066	n/a	For clarity, please change the name, since two different fGRCs are determined (for the area of operations and for adjacent areas)	"Area of operations fGRC"	Acknowledged	Please refer to containment requirements that have been significantly rewritten.
743	add an extra part to step #3 mitigations table for adjacent areas	n/a	n/a	804-805	n/a	Same as for step #2, please add an extra part to the step #3 table for the adjacent areas, since two fGRCs are determined	see to the right (NOTE that the extra M2(B) mitigation is something I explain in the Excel feedback sheet for annex B) --> (picture available in file "Feedback SORA Main Body")	Acknowledged	Please refer to containment requirements that have been significantly rewritten.

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744		2.5.2. (b)	41	1080	See content of Table 8 - Adjacent airspace containment requirements	Medium and High containment requirements may be necessary to mitigate the risk of collision in the adjacent airspace for certain operational environment. Indeed if the UAS operation is at a very short distance from an adjacent airspace where it is known (with high assurance) that a high density of manned aircraft traffic is ongoing (e.g. UAS operation within the aerodrome airside perimeter) then a low containment requirement would not be sufficient to satisfy the TLS for such environment (10-9).	Include an additional row in the table specific to ARC-d where for the different SAILs, a note will mention that Medium or High containment might be required for certain operational scenario	Acknowledged	Airspace Containment has been removed from the main body as part of a simplification. The reasoning why low containment should suffice for all adjacent airspace cases will be layed out in an updated Explanatory Note to be published alongside SORA 2.5
745		2.5.2. (c)	41	1083	(c) If there is either ARC-c or ARC-d in the adjacent airspace, and the operation is SAIL IV or lower, then low containment is required to mitigate the adjacent air risk. Otherwise, no additional containment requirements are necessary beyond the OSO requirements for the SAIL.	Medium and High containment requirements may be necessary to mitigate the risk of collision in the adjacent airspace for certain operational environment (See comment #1 above).	(c) If there is either ARC-c or ARC-d in the adjacent airspace, and the operation is SAIL IV or lower, then low containment is required to mitigate the adjacent air risk except in certain environment where medium or high containment might be required (e.g. UAS operation in the airside aerodrome perimeter). Otherwise, no additional containment requirements are necessary beyond the OSO requirements for the SAIL.	Acknowledged	Airspace Containment has been removed from the main body as part of a simplification. The reasoning why low containment should suffice for all adjacent airspace cases will be layed out in an updated Explanatory Note to be published alongside SORA 2.5
746		2.5.2. (d)	42	1090	See content of Table 9- Final containment requirements	Medium and High containment requirements for the adjacent airspace should be added in table 9 in accordance with comment#1 above. Indeed the containment requirement (Medium or High) might be driven by the adjacent airspace and not by the adjacent area in certain operational environment where the ground risk is low (e.g. people are protected/sheltered) but air risk is high (manned aircraft landing and taking off) like in aerodrome environment.	Table 9 should be symetrical between adjacent area and adjacent airspace. Two additional rows should be added for the adjacent airspace containment requirements: Medium and High.	Acknowledged	Airspace Containment has been removed from the main body as part of a simplification. The reasoning why low containment should suffice for all adjacent airspace cases will be layed out in an updated Explanatory Note to be published alongside SORA 2.5
747		1.4.1	19	Semantics	None	Regulation of the specific category is both performance-based and risk-based. The former terms means that legally-binding rules should be as much as possible technology-agnostic, while detailed specifications and methods should be contained in voluntary industry standards. This approach originated in 1998, through ICAO Assembly Resolution A32-14 (now replaced by Resolution A39-22) and in fact SORA uses it when referring to industry standards to implement some OSOs. Risk-based regulation means sparing the scarce resources available inside the aviation authority, through several mechanisms, among which audit cycles adjusted to the risk profile of the organisations, declarations instead than verification by authority, use of Regional Safety Oversight Organisations (e.g. EASA), or delegation to external competent third parties. The shortage of authority resources was recognised at ICAO level through Resolution A40-6: "Recognizing that not all Member States have the requisite human, technical and financial resources to adequately perform safety oversight", which launched the GASOS Programme relying on pooling of resources at regional level. In EU, the need to reduce workload on aviation authorities, was regognised in Communication 613 of 2015 by the European Commission (which orginated current EASA Basic Regulation 2018/1139: "Finally the present proposal addresses the challenges that some national authorities face in maintaining and financing the resources necessary for accomplishing the required certification and oversight work. To this end the present initiative proposes a framework for pooling and sharing of technical resources between the national authorities and the European Union Aviation Safety Agency, and which **includes the possibility of transferring responsibilities for implementation of Union legislation on a voluntary basis**. For these reasons, several SORA OSOs require, espacially for medium or high level of accurance robustness, a certificate not issued by an aviation authority, but by a 'competend third party'.	Add: The SLA, whenever possible, should be based on industry stardards for either the minimum operational performance of ther services or the organisation of the service provider or both. For instance, requirements for the organisation of the provider of the	Acknowledged	Please refer to Annex H for further considerations on the SLA.
748		2.6 c)	47	1137	In the case the operator uses external service(s), reference(s) to Service Level Agreement(s)(SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service to get clear oversight into which services are being used, the functions they perform, and how they contribute to the overall operational safety. It also allows verification that responsibilities have been correctly allocated, and that there are no unallocated responsibilities.	Writing SLA comprising minimum operational spectifications for the service and require,ments for the organisation of the service provider, would be a tremendous task for the UAS operator. Furthermore, if each operator would write its own SLA this would lead to lack of harmonisotion across the community. Therefore, whenever possible, the SLA should be based on an industry standard. For instance, requirements for the organisaiton providing the 'Population Density Information Service' are already published in ISO 23629-12 https://www.iso.org/standard/78962.html?browse=tc One more sentence is necessary in this paragraph to clarify the role of industry standards	Add: The SLA, whenever possible, should be based on industry stardards for either the minimum operational performance of the service or the organisation of the service provider or both. For instance, requirements for the organisation of the provider of 'Population Density Information Service' are already published in ISO 23629-12 https://www.iso.org/standard/78962.html?browse=tc	Rejected	The SORA is not in the position to dictate the specific information within an SLA. The requirements for SLA are specific to the external service being used for safety critical tasks during operation. These are also specific to the terms between the two parties entering into the SLA.
749			16	261 - 262	This methodology may also support activities necessary to determine associated airworthiness requirements.	The requirements for airworthiness of UAS should not be part of SORA. The introduction of the terminology and the whole concept of UAS airworthiness feels rushed. For instance, the term airworthiness, as per ICAO definitions, airworthiness means the status of an aircarft, engine, propeller or part whenit conforms to its approved design. Design approvals is a comprehensive subject of the regulation and therefore too big to be included as part of SORA	Delay the addition of any new reference to airworthiness requirements and the inclusion of the new Annex E, until a more appropriate and individual consultation of the annex is made.	Rejected	The SORA may assist designers and manufactuers to gather data to then help with certification at a later stage.
750			27	556	This iterative process may be split into two phases, as described below	This wording implies that an iterative and phased process is required. It should be made clear that this is a good practice and not a requirement. Experienced operators should be able to skip this step	Operators may use this phased approach…	Accepted	The phased approach is recommended by WG-SRM as the method to undertake the SORA. A competent authority may determine these phases are not required for a given operation.

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
751		(c)	29	596	The compliance evidence document only collects necessary evidence supporting the claims of the risk assessment that do not form part of the operator manual, i.e. test data and evaluation	The use "compliance eveidence" as part of a separate document in the application has been introduced and it is quite vague. How would the competent autoprity verify this complaince with a "complience evidence" document? The competenete authority already reviews the compliance evidence of the regulatory requirements, is there a need to write this as as a separate document?	Remove the requirement of this as a separate document required for the application or clarify the requiments within the file	Accepted	The term "compliance evidence document" has been removed and "compliance evidence" has been used instead, which does not impose a specific form to be taken.
752		2.3.1	30	649	Step #2 – Determination of the intrinsic UAS Ground Risk Class (GRC)	ALL Section. It seems that the methodology doesn't take into consideration large fixed-wing drones. Therefore an emphasis the following: Rather than use max. UA dimension or max cruise speed as per table, operator should be able to present a different method on how to determine the iGRC to the regulator (this is allowed if Annex F is used, however there should be the possibility of using alternative mathematical methods).		Acknowledged	The SORA Main Body does account for large fixed wing drones, but the iGRC table may not properly account for the risk of such platforms. Please refer to Part (b) in "Indentification of the iGRC" in section 4.2.4 to address this.
753		2.3.1	30	655 - 656	maximum population density intended to be flown over	It should be made clear that an exact number is not required . Other sections of the main body use the word average as well and this is not consistent. Currently no tool exists that is able to provide population data. The operator should be able to make the best estimate based on knowledge of the local conditions.	A realistic estimation of the population density (backed by calculations)	Acknowledged	Please refer to the qualitiatve descriptiors and area descriptions included.
754		2.3.2	33	739 - 740	(a) The adjacent area size models a reasonably probable ground area where an UA may fly or crash after a flyaway.	It seems that this methodolgy has been developed without considering the capabilities and performance of large fix-wing remotely piloted aircraft. Large aircraft do not just "flyaway" and have similar characteristics of fixed manned aircraft i.e. the ability to glide.	To move (a) to the guidance / annex sectiononly and adopt (c) as the main requirement on this section		See answer to comment 505.
755		2.3.2	33	742 - 747	b) The lateral outer limit of the adjacent area is calculated from the operational volume as: 1. either the maximum range remaining of the UA once it leaves the operational volume if it is less than 5 km from the edge of the operational volume, or 2. the distance flown in 3 minutes at maximum cruise speed of the UA: 745 2.1. If the distance is less than 5 km, use 5 km. 746 2.2. If the distance is between 5 km and 35 km, use the distance calculated. 747 2.3. If the distance is more than 35 km, use 35 km	This is only an example The numbering system is not aligned with previous sections, see section 2.3.1 (c), the subheading use i.- ii, etc.	The numbering system needs to be made consistent throughout the document	Accepted	The full document has been reviewed and changed.
756		2.3.4	35	836	Determination of final adjacent area GRC	It seems that the whole section has been developed without considering the capabilities and performance of large fix-wing remotely piloted aircraft. Large aircraft do not just "flyaway" and have similar characteristics of fixed manned aircraft i.e. the ability to glide.	The competent authority may accept an alternative means of calculating the adjacent area intrinsic GRC.	Rejected	The SAIL level directly acknowledges the capabilities of any UAS design reagarding loss of control probability. The sizing of the adjacent area takes into account the flight characteristics of different UA types.
757		2.4.1	36	866 - 868	The competent authority or ANSP may impose additional strategic or tactical 867 mitigations on airspace authorizations, taking into account uncertainties related to UA 868 reliability, conspicuity, and other factors.		To remove	Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
758		2.4.2.2	38	920	Determination of adjacent airspace size	Operator should be given the opportunity to present a different method from Figure 8 to determine the adjacent airspace size.	To move (c) to the guidance / annex sectiononly and adopt (d) as the main requirement on this section	Acknowledged	Adjacent airspace size is no longer relevant, as airspace containment is automatically covered by all robustness levels for all adjacent airspaces.
759		2.5.3	44	1093 - 1094	Step #9 - Identification of Operational Safety Objectives (OSO)	The term "training organisation" has been introduced quite drastically in this revision. Also, it is not clear whether a manufacturer, training organization and operator can be one and the same company.	Expand on the definition and use of training orgainsation(s) within the current regulatory regime.	Acknowledged	The text is left general on purpose as the exact roles may vary depending on the operation.
760	When is SORA 3.0 expected to be published for consultation?							Acknowledged	To be defined in future JARUS work.
761	35km seems to be a reasonable distance; examples given in explanatory notes are good		31	744	the distance flown in 3 minutes at maximum cruise speed of the UA	35km at 250 kt /128 m/s (the maximum speed aircraft usually fly below FL 100) would lead to a time of 4:30 min	the distance flown in 4:30 minutes at maximum cruise speed of the UA	Rejected	The 3 minutes comes more from the minimum size of adjacent areas which is optimiying the area siye for the 90% of UAS in the air. The maximum size is intended mostly to ensure very fast experimental UAS are not tested close to major population centers.
762	good arguments to use max density in operational area and average density in adjacent area Support that idea		34	780-789	For the adjacent area, the operator is not approved to plan flights in this area and will only reach the adjacent area in the event of a loss of control and fly away event. In that situation, the direction and duration of the fly away is assumed to be random, thus the average population density used.		no change suggested	Acknowledged	Agreed.
763	Did I understand that paragraph correctly, that even when a map with a residual air risk is published the operator may use additional mitigations to further reduce the air risk?			881-882	...and go directly to section 2.4.3 "Application of Strategic Mitigations" to reduce the initial ARC.		...and go directly to section 2.4.3 "Application of Strategic Mitigations" to (further) reduce the initial/residual ARC	Rejected	A general statement cannot be made as it may differ depending on the type and characteristics of the map published by the competent authority. SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.

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764	Adjacent airspace containment requirements risk assessment questionable for aerodrome environment - references presented do not cover ops in control zones adequately			1079	ARC-c or ARC-d low containment requirement	**While the risk of a collision in non terminal airspace is a matter of traffic density, detect avoid capability etc. and should be addressed in SORA steps 4-6 the safety of ops in the vicinity of aerodromes is a matter of procedures and containment. Traffic trajectories are not random but follow defined tracks, traffic is known and in contact with ATC.** **A.1.2.2. adjacent airspace containment requirements assessment (explanatory notes p. 30 ff.) is not applicable for AEC 1. Statement of grounds:** P(NMAC|WCV) – The paper "Well clear recommendation for small unmanned aircraft systems based on unmitigated collision risk" is suitable to justify the P(NMAC|WCV) = 0.1 for UAS operation in nonterminal airspace only. This is why: Abstract: "This paper outlines research toward a well-clear recommendation tailored to sUAS versus manned aircraft for midterm BVLOS concepts of operations at low altitudes below 1200 ft AGL in nonterminal airspace" p. 120: "In response, the hockey puck sUAS well-clear recommendation is currently limited to class E and G airspaces for sUAS altitudes up to 1200 ft" p. 121: "a sUAS airspeed limit of 60 kt is advocated to bound the hockey puck well-clear recommendation." P(MAC|NMAC) Paper: "Well clear recommendation for small unmanned aircraft systems based on unmitigated collision risk", p. 119 "Referring back to Fig. 6, P(MAC|NMAC) could be as low as 1% because it was very likely for the sum of wingspans between a sUAS and general aviation aircraft to be less than 50 ft and unlikely to exceed 100 ft." – very true but again, I think this cannot be used to assess the risk in the airport environment since jet aircraft have a much larger wingspan. Paper: "Correlated Encounter Model for cooperative aircraft in the	ARC-c or ARC-d (AEC 2 and AEC 3) low containment requirement ARC-d AEC 1 high containment requirement if the immediate approach path (Intermediate fix to end of rollout) or departure path (standard instrument departure until a height of 1500ft.) of an active runway is within the adjacent area	Acknowledged	Airspace Containment has been removed from the main body as part of a simplification. The reasoning why low containment should suffice for all adjacent airspace cases will be layed out in an updated Explanatory Note to be published alongside SORA 2.5
765	Adjacent airspace containment requirements risk assessment questionable for aerodrome environment - references presented do not cover ops in control zones adequately			1081-1084	If there is either ARC-c or ARC-d in the adjacent airspace, and the operation is SAIL IV or lower, then low containment is required to mitigate the adjacent air risk. Otherwise, no additional containment requirements are necessary beyond the OSO requirements for the SAIL.	see comment on line 1079 by IFALPA	If there is either ARC-c or ARC-d (AEC 2 and AEC 3) in the adjacent airspace, and the operation is SAIL IV or lower, then low containment is required to mitigate the adjacent air risk. If there is the immediate approach (intermediate approach fix to end of rollout) or departure path (standard instrument departure from begin of takeoff roll until a height of 500m) of an active runway and the operation is SAIL IV or lower, then high containment is required to mitigate the adjacent air risk. Otherwise, no additional containment requirements are necessary beyond the OSO requirements for the SAIL.	Acknowledged	Airspace Containment has been removed from the main body as part of a simplification. The reasoning why low containment should suffice for all adjacent airspace cases will be layed out in an updated Explanatory Note to be published alongside SORA 2.5
766	Explanatory Note	A.1.1.3				How could a random operator possibly calculate the adjacent area population density as provided in all the examples? Is there a tool for this?	It would be unworkable to "count" all the squares with a certain population density and divide it through the total amount of squares. This would be a very work-intensive/impossible job. Without a tool, only a rough estimation is possible.	Acknowledged	See comment #362 and #183. We have added a sentence to encourage rough estimation, since this is accurate enough in most cases that are not edge cases.
767	General Comment	Main Body				Main concern with the whole SORA implementation is the flexibility and agility of the NAAs to speed up the approval process. Therefore, many requirements including purely technical and "mathematical" formulas, should be as comprehensive as possible to avoid long delays and queues between NAA and the UAS SPs.		Rejected	The text has generally been updated to be more comprehensive and easy to use. The general approval process is an issue to be addressed by the NAAs and not part othe SORA process.
768	General Comment	Main Body				Additional rationale on the correlation between sheltering and population density etc.	It is unclear how NAAs will provide proper information on sheltering. In the worst case a city planner/architect will be involved in the SORA application as well. If a person is in a bus/car or train are they sheltered?	Acknowledged	Sheltering M1(A) has been split as a separate mitigations with clarified requirements and guidance.
769	General Comment	Main Body				Several OSOs, when the required level of assurance robustness is high, require certification by an independent, accredited and competent third party. In the original text, this was intended to be an industry body, such as Notified Body or Qualified Entity in EU, ODA in the USA or similar. However, some authorities have not properly understood and they say that this independent body shall be the aviation authority, which was not at all the original intent.	It is hence necessary to add a definition in the main body of SORA: 'Independent Third Party' means an industry body, different from the aviation authority, competent, independent from the assessed entity and accredited by State authority for one or more specific verification activities', A Note may clarify that these bodies are designated, under different jurisdictions, as Conformity Assessment Bodies, Notified Bodies, Organisation Designation Authorisation, Qualified Entities, Recognised Assessment Entities or similar.	Partially accepted	Please refer to the updated section 2.5 which includes a definition for the "competent third party"
770	Definition	Main Body	17	292	…additional hazards are excluded from the scope of this methodology…	Are risks due to additional hazards excluded from SORA, i.e. ignored? So, are dangerous goods allowed to be brought on board as long as the container provides sufficient protection in case of an accident? How is adequate protection defined and validated for medical goods, for example? Is it necessary for the container to withstand the effects of altitude at all times? How is accidental release accounted for?	GM on requirements for DG in Specific Category	Rejected	The issue of carriage of DG are expected to be addressed by the NAAs and their applicable regulatory requirements. DG has separate regulations that need to be adhered too. Comment refered for future developments of SORA.

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771	Definition	1.4.1	19			Regulation of the specific category is both performance-based and risk-based. The former terms means that legally-binding rules should be as much as possible technology-agnostic, while detailed specifications and methods should be contained in voluntary industry standards. This approach originated in 1998, through ICAO Assembly Resolution A32-14 (now replaced by Resolution A39-22) and in fact SORA uses it when referring to industry standards to implement some OSOs. Risk-based regulation means sparing the scarce resources available inside the aviation authority, through several mechanisms, among which audit cycles adjusted to the risk profile of the organisations, declarations instead than verification by authority, use of Regional Safety Oversight Organisations (e.g. EASA), or delegation to external competent third parties. The shortage of authority resources was recognised at ICAO level through Resolution A40-6: "Recognizing that not all Member States have the requisite human, technical and financial resources to adequately perform safety oversight", which launched the GASOS Programme relying on pooling of resources at regional level. In EU, the need to reduce workload on aviation authorities, was regognised in Communication 613 of 2015 by the European Commission (which orginated current EASA Basic Regulation 2018/1139: "Finally the present proposal addresses the challenges that some national authorities face in maintaining and financing the resources necessary for accomplishing the required certification and oversight work. To this end the present initiative proposes a framework for pooling and sharing of technical resources between the national authorities and the European Union Aviation Safety Agency, and which includes the possibility of transferring responsibilities for implementation of Union legislation on a voluntary basis. For these reasons, several SORA OSOs require, espacially for medium or high level of accurance robustness, a certificate not issued by an aviation authority, but by a 'competend third party'. Examples in EU	Insert a new definition on 'competent third party': Entity different from the competent avation authority, accredited and under continuous assessment by a State or Regional Authority which is authorised to conduct certain delegated certification, safety management, verification of conformity or oversight tasks.	Accepted	Text updated. A definition has also been added in Annex I.
772	General Comment	Main Body	22	429	National specificities could include nationally sensitive infrastructure, protection of environmental areas, etc.	SORA focuses on safety - risk assesment and mitigation. National aspects on e.g. security should not be brought in (direct) connection with SORA. For example cross border operations based on a granted authorization (in the country of registration) could become more difficult, due to various additional SORA requirements coming from national interpretations.	Delete this sentence or restructure it in a way to only hint the NAAs about additional considerations when it comes to national airspace.	Rejected	The paragraph provides an indication that national specificities might be encountered. Their assessment is considered under the responsibility of the local NAAs.
773	General Comment	28	577	Flow Chart Figure 4	Flow Chart Figure 4	Figure 3 is not a good addition to figure 4, from an applicants perspective. The word "step" indicates a sequence. But workflows are displayed to happen in parallel.		Partially accepted	Flow charts have been replaced with the Phase diagram
774				655		Why are only the max UA characteristic dimension, the maximum cruise speed and knowledge of the maximum population density considered? If you look at for example the first column of the iGRC determination table (< 1 m, < 25 m/s), many UAs would fall in to this category, ranging from < 250 gr UAs up to +/- 10 kg UAs and in some cases even heavier. Other two variables – the maximum flight height and the weight of the UA – are both really useful for considering the iGRC.	Maybe a iGRC calculation tool can be developed based on those four variables (dimensions, speed, height and weight) (a table would be too complex with four variables), which the operator can use to calculate the iGRC? (e.g. max < 1 m, max < 25 m/s, max < 60 m and max < 1 kg). This would lead to a much more proportionate iGRC.	Acknowledged	The SORA ground risk model does not use flight height or weight in determining ground risk. An iGRC calculation tool is referenced in Annex F. Authorities may be developing similar tools.
775				671			Please provide AMC/GM (source) for the determination of the GRB based on the ballistic method (e.g. https://www.omnicalculator.com/physics/trajectory-projectile-motion).		This is an EU specific request and therefore could not be addressed in JARUS.
776	General Comment	Main Body	31	687		UAS operators that have an authorization to fly over populated areas (in cities) for e.g. in SAIL II will most probably have not the same privilege/requirements with SORA 2.5. anymore. M1 Mitigation (Low) and VLOS Mitigations also entail new demanding requirements. The entire change will effect quite a number of operators and have a big impact on existing authorizations.		Acknowledged	The new table is considered to reflect more accurately the ground risk model and it is expected that some mitigations are easier to apply than in versoin 2.0, resulting in many similiar SAIL scores.The previous "VLOS requirement" is now refered to as ground mitigation and has been updated accordingly.
777		Table 2	31	687		Fly above Berlin with 4 000 per km2. The initial ground risk for flying in urban areas like Berlin has increased from 5 to 7 in SORA 2.5 This increases the burden on operators tremendously. What is the safety case? Operators will rather go for certified than taking the burden and unsecurity of an SAIL V operation. In other words, the table kills specific category in urban areas if not smaller than 900 gr.	Please provide additional inofrmation on safety case for flight above populated areas. Decrease the table by 1E-1 to avoid voiding SORA in urban areas and requiring operators to fly in the certified category in the future. Compare the safety record of helicopters and UAS and the number of people killed on the ground.	Rejected	The new table is considered to reflect more accurately the ground risk model and it is expected that some mitigations are easier to apply than in versoin 2.0, resulting in many similiar SAIL scores.
778		Table 2	31	687		The scale of the table should be linear instead of logarithmic. Flying in urban areas was almost impossible before and will be even rarer now, even though the greatest need for flying UAS is in urban areas. Why is flying in urban areas considered to increase risk by a factor of 100? Is this proportionate and have people been proven to be injured, is it a feeling, or is there evidence that the risk to people on the ground from UAS is higher than in general aviation? The risk on the ground may not be rated as higher than in general aviation. Manufacturers are already trying to meet the requirements. Increasing the factor 100 would eliminate UAS for most applications and dependent on mitigations.	Please provide additional inofrmation on the mechanism behind the decision for logaritmic scale or why it is increased by factor of 100.	Rejected	The new table is considered to more accurately reflect the ground risk model and is logorithmic to align with the expected TLOS differences in SAIL levels. In cases where the table is believed to be too conservative the actual critical area and the associated iGRC formulas in Annex F may be used. Additionally the ground risk mitigations in Step 3 are expected to be easier to identify and use (such as sheltering).

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779		Table 2	31	687		Preserve elements from the old iGRC table.	Elements from the old Table 2 should be kept. Also the new table returns higher iGRC in most cases. Reduce initial ground risk to values of SORA 2.0 and show assumptions as to why the GRC is so high. Current table leads to SAIL V and above in urban areas with curent technology.	Rejected	The new table is considered to more accurately reflect the ground risk model. In cases where the table is believed to be too conservative the actual critical area and the associated iGRC formulas in Annex F may be used.
780		Table 2				Two different iGRCs need to be determined, why not provide a table for both the area of operations iGRC and the adjacent area iGRC? Also, it would be great if both the quantitative and the qualitative population density are added in the table.	Changes to the iGRC determination table.	Rejected	The GRC for the adjacent area and the iGRC footprint needs to be calculated in order to evaluate the risk difference between the areas to determine the containment requirements. The relation between quantitative and qualitative population densities are indicated in table 3 and are not included in one table due to the amount of information provided in both Tables 2 and 3..
781		Table 2	31	687		Population density in the table will require NAAs to maintain such data. How is it provided, when, etc.?	It is important when requesting such data provision from the authorities to have a near horizon for implementation otherwise it is overruling. When will this be achieved. How far in the future will this be available?	Acknowledged	Please refer to the updated text regarding map resolution in both SORA Main Body and Annex F, regarding usage of maps and qualitative descriptors.
782		Table 2	31	687		Should SLAs be secured for this population density data provision?	It is not trivial and cheap to secure such information, albait normalised.	Acknowledged	It is expected that any data source may be used (e.g., publically available maps or the qualitative descriptions) as long as it is acceptable to the competent authority.
783				691		Under (1) of UAS.OPEN.020 on p. 250 of the EAR for UAS, the following line can be found: “In the event of unexpected overflight of uninvolved persons, the remote pilot shall reduce as much as possible the time during which the unmanned aircraft overflies those persons”, which leads to the conclusion that the pilot may sometimes fly over uninvolved persons with a class C1 drone weighing (< 900 gr). Since operators in the Open category are allowed to do so (without any form of mitigation), it would be totally unfair not to let operators in the Specific category do this without having to apply disproportionate mitigations, especially since operators in the Specific category compiled many well-defined operational procedures in an Operations Manual (whilst this is most often not done in the Open category) and the pilots are more extensively trained than in the Open category. Of course, operations over assemblies of people would not be allowed under these conditions.	Add an extra point (g): “An UA weighing less than 900g and having a maximum cruise speed less than 25m/s is considered to have iGRC of 1, unless the UA is operated over assemblies of people. In the case of an operation over assemblies of people, an iGRC of 4 is assigned.”	Partially accepted	This is EU specific. A note is there for a UA weighing less than 250g and having a maximum speed less than or equal to 25 m/s.
784	Determining population density value	Ruling	32	699	The segment with the highest population density should be used when determining the iGRC	It is too conservative that if a small part of the operational volume is over a high populated area, the whole operational volume becomes high populated area. It should be proportinal to the area affected.	The segment with the highest population density will only be proportinal to the percentage of the area that occupies over the operational volume.	Rejected	Please refer to Annex F guidance for overflying small areas of higher population density.
785				700		During the EASA SORA 2.5 workshop it was mentioned that under SORA 2.5, qualitative density data may be used in case there are no representative sources for determining the population density based on quantitative data. Looking at the new iGRC table, three rows are assigned to populated area (< 2 500 suburban, < 25 000 urban and < 250 000 dense urban). Which one to use when no quantitative data is available?		Acknowledged	Area descriptions have been added.
786	Editorial		32	734	Defined in Annex	Which Annex?	Annex XY.	Accepted	"F" incorporated in the original text and then restructured.
787	Determination of the adjacent area size	Ruling	33	739	The adjacent area size models a reasonably probable ground area where an UA may fly or crash after a flyaway	The adjacent area analysis should take into account that exists already geofence system (independent from the UA like parachute systems that stop the UA and release a parachute if the UA leaves the operational volume) that would have to fail in order to permit a fly-away of the UAV.It would require to fail the UA and the Geofence to permit a fly-away.	The adjacent area size models a reasonably probable ground area where an UA may fly or crash after a flyaway. If the UA contains an independent system that can avoid a single-failure fly-away, the final adjacent area will be defined as not needed.	Rejected	The purpose of the containment section is to identify the need for and the robustness of a containment system. A geofence system (dependent or independent) can then form a part of the solution to comply with the resulting containment requirements. If a drone system already features containment that meets the highest requirement for the SAIL, the adjacent area anylsis can bei skipped.
788		2.3.2 and Figure 6	33	744		There is little clarity on the rationale behind the current numbers provied in 2.3.2. and Figure 6.	Please elaborate on the rationale behid these numbers provided in the graphic.		See answer to comment 252.
789	Editorial		33	750	Case 1.1, Case 1.2.1, Case 1.2.2, Case 1.2.2	1.2 is missing.	Formating.		This has been resolved as part of reformatting the document.
790	General Comment	Main Body				Flying by night as mitigation	Please elaborate on the rationale behid such mitigation means.	Acknowledged	Flying during the night may be used to show less people at risk in the operational area for a specific time of day, when applicable.
791	Ruling	Main Body	33	757-766	Determine the average population density value 1.1. Calculate the average population density of the adjacent area identified in the previous section, 1.2. Identify potential locations for non-sheltered assemblies of people 1km beyond the outer limits of the operational volume during the time of operation. If the adjacent area has assemblies of people then assign the following average population density: 1.2.1. < 25,000 ppl/km^2 if the assembly of people exceeds ~20,000 ppl9;	Where is this information available for the operators and authorities to be used? On a 50+ km flight, it is simply impossible to analyze all events in the vicinity at the exact time of the flight. If BVLOS operations are to account for sporting events at a stadium, concerts, large gatherings at beaches/parks, and sporting events, these events must be reported by the state with date, time, and location. Berlin has over 360 gatherings per year (basically at least one every day) that do not even follow the planned route.	It is important when requesting such data provision from the authorities to have a near horizon for implementation otherwise it is overruling. When will this be achieved. How far in the future will this be available? If required, it is strongly recommended to define a service for reporting gatherings, selling tickets for sporting events and outdoor spectacles before activating this requirement otherwise urabn flying is void.		See answer to comment 183.
792	General Comment	Figure 7	37	892		Discepancy between Figure 7 and Annex C. Different height values (OPS Volume and Flight Geography) are used.	Improve labels.	Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.

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793				1058		For clarity, it would be good if “Area of operations fGRC” is mentioned instead of “Final GRC”, since two different fGRCs are determined (for the area of operations and for the adjacent areas).For clarity, it would be good if “Area of operations fGRC” is mentioned instead of “Final GRC”, since two different fGRCs are determined (for the area of operations and for the adjacent areas).	For Intrinsic Ground Risk Class: iGRC (already used) For Final Ground Risk Class: fGRC For Initial Air Risk Class: iARC For Residual Air Risk Class: rARC	Acknowledged	Please refer to containment requirements that have been significantly rewritten.
794		Table 7	43	1069		The impact of a higher containment solution than required is not described. How does a higher containment feedback into the GRC or Adjacent Area?	Redefine a mitigation table accordingly. Add formular or table to reduce GRC and adjacent area when overexeeding containment solution.	Rejected	Containment solutions do not affect GRC in the operational volume. They are indepenedent. We understand your comment, but in fact it works the other way around. Adjacent GRC drives the need for Containment. Having high containment however cannot lower any GRC.
795	Definition	Main Body	43	1069	Consider adding exposure to risk.	Time of exposure to risk is not implemented in Ground Risk and Adjacent area.	Consider exposure as well. When a flight passes an urban area for 1% of the flight time, risk should be rated accordingly.	Rejected	Please refer to Annex F guidance for overflying small areas of higher population density.
796		Table 7	43	1070		Discrepancies between the Annex E tables and main body and other Annexes.	Table 7 simplification as per EASA workshop on SORA 2.5	Acknowledged	The containment section was reworked for ease of use and Table 7 was updated.
797	General Comment	Table 10	44	iGRC		General consideration on the renumbering of OSOs	It will make some standards that are already adopted obsolete. Such statement is also valid for many companies documentation.	Acknowledged	The OSOs numbering has been kept as in SORA 2.0. For simplificatiom, the OSOs with multiple number assigned have kept only the first number.
798	Definition	Table 10	46	1113	Producer or designer	Headline of chart: what is meant by manufacturer? Produces or designer…? Compare with Annex E line 100 OSO #II	Clarify definition of manufacturer, production designer, maintainer, operator, trainer. (Table 10)	Partially accepted	Please refer to the updated SORA Main Body section 2.5 and Annex I.
799	General Comment	2.6 c	47	1137	(c) In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service and should be included as part of the Safety Portfolio. This will allow the competent authority to get clear oversight into which services are being used, the functions they perform, and how they contribute to the overall operational safety. It also allows verification that responsibilities have been correctly allocated, and that there are no unallocated responsibilities.	Showing SLA with the external consultant/service provider to the NAAs during the application process might be non-disclosed information and leads to a conflict.	Please provide additional description on the mandatory infomration form such a document.	Rejected	The JARUS SORA guidance is intended to provide the necessary safety requirements to be met given the ground and air risk assessments. Whilst important, IP considerations are outside the scope of this document.
800		2.6 c	47	1137	In the case the operator uses external service(s), reference(s) to Service Level Agreement(s)(SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service to get clear oversight into which services are being used, the functions they perform, and how they contribute to the overall operational safety. It also allows verification that responsibilities have been correctly allocated, and that there are no unallocated responsibilities.	Writing SLA comprising minimum operational spectifications for the service and require,ments for the organisation of the service provider, would be a tremendous task for the UAS operator. Furthermore, if each operator would write its own SLA this would lead to lack of harmonisotion across the community. Therefore, whenever possible, the SLA should be based on an industry standard. For instance, requirements for the organisaiton providing the 'Population Density Information Service' are already published in ISO 23629-12 https://www.iso.org/standard/78962.html?browse=tc One more sentence is necessary in this paragraph to clarify the role of industry standards	Add: The SLA, whenever possible, should be based on industry stardards for either the minimum operational performance of the service or the organisation of the service provider or both. For instance, requirements for the organisation of the provider of 'Population Density Information Service' are already published in ISO 23629-12 https://www.iso.org/standard/78962.html?browse=tc	Rejected	The SORA is not in the position to dictate the specific information within an SLA. The requirements for SLA are specific to the external service being used for safety critical tasks during operation. These are also specific to the terms between the two parties entering into the SLA.
801	General Comment	Main Body & Definitions				Several OSOs require certification by an independent, competent third party but it is not clear how this third party should be assigned and the competence they should possess In the original text, this was intended to be an industry body, such as Notified Body or Qualified/Designated/Recognised Entity in EU.	Definition of 'Independent Third Party' to be added along the lines of : means a competent, independent third party accredited by the State authority for one or more specific verification activities'. Clarification and definitions of Conformity Assessment Bodies, Notified Bodies, Designated Entities, Qualified Entities, Recognised Entities etc.	Partially accepted	Please refer to the updated section 2.5 which includes a definition for the "competent third party"
802	Definition	Main Body	17	292	...additional hazards are excluded from the scope of this methodology…	Dangerous goods are allowed to be carried on board as long as the container provides sufficient protection in case of an accident. How is adequate protection defined and validated for medical goods, for example?	Additional GM on requirements for DG in Specific Category	Rejected	The issue of carriage of DG are expected to be addressed by the NAAs and their applicable regulatory requirements. DG has separate regulations that need to be adhered too. Comment refered for future developments of SORA.
803	General Comment	Table 2	31	687		Preserve elements from the old iGRC table or at least the numbering format with the additional delineation for the population density	Elements from the old Table 2 should be kept. Also the new table returns higher iGRC in most cases. Reduce initial ground risk to values of SORA 2.0 and show assumptions as to why the GRC is so high. Current table leads to SAIL V and above in urban areas with current technology.	Rejected	The new table is considered to more accurately reflect the ground risk model. In cases where the table is believed to be too conservative the actual critical area and the associated iGRC formulas in Annex F may be used.
804		Table 2				It seems that two different iGRCs need to be determined, why not provide a table for both the area of operations iGRC and the adjacent area iGRC? Also, if both the quantitative and the qualitative population density are added in the table.	Changes to the iGRC determination table.	Rejected	The GRC for the adjacent area and the iGRC footprint needs to be calculated in order to evaluate the risk difference between the areas to determine the containment requirements. The relation between quantitative and qualitative population densities are indicated in table 3 and are not included in one table due to the amount of information provided in both Tables 2 and 3..
805		Table 2	31	687		Population density in the table will require NAAs to maintain such data but this is not within the remit of most NAAs.	Should a competent third party be designated to provide this information with oversight from the NAA or Designated by the NAA as acceptable with a defined SLA for use by operators?	Acknowledged	Please refer to point (b) in the "Population density information" section

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806				691		UAS.OPEN.020 allows for: "In the event of unexpected overflight of uninvolved persons, the remote pilot shall reduce as much as possible the time during which the unmanned aircraft overflies those persons", which leads to the conclusion that the pilot may sometimes fly over uninvolved persons with a class C1 drone weighing (< 900 gr). Since operators in the Open category are allowed to do so (without any form of mitigation), it is disproportionate to require operators in the Specific Category to have to apply significant mitigations for ground risk. In this case Air risk should be the consideration requiring mitigation if operating in a geographic zone but the ground risk is minimal.	Add an extra point (g): "An UA weighing less than 900g and having a maximum cruise speed less than 25m/s is considered to have iGRC of 1, unless the UA is operated over assemblies of people. In the case of an operation over assemblies of people, an iGRC of 4 is assigned."	Partially accepted	This is EU specific. A note is there for a UA weighing less than 250g and having a maximum speed less than or equal to 25 m/s.
807	Determination of the adjacent area		33	739		The adjacent area analysis should take into account the geofence system and a FTS (independent from the UA like parachute systems that stop the UA and release a parachute if the UA shall leave the operational volume) that would have to fail in order to permit a fly-away of the UAV, however it will be tested prior to every flight to minimise this possibility.	The adjacent area size models a very significant ground area where an UA may fly or crash after a flyaway. If the UA contains an independent system that can avoid a single-failure fly-away, the final adjacent area should be defined as not required or minimised.		See answer to comment 666.
808	Population Density	Main Body	33	757-766	Determine the average population density value 1.1. Calculate the average population density of the adjacent area identified in the previous section, 1.2. Identify potential locations for non-sheltered assemblies of people 1km beyond the outer limits of the operational volume during the time of operation. If the adjacent area has assemblies of people then assign the following average population density: 1.2.1. < 25,000 ppl/km^2 if the assembly of people exceeds ~20,000 ppl9;	Where is this information available for the operators and authorities to be used? On a long BVLOS flight, it is simply impossible to analyse all events in the vicinity at the exact time of the flight. If BVLOS operations are to account for sporting events at a stadium, concerts, large gatherings at beaches/parks, and sporting events, these events must be reported by the state with date, time, and location in a centralised location accessible by an operator	How will this information be made available? How will this be achieved? How far in the future will this be available? If this is required then States should define a service for reporting gatherings, selling tickets for sporting events and outdoor spectacles before activating this requirement otherwise BVLOS in an urban or even rural area may be impossible.		See answer to comment 183.
809		Table 7	43	1069		The impact of a higher containment solution than required is not described. How does a higher containment feedback into the GRC or Adjacent Area? Also there is a significant improvement in the likelihood of a fatality occurring when a siren is fitted yet there is no credit for this mitigation allowed.	Redefine a mitigation table accordingly. Add formular or table to reduce GRC and adjacent area when exceeding the containment solution.	Partially accepted	The purpose of the containment section is to identify the need for and the robustness of a containment system. A geofence system (dependent or independent) can then form a part of the solution to comply with the resulting containment requirements. If a drone system already features containment that meets the highest requirement for the SAIL, the adjacent area determination may be skipped. Containment workflow has been simplified. If a siren would be added for the purpose of mitigating risk, this should be considered in Annex B, as this is not a containment issue.
810	Definition	Main Body	43	1069		Time of exposure to risk is not implemented in Ground Risk and Adjacent area.	Consider exposure as well. When a flight passes an urban area for 1% of the flight time, risk should be rated accordingly.	Partially accepted	Please refer to Annex F guidance for overflying small areas of higher population density.
811	General Comment	2.6 c	47	1137	(c) In the case the operator uses external service(s), reference(s) to Service Level Agreement(s) (SLA) providing a delineation of responsibilities between the Service Provider(s) and the operator. This should also detail the functionality, limitations and performance of the service and should be included as part of the Safety Portfolio. This will allow the competent authority to get clear oversight into which services are being used, the functions they perform, and how they contribute to the overall operational safety. It also allows verification that responsibilities have been correctly allocated, and that there are no unallocated responsibilities.	Showing SLA with the external consultant/service provider to the NAAs during the application process might be non-disclosed information and leads to a conflict. When writing SLA comprising minimum operational specifications for the service and requirements for the service provider, would be a difficult task for the UAS operator. Furthermore, if each operator writes its own SLA this would lead to lack of harmonisation across the community. Therefore, whenever possible, the SLA should be based on an industry standard.	Please provide additional description on the mandatory information form such a document. The SLA, whenever possible, should be based on industry standards for either the minimum operational performance of the service or the organisation of the service provider or both	Rejected	The JARUS SORA guidance is intended to provide the necessary safety requirements to be met given the ground and air risk assessments. Whilst important, IP considerations are outside the scope of this document.
812			20	359	Containment is a function consisting of technical and operational mitigations that contain the flight of the UA within the defined operational volume and ground risk buffer	Containment needs to consider when M2 mitigations are used. Specifically, the effects of the M2 mitigation when it is an unguided parachute recovery system (larger potential drift area where minimum 1:1 rule is ineffective) and a guided parachute recovery systems (smaller drift area where 1:1 rule is overly conservative and should be a flexible 1:X rule with proper industry consensus demonstration [e.g., ASTM F3322-23, Appendix B])	Containment is a function consisting of technical and operational mitigations that contain the flight of the UA within the defined operational volume and ground risk buffer and must consider the effects of M2 mitigations when used. The rule for the ground risk buffer should reflect the type of M2 mitigation used and the value should be demonstrated with proper industry standard testing (e.g. ASTM F3322-23, Appendix B).	Acknowledged	Containment criterion #3 covers the performance of the UAS as part of the definition of the ground risk buffer. Please refer to the updated Step 8 (containment).
813			20	380	(e) The Ground Risk Buffer is an area on the ground that surrounds the footprint of the380 Contingency Volume. If an operation loses control in a way that the UA exits the Operational381 Volume, it shall be contained to end its flight inside the Ground Risk Buffer. The appropriate382 size of the Ground Risk Buffer is based on the individual risk of an operation and is driven by383 the identified containment requirement of the SORA. The footprint of the Operational Volume384 plus the Ground Risk Buffer is the reference area to determine the Ground Risk Class (see385 Figure 2 below)	Containment needs to consider when M2 mitigations are used. Specifically, the effects of the M2 mitigation when it is an unguided parachute recovery system (larger potential drift area where minimum 1:1 rule is ineffective) and a guided parachute recovery systems (smaller drift area where 1:1 rule is overly conservative and should be a flexible 1:X rule with proper industry consensus demonstration [e.g., ASTM F3322-23, Appendix B])	(e) The Ground Risk Buffer is an area on the ground that surrounds the footprint of the380 Contingency Volume. If an operation loses control in a way that the UA exits the Operational381 Volume, it shall be contained to end its flight inside the Ground Risk Buffer. The appropriate382 size of the Ground Risk Buffer is based on the individual risk of an operation and is driven by383 the identified containment requirement of the SORA. The footprint of the Operational Volume384 plus the Ground Risk Buffer is the reference area to determine the Ground Risk Class (see385 Figure 2 below. If using an M2 mitigation an unguided parachute should have a rule greater than 1:1, and a guided parachute should have a rule less than the 1:1 rule, as demonstrated by a proper industry standard.	Ack	The purpose of the 1:1 buffer is a probabalistic buffer, as the level of robustness is low. Please refer to the updated Step 8 (containment).

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814			22	420	A Medium level of assurance is one where the applicant provides supporting420 evidence that the required level of integrity has been achieved. This could be421 achieved by means of testing or by proof of experience.422 A High level of assurance is where the achieved integrity has been found to be423 acceptable by a competent third party	Medium and High robustness should require an ASTM F3322-Year (represented as a #) as a requirement. ASTM F3322-18 should be the minimum for medium level of assurance. This standard was the first published and is widely accepted by competent authorities. This -18 standard has its short comings; however, a solid base for Medium Assurance. For high level, the requirement should be the most recent version. Currently, this is -22; however, -23 is being updated by the ASTM committe and will address the editorial errors and add guided parachutes. Additionally, if using parachutes for M2 mitigation, the final reporting (Third Party Test Report) should be made public by the manufacturer without requiring the purchase of the parachute as several parachute manufacturers have committed misleading marketing campaigns to misrepresent their completion of the standard. Moreover, some parachute manufacturers have stated the succesful completion with incompetent third party testing partners. For example, some have misrepresented their Centre of Gravity (CG) to "game" the Minimum Deployment Altitude. This specific example has, unforuntately, been accepted by several Competent Authorities as there appears to be a limited understand of ASTM F3322. It is strong encourage that revisitng the requirements of M2 mitigations be conducted with a fine tooth comb to avoid false marketing.	A Medium level of assurance is one where the applicant provides supporting420 evidence that the required level of integrity has been achieved. This could be421 achieved by means of testing or by proof of experience.422 Passing an industry accepted standard should be the minimum requirement for a medium level of assurance. A High level of assurance is where the achieved integrity has been found to be423 acceptable by a competent third party and should pass the most recent industry accepted standard. In addition, test reports of compliance with the most recent industry standard should be made freely available to the public.	Rejected	A number of OSOs already do require to meet a standard for medium and high levels of assurance. However it has not been considered adapted for every OSO. Making a single rule for all would not achieve the desired level of safety for some of the requirements.
815			23	457	(d) UAS Manufacturer – For the purposes of the SORA, the UAS manufacturer is the party that457 designs and produces the UAS. It may be expected that sometimes design and production458 are carried out by two different organisations. The manufacturer has unique design evidence459 (e.g. system performance, system architecture, software/hardware development460 documentation, test/analysis documentation, etc.) that they may choose to make available461 to one or many UAS operator(s) or the competent authority to help substantiate the462 operator's SORA safety case. Alternatively, a UAS manufacturer may utilise the SORA to463 target design objectives for specific or generalised operations, tailored to the relevant SAIL.464 To obtain airworthiness approval(s), these design objectives could be complemented by use465 of JARUS Certification Specifications (CS) or industry consensus standards if they are found466 acceptable by the competent authority	The UAS Integrator should be included in this list. The Integrator may be an individual or company that adds an ASTM F3322 parachute to an off the shelf drone, as per ASTM F3322 requirements.	(d) UAS Manufacturer – For the purposes of the SORA, the UAS manufacturer is the party that457 designs and produces the UAS and/or the integrator of a product on the UAS for the purposes of mitigation. It may be expected that sometimes design and production458 are carried out by two different organisations. The manufacturer has unique design evidence459 (e.g. system performance, system architecture, software/hardware development460 documentation, test/analysis documentation, etc.) that they may choose to make available461 to one or many UAS operator(s) or the competent authority to help substantiate the462 operator's SORA safety case. Alternatively, a UAS manufacturer may utilise the SORA to463 target design objectives for specific or generalised operations, tailored to the relevant SAIL.464 To obtain airworthiness approval(s), these design objectives could be complemented by use465 of JARUS Certification Specifications (CS) or industry consensus standards if they are found466 acceptable by the competent authority	Accepted	Text updated.
816			23	476	(f) Competent Third Party – A competent third party is responsible for reviewing supporting476 evidence for mitigations and operational safety objectives of an application. The competent477 authority may designate or recognise organizations that perform this task for all or a478 selection of review items. The competent authority may also decide to perform this task by479 themselves, thus becoming the competent third party	There should be more guidance on what a "competent" third party is. There are several cases where "competent" third party testing agencies in Europe have allowed for parachute manufacturers to improperly complete ASTM F3322 testing. For example, there is an example where a competent authority and a national authority accepted an ASTM parachute with misrepresentative Centre of Gravity (CG), which alters the Minimum Deployment Altitude and falsely enables an operator to fly at a lower altitude than the representative Center of Gravity if following ASTM F3322-18's "6.4.1.4 A properly simulated payload with correct CG may be substituted for a real payload in the maximum weight tests".	(f) Competent Third Party – A competent third party is responsible for reviewing supporting476 evidence for mitigations and operational safety objectives of an application. The competent477 authority may designate or recognise organizations that perform this task for all or a478 selection of review items. The competent authority may also decide to perform this task by479 themselves, thus becoming the competent third party. A competent third party should be clearly defined and a list of competent third parties should be made available by the national authority.	Accepted	Text updated. Refer also to definition in Annex I.
817			30	669	iv. An appropriate ground risk buffer with at least a 1-to-1 principle6	Containment needs to consider when M2 mitigations are used. Specifically, the effects of the M2 mitigation when it is an unguided parachute recovery system (larger potential drift area where minimum 1:1 rule is ineffective) and a guided parachute recovery system (smaller drift area where 1:1 rule is overly conservative and should be a flexible 1:X rule with proper industry consensus demonstration [e.g., ASTM F3322-23, Appendix B])	iv. An appropriate ground risk buffer principle based on the type of M2 Mitigation used, with at least a 1-to-1 principle if no mitigation is used.	Partially accepted	Text added in Annex E Section 4 to discuss potential cases where the 1:1 principle may not apply.
818			35	819	For example, in the case of a 2.5m UAS at a max cruise speed below 35m/s (second814 column in Table 2) flying over a population density below 10 ppl/km2, the intrinsic GRC815 is 4. Upon analysis of the Operator Manual the applicant claims to reduce the ground816 risk by first applying M1 at High Robustness (a -3 GRC reduction). In this case, the817 result of applying M1 is a GRC of 2, because the GRC cannot be reduced any lower818 than the lowest value for that column. The applicant then applies M2 using a819 parachute system resulting in a further reduction of -1 (i.e. GRC 1). The Final GRC is820 established by adding all correction factors (i.e. -2-1=-3) and adapting the GRC by821 the resulting number (4-3=1)	Add the use of an ASTM F3322 parachute for the example with the parachute	For example, in the case of a 2.5m UAS at a max cruise speed below 35m/s (second814 column in Table 2) flying over a population density below 10 ppl/km2, the intrinsic GRC815 is 4. Upon analysis of the Operator Manual the applicant claims to reduce the ground816 risk by first applying M1 at High Robustness (a -3 GRC reduction). In this case, the817 result of applying M1 is a GRC of 2, because the GRC cannot be reduced any lower818 than the lowest value for that column. The applicant then applies M2 using an ASTM F3322 compliant parachute system resulting in a further reduction of -1 (i.e. GRC 1). The Final GRC is820 established by adding all correction factors (i.e. -2-1=-3) and adapting the GRC by821 the resulting number (4-3=1)	Rejected	The example has been removed.
819			36	840	ii. M2 mitigations based on passive designs or inherent UA characteristics, like840 frangibility, may be used to lower the adjacent area intrinsic GRC. M2 mitigations like841 parachutes or special descent manoeuvres may not be used by default.	Add the use of an ASTM F3322 parachute for the example with the parachute	ii. M2 mitigations based on passive designs or inherent UA characteristics, like840 frangibility, may be used to lower the adjacent area intrinsic GRC. M2 mitigations like841 ASTM F3322 compliant parachutes or special descent manoeuvres may not be used by default.	Rejected	The example has been removed.

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820			36	843	(b) Applicants may provide justification to the Competent Authority for additional mitigations as843 long as they are still applicable and in a fly away scenario.	The use of an independent Guided Parachute recovery system should be included in the fly away scenario additonal mitigation option.	(b) Applicants may provide justification to the Competent Authority for additional mitigations as843 long as they are still applicable and in a fly away scenario including the use of a Guided Parachute Recovery System after flight termination.	Acknowledged	The text in (c) was rephrased for clarity, with footnote #12 included, covering this possibility if justified by the applicant ("unless proven otherwise by the applicant"): "(c)If a failure of an M2 GRC mitigation would lead to a malfunction of flight termination resulting in a fly away scenario, this mitigation cannot be used for computing the adjacent area final GRC. For example, if the flight termination system triggers a parachute, in the event of a fly away, it is assumed the parachute system has failed, unless proven otherwise by the applicant." This is now part of the alternative method to be found in Annex F.
821	Not connection between the Scoping Paper to AMC RPAS 1309 Issue 2, section 5 (f)	The SORA approach	13	122-126	These values were chosen to ensure that UAS operations would not pose more risk to third parties than crewed aviation which are seen as socially acceptable rates (as referred in the top level principles cited in Section 5(f) in the Scoping Paper to AMC RPAS 1309 Issue 2): i. For ground risk - less than one fatality per million hours (1E-6 fatalities per hour faced by 126 overflown populations) (See Annex F for more details)	Explanation for the reason of the ground risk value coming from the Section 5(f) in the Scoping Paper to AMC RPAS 1309 Issue 2.	[Explanation required, missing text]	Partially accepted	Reference has been added to SORA 2.5 Annex F 1.2.1 where the entire rationale is provided.
822	Just for clarification, hours should be "flight hours"	The SORA approach	13	125	For ground risk - less than one fatality per million hours (1E-6 fatalities per hour faced by overflown populations) (See Annex F for more details)	"flight hour" missing	For ground risk - less than one fatality per million flight hours (1E-6 fatalities per flight hour faced by overflown populations) (See Annex F for more details)	Rejected	"per flight hour" cannot be added. This TLOS is measured for a population at risk (not the aircraft) and as such just "per hour" is appropriate. This is different to conventional aviation. Please see Annex F for further clarification.
823	Optional documentation	The SORA approach	13	######	The documentation created consists of operator manual, compliance evidence and risk assessment	Compliance evidence and risk assessment should be optional in the first step of the SORA methodology	The documentation created consists of operator manual, and optionally, compliance evidence and risk assessment	Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process. Please refer also to Phase 1 updated description, including required data to support the deriving of a preliminary SAIL and containment requirements. Note however that the approach has been stated as optional. Step #10 now contains the information regarding compliance evidence, only formally at this stage.
824		1.2 Purpose of the document	16	254-247	Due to the operational differences and expanded level of risk, the “specific” category cannot automatically take credit for the safety and performance data demonstrated with the large number of UAS operating in the “open” category	Flights performed in the "open" category with the same platform can increase the reliability of the product by showing confidence in the number of flight hours without failures.	Due to the operational differences and expanded level of risk, the safety and performance data demonstrated by large number of UAS operating in the "open" category will be assessed and considered by the competent authority.	Rejected	The expression "cannot automatically take credit" confers the idea that credit may still be taken by operations in the open category in the compliance to SORA requirements. Nothing stops the Applicant from using data accumulated during previous operations in the open category, however it will be up to the Applicant to demonstrate its relevance in complying with SORA to the Authority. The FTB methodology in Annex E may be used in that respect.
825	Clarity on "loss of control", containment and emergency procedures	1.4.1 Semantic model	19	345-347	The “loss of control” state is also entered, if a UA loses flight control and crashes or if a flight termination sequence is executed, even if this happens inside the operational volume.	Flight termination sequence is part of the emergency procedures OR containment, is not clear but it should not be considered as "loss of control".	[Remove part of the text] The “loss of control” state is also entered, if a UA loses flight control and crashes or if a flight termination sequence is executed, even if this happens inside the operational volume.	Accepted	Text has been updated to better show the difference between "operation in control" and "operation out of control". The procedures have been assigned accordingly.
826	Third parties list approved by EASA. These are JARUS guidelines, but it is expected that EASA publishes a list of approved third parties once the JARUS 2.5 documentation will be accepted.	1.4.2 How SORA measures risk mitigations - introduction to robustness	22	423-424	A High level of assurance is where the achieved integrity has been found to be acceptable by a competent third party	A list of competent, accepted third parties is required.	[List of third parties]	Rejected	This comment relates to EU requirements and is not in the competency or JARUS.
827	"Compliance evidence" and "SORA safety case" are new terms not specified before and not linked to any point of the SORA semantic model. Compliance evidence has been mentioned in "The SORA approach", page 13, lines 148,149 but not defined and declared as optional. SORA safety case is new in this chapter.	2.2.3 Step #1 – Documentation of the proposed operation(s) (a)	28	581-586	(a) The purpose of this step is to describe the documentation set that should be compiled and presented to the competent authority for assessment after Step #10 completion. This usually consists of the: i. Operator manual, ii. Compliance evidence iii. SORA safety case	Explanation about the need of showing "Compliance evidence" and "SORA safety case" in step 1 of the SORA methodology.	[Inclusion of explanation why these two documents are required in step 1 of the SORA methodology]	Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process.
828	Compliance evidence should not be required at this stage as the SAIL level (and therefore the robustness levels for each OSO) is not agreed, determined yet.	2.2.3 Step #1 – Documentation of the proposed operation(s) (c)	29	596-598	The compliance evidence document only collects necessary evidence supporting the claims of the risk assessment that do not form part of the operator manual, i.e. test data and evaluation.	Compliance evidence should not be required at this stage as the SAIL level (and therefore the robustness levels for each OSO) is not agreed, determined yet.	[To remove this document from step 1 of the SORA]	Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process. Please refer also to Phase 1 updated description, including required data to support the deriving of a preliminary SAIL and containment requirements. Step #10 now contains the information regarding compliance evidence, only formally required at this stage.

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
829		2.2.3	29	599	"(d) The risk assessment might be presented to the competent authority using the form in Annex A, section 3".	In Phase 1 of the 2 phased approach, rather than using the form in Annex A, UAS operators should also be given the option to provide the appropriate technical, operational and system information to the competent authority through the Operators Manual. Although we appreciate JARUS efforts to issue "Guidelines on collecting and presenting system and operation information for a specific UAS operation" (Annex A), some operators may want to directly present the Operator Manual to the competent authority at Phase 1, thereby reducing workload / duplication. We suggest emphasizing that the Operators may wish to provide a V1 of their 'operators manual' instead of using the form in Annex A.	"(d) The risk assessment might be presented to the competent authority using the form in Annex A, section 3 or by way of an operator manual".	Acknowledged	The documentation within the JARUS SORA framework (including the Annexes) are guidance. An applicant might provide the information in the format suggested in Annex A. If an appplicant or competent authority wish to provide the information in another format or through a different process, that is between the applicant and competent authority to determine.
830		2.2.3	29	606	" (f) The first step of the SORA requires the applicant to collect and provide the relevant technical, operational and system information needed to assess the risk associated with the intended operation of the UAS. Annex A of this document provides a detailed framework for data collection and presentation. The operator manual description is the foundation for all other activities and should be as accurate and detailed as possible. The operator manual should not only describe the operation, but also provide insight into the operator's operational safety culture. It should also include how and when to interact with ANSP. Therefore, when defining the operator manual the operator should give due consideration to all steps, mitigations and operational safety objectives provided in Figures 3 and 4".	Same comment as above.	" (f) The first step of the SORA requires the applicant to collect and provide the relevant technical, operational and system information needed to assess the risk associated with the intended operation of the UAS. Annex A of this document provides a detailed framework for data collection and presentation. However, the operator may choose to directly present the information to the competent authority in the form of an operator manual. The operator manual description is also the foundation for all other activities and should be as accurate and detailed as possible. The operator manual should not only describe the operation, but also provide insight into the operator's operational safety culture. It should also include how and when to interact with ANSP. Therefore, when defining the operator manual the operator should give due consideration to all steps, mitigations and operational safety objectives provided in Figures 3 and 4".	Acknowledged	The documentation within the JARUS SORA framework (including the Annexes) are guidance. An applicant might provide the information in the format suggested in Annex A. If an appplicant or competent authority wish to provide the information in another format or through a different process, that is between the applicant and competent authority to determine.
831		2.2.3 (g)	29	616-620	Developing an operator manual together with the SORA safety case is an iterative process. As the process is applied, additional mitigations and limitations may be identified, requiring additional associated operational and technical information to be provided/updated in the operator manual. This should result with an operator manual that comprehensively describes the proposed operation as envisioned	Again, safety case explanation is missing. There should be a clear explanation about the documentation to be provide (if needed) together with the operations manual. In SORA 2.0 the equivalent was the safety portfolio and together with the operations manual there was the operator relevant information. It is difficult for an applicant to determine the "compliance evidence" at this stage (step 1) if the SAIL level has not been determined.	[Explanation about the use of "compliance evidence" and "SORA safety case" in step 1]	Accepted	Step #1 has been updated to only require information necessary to contextualise the safety claims portion of the SORA process. Updated Step #10 contains the information regarding compliance evidence and safety case.
832	Ground risk buffer missing	2.3.1 (c)	30	#######	The operational volume which is composed of the flight geography and the contingency volume.	Ground risk buffer is missing from the iGRC footprint	The operational volume which is composed of the flight geography, and the contingency volume and the Ground Risk Buffer.	Rejected	The ground risk buffer is part of the iGRC footprint but not the operational volume.
833	Maximum population density in the area is too restrictive	2.3.1 (c)	30	668	iii. The maximum population density in the area	The maximum population density in the area to be considered as a calculation for the iGRC is too restrictive. Instead, a proposal to count the average of population density (assuming that the UAS will fly at the same speed during the whole flight) and the overflown areas can be proportionally evaluated.	iii. The maximum average population density in the area.	Rejected	Please refer to Annex F guidance for overflying small areas of higher population density.
834		2.3.1	31	654-656	"(b) To establish the intrinsic GRC (iGRC), the applicant needs the max UA characteristic dimension (e.g. wingspan for fixed wing, blade diameter for rotorcraft, max. dimension for multi-copters, etc.), the maximum cruise speed and the knowledge of the maximum population density intended to be flown over."	We suggest explicitly mentioning in the Main Body, the flexibility provided by Annex F when determining the intrinsic UAS Ground Risk Class (GRC). The iGRC can either be determined (i) by way of the method descibed in Section 2.3.1 of the Main Body or (ii) by way of the method described in Annex F. We believe that the convenience and flexibility offered to the UAS operators of Annex F should be indicated in the Main Body. This could be provided through expanding the table (pre-calculating the pop density figures in the table) or by annotating the availability of Annex F in the main body.	"(b) To establish the intrinsic GRC (iGRC), the applicant can either follow the intrinsic GRC table, under which it needs the max UA characteristic dimension (e.g. wingspan for fixed wing, blade diameter for rotorcraft, max. dimension for multi-copters, etc.), the maximum cruise speed and the knowledge of the maximum population density intended to be flown over or follow the theoretical basis for ground risk classification, as described in Annex F".	Accepted	Part (b) in "Idenfitication of the iGRC" was added during the reorganization.
835	Where are the population density values coming from? Explanation about the 25 > 250 > 2,500 > 25,000 > ... ppl/km2 missing.	2.3.1 (e)	31	685	(e) Table 2	Values for the population density are not explained.	[Explanation about the values of the density of population]	Acknowledged	Outside the scope of the Main Body, see Annex F.
836	Use the maximum population density evaluation is too restrictive	2.3.1 (h)	32	696-699	(h) The iGRC Footprint, defined in section 2.3.1 (c) should be used to determine the population density. It is expected that for many flight operations, the iGRC footprint may cover segments with different population densities. The segment with the highest population density should be used when determining the iGRC.	Use the maximum population density evaluation is too restrictive. Following the criteria shown in 2.3.1 (h): For the adjacent area, the operator is not approved to plan flights in this area and will only reach the adjacent area in the event of a loss of control and fly away event. In that situation, the direction and duration of the fly away is assumed to be random, thus the average population density used. Therefore and accordingly, if the direction of the flight is known all times during flight, the population density calculation can be improved and not be as restrictive as using only the maximum.	[A method to determine the adequate and proportionate population density is missing]. Proposal, to use the average of the whole area.	Rejected	While a fly away is considered random, how long an operation is conducted over different sections of an approved area is not necessarily defined. Please refer to Annex F guidance for overflying small areas of higher population density. .
837		2.4.1	36	857-858	Tactical mitigations take the form of detect and avoid systems or alternate collaborative means, such as ADS-B	ADS-B code standard not specified for UAS. The ADS-B should specify that the aircraft is unmanned.	Remove ADS-B until there is a clear standard that allows the use of that system	Rejected	SORA Air Risk model has not been updated as part of SORA v2.5 (with minimal exceptions for clarity). Comment to be considered for v3.0.
838	VLOS cannot be a mitigation itself for Ground Risk.	2.3.3	35	804	M1(B) - Visual Line of Sight (VLOS) - avoid flying over people	This cannot be accounted for automatic flying drones (most of them), as the way of flying is following a pre-defined route planned by the Remote UAS pilot. In all cases the pilot can intervene the operation of the drone due to safety, but redirecting the drone to avoid flying over people is a task based on the skills of the pilot (sight, spatial sense, etc.), so there is no a quantifyable procedure to avoid flying over people.	[Procedure to avoid flying over people using VLOS capabilities]	Acknowledged	VLOS term has been removed from the mitigations. New naming included is ground observation and requirements are detailed in Annex B.
	Ref. document: WG-SRM "SORA Annex A"								
134	N/A	Footnote on copyright	1	Editorial	All rights reserved. Unless otherwise specific, the information in this document may be used but no copy-paste is allowed without JARUS's permission.	Replace "specific" with "specified"	All rights reserved. Unless otherwise specified, the information in this document may be used but no copy-paste is allowed without JARUS's permission.	Editorial	Accepted
55		CONTENTS	2	13		Include the tittle of A.2 A.2. CONOPS TECHNICAL MANUAL TEMPLATE	A.2. CONOPS TECHNICAL MANUAL TEMPLATE	Editorial	Accepted
349	editorial		2	70		in the table of contents the title of A.2 is missing		Editorial	Accepted
21	Contents	N/A	2	all lines		Table of contents is missing		Editorial	Accepted

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206			2			Table of contents needs to be fixed		Editorial	Accepted
481	Content structure seems to be a little fragmented. Operator feedback and own experience shows, that you get lost within the structure and find yourself skipping between the chapters.	Content	2	19-98	Contents	Try to reorganise and simplify the content structure in a way, that you have clustered subjects within single chapters for a better overview for the operators as well as for the authorities. Therefore please higlight the main subjects in a more visible way.	Acc. to Figure 2 in line 228 you have four main information: organisation, operation, training and technic. An additional subject could be "crew" combinded with training. Possible content structure for simplification could be (see also attachment to the consultation form): A.1 ConOps general items A.1.1 - A.1.8 A.2 Organisation A.1.9.1 Organisation structure A.1.9.2 Nominated management personnel A.1.9.3 Design and production organisation A.1.9.4 Maintenance organisation A.3 Crew and Training A.3.1. Responsibilities and duties of the remote crew A.3.2 Crew health A.3.3 Initial training and qualification A.3.4 Training program A.3.5 Procedures for maintenance of currency A.3.6 Flight Simulated Training Devices (FSTD) A.4 Technical Information See current A.2.1-A.2.20 A.5 Operational Information A.5.1 Nature of operation A.5.2 Operational volume A.5.3. Operating and environmental limitations and conditions A.5.3 Normal operation procedures current A.1.17.3 - A.1.17.8 A.5.3.1 SOP A.5.4 Contingency procedures A.5.6 Emergency procedures A.6 External services A.7 Safety and Risk Management	Major	Accepted
251			4	108		it is propsoed to explain more the relationshoip between the risk assessment and the OM	The primary purpose of this annex is to provide guidance on how to gather and present data and evidence to enable UAS operators to produce an operation manual (OM) for an operation in the specific category. The content of the OM is based on the outcome of the risk assessment (SORA) or of the provisions of a PDRA if applicable. When applying for an operational authorissaiton The UAS operator should therefore carry out the risk assessment (or provide the evidence of compliance with the PDRA provisions) and use it as a checklist for compiling the OM.	Major	Accepted
22		Introduction	4	114		remove second period		Editorial	Accepted
56		Introduction	4	115		Remove the second full stop.		Editorial	Accepted
514			4	115	Therefore, when defining the ConOps the operator should give due consideration to all steps, mitigations and operational safety objectives provided intended to be utilized in the SORA process..	two points in the end of the sentence	Therefore, when defining the ConOps the operator should give due consideration to all steps, mitigations and operational safety objectives provided intended to be utilized in the SORA process.	Editorial	Accepted
57		Introduction	4	117	When the SORA process is successfully completed, a comprehensive safety portfolio (Step#10) should be the result and evidence of it should be provided to the Competent Authority. This annex also provides additional guidance to support applicants in documenting the risk assessment that validates the ConOps prior to an application to the Competent Authority for an Operational Authorisation.	Is this document the comprehensive safety portfolio? If yes, then make it explicit in the title of the document. It would be useful to make references/link to section A3: SORA Risk assessment writing template.	When the SORA process is successfully completed, a comprehensive safety portfolio (Step#10) should be the result and evidence of it should be provided to the Competent Authority. This annex provides guidance to develop this safety protfolio to support applicants in documenting the risk assessment . Include link to section "A3: SORA Risk assessment writing template".	Minor	Accepted
58		Introduction	4	122	This process is of utmost importance, as this constitutes the primary tool for engaging with the Competent Authority to enable evaluation of the proposed operation(s) to ensure that all risks identified are tolerable and ALARP	Define this acronym/abbreviation, at least the first time is used in the document, is needed - As Low As Reasonably Practicable (ALARP). May be it should be included in Annex I	This process is of utmost importance, as this constitutes the primary tool for engaging with the Competent Authority to enable evaluation of the proposed operation(s) to ensure that all risks identified are tolerable and as low as reasonably practicable (ALARP).	Editorial	Accepted
23		Introduction	4	123	ALARP	spell out first time term appears	as low as reasaonably practical (ALARP)	Editorial	Accepted
1	First use		4	124	ALARP	spell out first use	Change ALARP to "As Low as Reasonably Practicable (ALARP)"	Editorial	Accepted
24		Introduction	4	126	cstegory	captialize Specific Category consistently	"	Editorial	Accepted
363	Is there text missing		4	135	"documents, and"	Appears to be missing text	"…documents, and how the ConOps serves as the basis for any Operational Authorisation in the Specific category."	Editorial	Accepted
437		Text	4	135	documents, and	Sentence incomplete.	documents, and how an application generally works.	Editorial	Accepted
60		Annex A layout and description	4	138	A1:Conops template for Operational Information	Is intented that A1:Conops templete for Operational Information will be the Operational Manual of the Operator?	A1: Templete for UAS Operator Operational Manual	Major	Accepted
364			4	139	"procedures for safe operations"	Need to consider security	"...procedures for safe and secure operations."	Minor	Rejected
250			4	108…and more	Concept of Operations (ConOps)	the term ConOps has normally a different understanding, and moreover it is only the first step of SORA. Calling Annex A as Conops creates a lot of confusion. Moreover the title of Annex A in the front page is "Guidelines on collecting and presenting system and operation information for a specific UAS operation". This reflect better the content and may be better summarised as Operation manual	operations manual (OM)	Major	Partially Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
435		Text	4	113	ANSP	Option 1: A list of definitions, acronyms and abbreviations used in the Annex should be included. Option 2: all abbreviations should be explained at first use.	air navigation service providers (ANSP)	Editorial	Rejected
360	Editorial		4	115	"objectives provided intended to be utilized by the SORA"	extra word and simplify	"objectives they intend to use in the SORA."	Editorial	Accepted
362	references to "risk"		4	123	…"operations to ensure all risks…"	ensure that security is also included in risk evaluations	…"operations to ensure all safety and security risks…"	Minor	Rejected
252			4	124	ALARP	avoid to use acronim where not essential	as low as reasonably practicable	Minor	Accepted
361	Throughout document suggest writing out first time use acronym to avoid confusion.		4	124	"identified are tolerable and ALARP"	Avoids confusion and misunderstanding when reading document.	"identified are tolerable and as low as reasonably practical (ALARP)."	Minor	Accepted
436		Text	4	124	ALARP	Option 1: A list of definitions, acronyms and abbreviations used in the Annex should be included. Option 2: all abbreviations should be explained at first use.	as low as reasonably practicable (ALARP)	Minor	Accepted
59	This annex hasn't been harmonaised with AMC1 and GM1 UAS.SPEC.030(3)(e) to Regulation (EU) 2019/947. This new aproach will imply the modification of all guidance material developed by the NAAs to help operators. Also, UAS Operators will have to change their documentation 2 times in less than 2 years.	Introductio n	4	125					Rejected
216	Replace text for more clarity.	Paragraph	4	125-127	This document does not replace civil regulations but provides recommendations and guidance as to how civil UAS operators can comply with those regulations in relation to the risk assessment requirements for Specific category operations.	Introduce the term "SORA" especifically to provide more clarity.Replacement of the text in red by the text in green.	This document does not replace civil regulations but provides recommendations and guidance as to how civil UAS operators can comply with those regulations in relation to the SORA process.		Partially Accepted
207			4	137	The two sections below are a structured template for the Concept of Operations:	Does not go together with ConOps file structure mentioned in Chapter A.0.4. As the ConOps is manly based on 3 pillars - Procedures (Operational information), Training (Training information) and UAS (Technical information) + the Organisational information, the proposed file structure would help to follow the information more easily.	The 4 sections below are a structured template for the Concept of Operations: A1: ConOps Template for Organisational Information A2: Operational Information A3: Training Information A4: Technical Information	Major	accepted
135	N/A	Annex A. Introductio n	4	Editoria l	This process is of utmost importance, as this constitutes the primary tool for engaging with the Competent Authority to enable evaluation of the proposed operation(s) to ensure that all risks identified are tolerable and ALARP.	This is the first time the acronym "ALARP" is used in the document and, therefore, it should be indicated what it stands for.	This process is of utmost importance, as this constitutes the primary tool for engaging with the Competent Authority to enable evaluation of the proposed operation(s) to ensure that all risks identified are tolerable and as low as reasonably practicable (ALARP).	Editorial	Accepted
253	Different organisational structure	A.0.1	5	163	Organigram	I understand this point as an example for the organisational structure. Could be that structure acceptable for UAS? The example is contrary to the AOC regulation. - Accountable manager parallel to Operations Manager - Managing Director (new term, not used in AOC) - Technical Manager (new term, does it means CAMO or Maintenance?) - Other PH missing (Training, CMF, SMS)	use an example of organigram more similar to those used in manned aviation, or clarify roles and responsibilities of 'managing director' and replace accountable manager with another figure	Major	Accepted
254		A.0.1	5	172	Recommendations		Add a note with the following 'in some regions this may be called Acceptable means of compliance"		Rejected
249		A.0.1	5	176	'Should' indicates a strong obligation (in other words, a person would need to provide clear justification for not complying with the obligation). 'May' indicates discretion can be used when assessing what information to provide.	this wording is not aligned with EASA standards and they will be likely reworded or deleted.			Partially Accepted
255		A.0.2 How does an application generally work?	6	194		a parallel flow chart should be developed in case of using PDRA		Minor	Partially Accepted
25		A.0.2 How does an application generally work?	6	181	cstegory		Category		Accepted
365			6	184	"that all identified risks"		"that all identified safety and security risks…"	Minor	Rejected

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
515	The application process needs to allow for an initial technical discussion with the Competent Authority in order to allow developers of innovative systems to understand whether they are likely to be able to operate in the Specific Category. In boundary cases, where the SAIL determination isn't straightforward,an initial engagment with the regulatory autorities, based on a preliminary SAIL assessment with a description of the intened type of operations and UAS design concept, is needed to enable solution developers to identify the approprite level of rigour and assurance for the OSO, including any EASA design verification requirements.	1	6	189 to 192	Developing the ConOps can be an iterative process. As the SORA process is applied, additional mitigations and limitations may be identified, requiring additional associated technical details, procedures, and other information to be provided/updated in the ConOps. This should culminate with a ConOps that comprehensively describes the proposed operation as envisioned		Developing the ConOps may be an iterative process. If the system is novel, and SAIL determiniation is likely to be boderline IV/V, an initial application should be made to the Competent Authority supported by sufficient details of the intended type of operations and UAS design concept to enable assessement of the ARC and GRC. Details of proposed strategic and operational mitigations and the suggested SAIL should be described. Validation that the developed system, operating arrangements and mitigations are consistent with the original application will be required before the LUS certificate is issued. As the SORA process is applied, and Operational Safety Objectives fulfilled, additional mitigations and limitations may be identified, requiring additional associated technical details, procedures, and other information to be provided/updated in the ConOps. This should culminate with a ConOps that comprehensively describes the proposed system and operational arrangements.	Major	Accepted
516	The application process needs to allow for an initial technical discussion with the Competent Authority in order to allow developers of innovative systems to understand whether they are likely to be able to operate in the Specific Category.	2	6	195 to 216		Update process diagram to reflect proposed text change for lines 189 to 192.		Major	Accepted
451	Inverting the first two workflow steps		6	195-199		The workflow gives the impression that the first thing which should be done is the ConOps eventhough the ConOps can only be written whenever the robustness of the OSOs has been identified.	Putting the applicant prepares the risk assessment (Step #2 to #Step #10) as the first step in the workflow		accepted
510			6			There should be a preliminary agreement with the competent authority to determine the SAIL Level.			accepted
217	Repetitive.	Recommendation A.0.3	7	219	compliance with the required OSOs, mitigations and containment. The provisions can be assessed and verified with the information contained or referenced by it.	It is not 100% clear if we have to include information of the compliance with the OSOs already in the CONOPS part. This paragraph refers to a part that is already described in step 10 "safety portfolio" (compliance with the required OSOs). If this recommendation refers to description of the CONOPS (step 1), this paragraph should not be there (it is repetitive).	None (remove the paragraph)		accepted
256		A.0.3	7	219	ConOps should enable ….	I am not sure if here ConOps means step#1 or Annex A. If it means Step 1 then the text may be fine. But since I think it means Annex A I think it gives the wrong impression of what is the purpose of Annex A . The benefit of the OM is not the NAA but the personnel of the UAS operator	The OM should provide the UAS operator personnel with a description of the intended operation(s) to a level of detail that effectively enables them to undersand: - the main element of the UAS operator organisation; - the general characteristics of the UAS used; - the ground and air risk connected with the operation and the associated mitigations; - the operational procedures to be used in normal, contingency and emenrgency resulting from compliance with the OSOs, mitigations and containment; - their role and responsibility.		Accepted
257		A.0.3	7	219	. For example, if a requirement has a low level of robustness, it is usually sufficient to self-declare the compliance by a statement in the ConOps	I am not sure I understand what are we talking about. Maybe the declaration is in the risk assessment		Major	Accepted
28		Figure 1 A.0.3 Application Process	7	G	compliance evidence	clarify	compiance evidence submitted to the Competent Authority	Major	Acknowledged
27		Figure 1 A.0.3 Application Process	7	G	low leveo of robutness	please provide an example			Acknowledged
452	self-declaration and low level of robustness		7	219	For example, if a requirement has a low level of robustness, it is usually sufficient to self-declare the compliance by a statement in the ConOps or in supplemental compliance evidence documents. Supporting documents evidencing a low level of robustness requirement can usually be kept internal to the operator's organisation and are not submitted to the Competent Authority and are not subject to version control. The Competent Authority may request further documents, if considered necessary for the given operation.	Here the text gives the impression that low level of robustness is equivalent to self-declaration which is not the case since it always depends on the specific OSO meant. OSO 3 or 20 are for instance never self-declared. I suggest removing the first sentence and amending the second.	Supporting documents evidencing a self-declared requirement can be kept internal to the operator's organisation...	Major	Acknowledged
218	CONOPS location.	Recommendation A.0.4	7	220	If an operator intends to operate in multiple locations, with location specific mitigations, the ConOps should be structured such that each location specific information set is organised in a sub-chapter.	What are the source of information for "location specific mitigations"? This part is not 100% clear to me. It is too restrictive for the operators to modify their CONOPS and declare each location of the operation. The CONOPS should be based in GRC assessment and mitigations (JARUS Annex F) and ARC assessment and mitigations (JARUS Annex C and D). Once the GRC and ARC has been determined, the operation shall not be hampered by submitting a SORA application if the GRC & ARC assessment and mitigations are the same for a different location.	None (remove the paragraph)		Partially Accepted
368			7	220	A.0.4 Requirement: …."each type should have its own ConOps but the general operator information	Break up sentence so easier to understand	each type should have its own ConOps. However, the general operator information		Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
350		A.0.3	7	219	The ConOps should enable the applicant to describe to the Competent Authority the intended operation(s) to a level of detail that effectively enables: - the identification of GRC, ARC, associated mitigations, and SAIL determination. - compliance with the required OSOs, mitigations and containment. The provisions can be assessed and verified with the information contained or referenced by it.	Step #9 is key to the application for an OA. Therefore it seems important to indicate clearly at this stage that one objective of the ConOps is also to identify requirements concerning Step #9	The ConOps should enable the applicant to describe to the Competent Authority the intended operation(s) to a level of detail that effectively enables: - the identification of GRC, ARC, associated mitigations, and SAIL determination. - compliance with the required OSOs, mitigations and containment. The provisions can be assessed and verified with the information contained or referenced by it. - compliance with containment requirements (Step #9)		accepted
366			7	219	A.0.3. Requirement "The identification of GRC, ARC, associated mitigations, and SAIL determination.	Please write out acronyms the first time to avoid misunderstandings and confusion.	The identification of Ground Risk Classification (GRC), Air Risk Class (ARC), associated mitigations, and specific assurance and integrity level (SAIL) determination.	Minor	Accepted
367			7	219	A.0.3.Requirement : "compliance with the required OSOs…"	Please write out acronyms the first time to avoid misunderstandings and confusion.	Compliance with the required operational safety objectives (OSOs),	Minor	Accepted
26		Figure 1 A.0.3 Applicatio n Process	7	R	GRC, ARC, SAIL, OSOs	spell out first time term appears		Minor	Accepted
485	Generic locations are not adressed. We should allow for the possibility to describe locations as generic such that an authorization can be issued location generic	A.0.4	7	219			Add: If an operator intends to operate the ConOps should desribe the procedures which will be apllied to ensure locations comply with the limitations and mitigations defined in the ConOps.	Major	Rejected
453	location dependance		7	220/23 8	If an operator intends to operate in multiple locations, with location specific mitigations, the ConOps should be structured such that each location specific information set is organised in a sub-chapter.	The diagram gives the impression that each and every location requires a different location specific information which in Europe is in contradiction with the latest EASA amendment that actually foresee the option to obtain location independent SORA authorisation if the conditions of the SORA can be verified by procedures.	Complement the text in 220 with: "For operations in generic locations, the ConOps may include procedures to verify the SORA conditions before the operation in the Procedures subchapter"		Acknowledged
369			7	220	A.0.4 Requirement: …"each location specific information…"		…"each location's specific information…"		Accepted
136	N/A	A.0.A	7	Minor	If an operator uses more than one type of operation, each type should have its own ConOps, but the general operator information should be put in a separate top-level document, that is referenced by each ConOps.	Replace "uses" with "intends to perform"	If an operator intends to perform more than one type of operation, each type should have its own ConOps, but the general operator information should be put in a separate top-level document, that is referenced by each ConOps.		Accepted
258		A.0.4	8	223		suggest to modify the picture to reflect better the structure of Annex A	Chapter 0 - Introduction Chapter 1 - Organisation and general operational information Chapter 2 Specific information for the operation Chapter 2.5.1 location		Partially Accepted
370			8		Figure 2 ConOps Diagram	Please change the font or background colors especially the gold and orange since hard to reach text.			Accepted
219	Maintenance chapter missing	Figure 2	8	227-240	Organizational information Operational information [etc] Training information Technical information [etc]	To add "maintenance information" as it is an important piece of information at the same level as Organizational information, operational information and so on.	Maintenance information.		Partially Accepted
260		A.1	8	247	from A.1.1 to A.1.8		A.0.1 to A.0.8		Acknowledged
261		A.1	8	248	table of content	Did we agree to identify which subchapter is under approval of the nAA and could not be changed without prior NAA approval? (being the result of OSO with medium or high level of robustness)	include this information		Acknowledged
61		A.0.4 ConOps file structure for operators with multiple types of operations or locations	8	220	figure 2 ConOps documents structure	this aproach is not aline with the concept of the issue of generic operational authoritation from UE. It will imply an increase of bureaucracy to have to describe all locations.	Propose aproach: Type of location (Type A, type B…) related to operational procedures.		rejected
259		A.0.4	8	238			add title 'introduction'		Rejected
486		A.1	8	241	ConOps operational manual template	Do we really consider this an ON template?	ConOps template		Rejected
202	The use of the term ConOps and Operations Manual is inconsistent.		8	241, 242, 246, 248, 251, 253 …	**"ConOps documents structure","ConOps operational manual template","The template below provides section headings detailing the subject areas that should be addressed when producing the Operations Manual","• The title – 'Operator ConOps'"**	The term ConOps is sometimes referred to as the document that usually is named Operations Manual	Use the term ConOps for the description of an operation type and the term Operations Manual for the document that describes the organisation, ERP etc. and includes or refers to the ConOps		Accepted
262		A.1.3	9	253	• The name and signature of the person who has amended the document. The signature may be scanned or electronic.	There could be more persons contributing to the drafting. It's probably better to refer to a person responsible for the content of the manual which validates such content before submission to the authority			Partially Accepted
62		A.1.3 Amendme nt record	9	253	The name and signature of the person who has amended the document. The signature may be scanned or electronic.	An scanned signature could not have juridical validity in some countries (e.g. Spain).	The name and signature of the person who has amended the document. The signature may be handwritten or electronic.		Accepted
511			9	256	This ConOps document is kept up to date by add name, Accountable Manager	there is also a possibility that a specific operations (low SAIL) will be conducted by a natural person, e.g. private persons or sole proprietor	This ConOps document is kept up to date by add name, Accountable Manager or the name of the UAS operator in the case of a natural person		Partially Accepted
263		A.1.3	9	253	• A statement confirming the individual with the responsibility for ensuring that the document remains up to date	Is this the same person mentioned in the bullet above or could it be a different one? This should be clarified			Partially Accepted

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264		A1.3	9	254		The scope should always be the following and I think it will be good if this specified: 'The scope of this document is to provide the UAS operator personnel with the information necessary to conduct a safe operation. " Then please provide a brief description of the different parts of the document	Clarify that the purpose and scope of the document should be to provide the UAS operator personnel with the information necessary to conduct a safe operation: • Explain the scope of the document, its intent, and the overarching operating strategy of the company/applicant • Explain the purpose and scope of the ConOps with a Provide brief description of the different parts of the document • Explain the purpose and scope of the operation, with a brief description of the proposal		Partially Accepted
265		A1.3	9	254		Why do we need this. The information will be in the operaiton specific chapter	If the operator uses more than one ConOps within their organisation, this section should clarify how the different the structure of the different sections. briefly outline each of the operating strategies for each ConOps. When explaining the purpose and scope of the operation(s), include information such as: • VLOS/EVLOS/BVLOS • Flight above 500 ft • Type of location • Ground area • Airspace • Type and size of aircraft		rejected
266		A1.3	9	255			Add the following: Describe and explain how changes to the OM are made and recorded which requires an approval of the Competent Authority.	Minor	Accepted
137	N/A	A.1.3	9	Minor	N/A	The system for amendment and revision of the ConOps should also include a list of the changes that require prior approval and a list of the changes that are required to be notified to the competent authority.	Add the following: - "a list of the changes that require prior approval"; - "a list of the changes that are required to be notified to the competent authority".	Minor	Accepted
138	N/A	A.1.3	9	Minor	If it is a variation application, all the relevant changes should be listed in the 'amendments incorporated' section under the heading 'Variation'.	The example provided below does not contain any heading titled 'Variation'.	Update the example accordingly.	Minor	Accepted
454	page or paragraphy amended		9	256	page and/or paragraphs amended	This column adds a level of complexity which can't be manage in such a table. Usually a revision of the ConOps include in practice a lot of different changes, listing those here will make this table overly complicated and does not bring any added value for the applicant. If the authority would like to keep its job simple and identify changes rapidly, they should request when amending the ConOps to get a ConOps with all the changes highlighted in a different color. EASA also highlights its changes in different colors(blue for additions and red for suppressions).	Remove this column from the table and addd the following Note below: "Note: When amending the documentation the applicant should provide a ConOps Version with the changes done to the previous version in a different color as defined by the competent authority"	Minor	Accepted
268		A1.3	9	256	• Where necessary, a commitment to conduct further mitigation actions as detailed within that ConOps.	What does it mean? The commitment is to conduct all elements written in the CONOPS	Clarify or delete	Minor	Accepted
269		A1.3	9	256	A clear statement that safety risks are managed by the applicant….	Which safety risks?		Minor	Rejected
267		A1.3	9	256	• A description of how safety will be prioritised.	This is not a declaration and not sure what we expect	delete text or clarify		rejected
371			9	256	Table	Please reformat tables - either by reducing font or adjusting columns to avoid having words split.		Minor	Accepted
2	Many companies will see the specific order as required, even when it may make reading more challenge.	A.1.4	10	258	See TOC ordering of sections	The initial material usually the executive summary	Reorder between A.1.4 and A.1.8; A.1.4 Purpose & scope A.1.5 Safety Statement A.1.6 Definition+ A.1.7 References		Accepted
512			10	258	Explain the purpose and scope of the ConOps with a brief description of the different parts of the document	parts of the document are part of the contents, thus there is no need to explain it		Major	accepted
63		A.1.5 Purpose and scope of the document	10	258	• Explain the purpose and scope of the ConOps with a brief description of the different parts of the document • Explain the purpose and scope of the operation, with a brief description of the proposal	This should be more general just to avoid repeat information. It would be acceptable in case of different CONOPS within the document a list of them without any other extra information.		Major	accepted
351		A.1.5	10	258	When explaining the purpose and scope of the operation(s), include information such as: - VLOS/EVLOS/BVLOS - Flight above 500 ft - Type of location * Ground area * Airspace - Type and size of aircraft	Considerations on adjacent areas is an important information to have a broad undesrstanding of the applicant's ConOps. It is suggested therefore to add this consideration.	When explaining the purpose and scope of the operation(s), include information such as: - VLOS/EVLOS/BVLOS - Flight above 500 ft - Type of location * Ground area * Airspace * Adjacent areas - Type and size of aircraft	Minor	Accepted
3	Out of place	A.1.6	10	259		Changes to the org should be part of the org overview	Move current Org Changes content in A.1.6 down to after A.1.9.3 and make A.1.9.4		Accepted
220	Changes to the organization	A.1.6	10	259	A.1.6 Changes to the organisation R Describe and explain how changes to the organisation are made and recorded and communicated to the Competent Authority. G Any changes that require reporting to the Competent Authority should be clearly marked as changes with any document submissions to the Competent Authority for approval.	Current text is not clear what type of changes are to communicate to the authority.	Include type of changes of the organization to be reported to the authority.	Major	Partially Accepted

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352		A.1.6	10	260	Any changes that require reporting to the Competent Authority should be clearly marked as changes with any document submissions to the Competent Authority for approval.	It may be relevant to indicate that the changes that need to be reported to the competent authority may be discussed between the applicant and the competent authority. This point is often raised when reviewing an application	Any changes that require reporting to the Competent Authority should be clearly marked as changes with any document submissions to the Competent Authority for approval. Applicants may liaise with the competent authority to identify the changes requiring to be reported.	Major	Acknowledged
221	Safety statement	A.1.7	10	260	• A commitment to operate within the bounds of that ConOps and any Competent Authority Operational Authorisation granted. • A description of how safety will be prioritised.	"Any competent authority operational authorisation granted" not clear. If applying for a SORA, no authorisation is going to be granted at this point. "Description of how safety will be prioritised" not clear. Previous statements in the same paragraph "A declaration that the company/applicant is safe to operate in the proposed environment. A declaration that the system(s) to be employed can be operated safely." considered sufficient to show that the applicant prioritize safety.	To remove the mentioned bullet points from that section A.1.7.	Major	Rejected
64		A.1.7 Safety statement	10	260	• The statement should include, as a minimum, the following information: …	it should include compliance with the applicable regulation. In case of this item is part of OM, it should include a declation indicating that the instructions will be followed for the involved personnel.		Major	Accepted
455	Safety Statement		10	260	Safety Statement…	My understanding is that this section already represent some basic SMS compliance which is according to SORA OSO 1 only necessary when reaching OSO 1 medium robustness level (SAIL III and above). In SAIL I for instance, OSO 1 is optional and it seems quite disproportionate to require such a safety section at optional level. In SAIL II and at OSO 1 low robustness level, this is not required neither.	Specify at the beginning "This section applies if OSO 1 is applicable with medium robustness"	Major	Rejected
372			11	260	A.1.7 Safety (4th to last requirements sub-bullet) "• A description of how safety will be prioritised."	Please add "security" to risk assessments	•A description of how safety and security will be prioritised.	Minor	Rejected
373			11	260	A.1.7 (2nd to last requirements sub-bullet) "• An undertaking to carry out the procedures or other actions that mitigate the safety risks throughout the period of authorisation	Please add "security" to risk assessments	"• An undertaking to carry out the procedures or other actions that mitigate the safety and security risks throughout the period of authorisation	Minor	Rejected
374			11	260	A.1.7 (last requirements sub-bullet) A clear statement that safety risks are managed by the applicant	Please add "security" to risk assessments	A clear statement that safety and security risks are managed by the applicant	Minor	Rejected
375			11	261	A.1.8 first guidance bullet Document sets do not include security procedures manuals	Added Bullet to address Security needs after SMS Manuals		Minor	Rejected
271		A1.8	11	261	Depending on the complexity of the operation (SAIL score), the reference documents can or cannot be considered as part of the operations manual relevant to the operation.	This needs to be specified (which one is part of the OM and which not). The reference documents that are part of the OM have to be easily available to the OM end users.		Major	Accepted
376			11	261	A.1.8 Guidance (2nd paragraph) in Guidance Section: "...reference documents can or cannot be considered as part..."	What does this exactly mean, and what are the criteria for being included in the operations manual?	"…reference documents may be considered as part..."	Major	Accepted
29		A.1.8 References	11	260 G	Depending on the complexity of the operation (SAIL score), te fernece documents can or cannot be considered as part of the operational manual eleant to the operation	Pleas explain how it "can" and how it "cannot" be considered		Major	Accepted
272		A1.9	11	262	From A.1.9 to A.1.15	make this a different chapter (1) from the introduction (0)	change to A.1.1 to A.1.8	Minor	accepted
273		A1.9	11	264		Duplication of the header	• If the organization is also responsible for the design and/or production of the UAS , this section should describe the structure of this department/section, including the design	Minor	Accepted
456	Organisation Overview		11	266		In SAIL I, OSO 1 is actually optional and so nothing concerning the organisation is actually required. This should be reflected in the Requirements.	Replace with "From SAIL II on: Describe the organisation overview " and in 267 "From SAIL II on: Describe the organisational structure using a diagram/organigram"	Major	accepted
270		A1.9	11	263		The title should reflect better the content	~~Detailed Recommendations and Guidance – Operator Organisation and general operational information~~	Major	Accepted
275		A1.9.1	12	267			Please add in G: • Continuing airworthiness or maintenance Manager	Minor	Rejected
223	Nominated personnel (OSO #01)	A.1.9.3	12	269	• The name of the individuals holding any nominated role may be required to be included by the Competent Authority.	The applicant should have the possibility to keep up to date an internal document/book with the name of the individuals performing the relevant roles, in order to not update the SORA whenever the team changes (startups tend to change these relevant roles quite often).	Suggestion. To add a text like: "The applicant might have the possibility to internally keep up-to-date a book/document record with the names of the individuals for the nominated roles, to present to the Authority whenever is required".	Major	Rejected
67		A.1.9.3 Nominated personnel (OSO #01)	12		Examples of nominated personnel/post holders include: • Accountable Manager • Operations Manager • Technical Manager • Chief Pilot • Quality/ Safety Manager.	Trainning manager should be included in the proposed list.	Examples of nominated personnel/post holders include: • Accountable Manager • Operations Manager •Trainning Manager. • Technical Manager • Chief Pilot • Quality/ Safety Manager.	Major	Accepted
68		A.1.9.3 Nominated personnel (OSO #01)	12		Examples of nominated personnel/post holders include: • Accountable Manager • Operations Manager • Technical Manager • Chief Pilot • Quality/ Safety Manager.	Quality Manager is not the same as Safety Manager.	Examples of nominated personnel/post holders include: • Accountable Manager • Operations Manager •Trainning Manager. • Technical Manager • Chief Pilot • Quality Manager • Safety Manager.	Major	Partially Accepted

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69		A.1.9.3 Nominated personnel (OSO #01)	12		Examples of nominated personnel/post holders include: • Accountable Manager • Operations Manager • Technical Manager • Chief Pilot • Quality/ Safety Manager.	The terminology compliance monitoring manager is more alined with EU Regulation.	Examples of nominated personnel/post holders include: • Accountable Manager • Operations Manager •Trainning Manager. • Technical Manager • Chief Pilot • Quality/ Compliance monitoring Manager • Safety Manager.	Major	Rejected
70		A.1.9.3 Nominated personnel (OSO #01)	12		Multiple roles may be filled by the same person. However, in complex organisations, internal audit/ quality roles should be carried out by a person separated from the operation delivery roles	Where the safety manager already fulfils the functions of the compliance monitoring manager, the accountable manager cannot be the safety manager. GM1 UAS.LUC.030(2)(d)		Major	rejected
487		A.1.9.3	13		Nomimated personel	The term nominated personel is used within aviation for personel which by regulation an operator needs to have and and shall be approved by the Competent Authority. We should not use this term in the ConOps since we don't have such position other than Accountable Manager (and he/she is not a nominated since we don't have requirements whih shall be fulfilled to have this role	Change heading to personel and remove the guidance.	Major	Acknowledged
377			13		A.1.9.3 (Guidance): Examples of Nominated personnel	It would be helpful to outline what duties fall under each post holder.	Please provide a cross-reference to where these duties are described in the document.	Major	Accepted
378			13		A.1.9.3 (Guidance) Quality/Safety Manager	Would the safety manager oversee security or would those duties be under the operations or accountability manager?	Suggest defining who oversees the organization's UAS security requirements if it is not the Quality/Safet Manager. "Security Manager"?	Major	Rejected
458	Nominated personnel		13	269	The name of the individuals holding any nominated role may be required to be included by the Competent authority	At low robustness OSO 1, the SORA only says that roles and responsabilities should be defined. This does not mean that the name of the individuals actually taking those roles should be stated. It could for instance be managed internally what also would ease the changes of personnel. The only name needed is the one of the accountable manager.	Replace the guidance sentence by: "If OSO 1 has medium robustness, the name of the individuals holding any nominated role may be required to be included by the Competent Authority."	Major	Accepted
274		A1.9.2	12	269	If the UAS is not manufactured or produced by the operator, i.e., by a third-party manufacturer, the operator should provide information on the manufacturer of the UAS to be used in Section A.2. Note: If the operator is also the manufacturer separate organisations for design, production and flight operations may share the same safety management system depending on the complexity of the organisation.	This should be in the section related to the operation, since we may have different UAS for different operations	Move to the chapter related to the UAS	Major	accepted
139	N/A	A.1.9.1	12	Editorial	An example organogram is shown below.	Typo. See proposed text.	An example organigram is shown below.	Minor	accepted
65	Section A.1.9.2 makes references to design and production organizations details, while OSO#02 requirements are addressed to the design and manufacturing procedures to develop a product.	A.1.9.2 Design and Production (OSO#02)	12			Section A.1.9.2 should be replaced according to OSO#02. Once the information is replaced, It is needed to specify what kind of information should be included.		Major	accepted
457	Design and Production		12	268		Exept concerning containment, there is no design and production requirement below SAIL III, this should be reflected in A.1.9.2	"From SAIL III on: If the operator is also the manufacturer provide the following information…"	Major	Accepted
66		A.1.9.2 Design and Production (OSO#02)	12		Note: If the operator is also the manufacturer separate organisations for design, production and flight operations may share the same safety management system depending on the complexity of the organisation.	Taking into account that OSO#02 does not define organizational requirements, it is important to highligh that SMS requirements are related to the organization. Note that european regulation just require SMS for LUC (UOC in JARUS OPS A & B document).		Major	accepted
140	N/A	A.10	13	Minor	To be added if required.	Since no guidelines are provided regarding the responsibilities and duties of the UAS operator, we would like to propose the following: "From SAIL II upwards, provide operational procedures and checklists".	"For SAIL II upwards, provide operational procedures and checklists".	minor	accepted
276		A.1.10	13	271	Explain the responsibilities and duties of the UAS operator, and how the UAS operator intends to meet the responsibility requirements set out in the requirements.	What are we asking here. It is not the purpose of this document to show how the operator intends to meet the requirements (meaning the regulatory provisions, OSOs mitigations etc?). Suggest to delete		Major	Accepted
208			13	271	A.1.10.1 Additional operator licensing requirements	More guidance and examples would be preferred. Should it be only about licences or certificates/other authorisations also?	Examples: - Pesticide licence - Radio-License …		Partially Accepted
278		A1.10.1	13	272		Add the suggested text	Identify the licences required following the risk asessment Provide any copies of the licences. The Competent Authority may define additional requirements.		Rejected
488		A.1.10.1	13		Provide any copies of the licenses	A license is a record, not something to be included in the ConOps (it would require the ConOps to be updated every time a change occurs with a license, like new personnel)	Under guidance: Licenses should kept as a record in accordance with records requirements described records section (WHICH IS MISSING)		Accepted
71	The terminology of licence is not suitable for Category B. Category B does not consider the issuance of licences in any area. The term of licence implies others attributions, and it is reserved for the Category C. Replace licence by certificate.	A.1.10.1 Additional operator licensing requirements	13			review the full document		Minor	Accepted

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277		A1.10.1	13	272		also licenses that operators has, even if are not required and may be useful anyway for the operation, should be listed	Describe any necessary additional licences required for the operation of the UAS. Describe any additional licence hold that may be useful to increase the safety of the operation		Accepted
280		A.1.10.2	13	273		There are already sections covering the 2 topics proposed to be deleted	Examples: • Insurance documents • Evidence of remote pilot competency • Competent Authority authorisation • Forms and templates used for site surveys • Flight logs • Operator registration certificate when applicable		Accepted
279		A.1.10.2	13	273		The wording should be modified as proposed to make of interst of the operator's personnel However This should be moved to the chapter related to the specific operation	Detail any additional information about the operatorion(s) that supports the applicationmay be relevant for the safety of the operation but has not already been covered in this section should be included by the applicant.		Accepted
72		A.1.10.2 Additional informatio n	13		Detail any additional information about the operation(s) that supports the application but has not already been covered in this section should be included by the applicant.	Any relevant additional information should be listed and included as annexes.	List any additional information about the operation(s) that supports the application but has not already been covered in this section. Documents should be included by the applicant as annexes.		Accepted
489		A.1.10.2	13		Examples: Insurance documents…	Again those are records	Under guidance: Insurance documents... should kept as a record in accordance with records requirements described records section (WHICH IS MISSING)		accepted
459	Responsibilities and duties of the remote crew		14	273	Explain the composition of the remote crew and associated support staff. Explain the responsibilities and duties of the remote crew personnel and support staff, and how the UAS operator intends to meet the remote pilot responsibilities.	Here again, the responsabilities need to be defined only from a SAIL II on. Specify	Add "From SAIL II on:"		Accepted
281		A.1.10.3	14	274		To make it applicable to the non operaiton specific part the propsoed changes should be applied	Explain the general policy identifying the roles and responsibility composition of the remote crew, its composition and associated support staff. Explain the responsibilities and duties of the remote crew personnel and support staff, and how the UAS operator intends to meet the remote pilot responsibilities.		Accepted
30		A.1.10.4 crew health (OSO #17)	14	273 G	and appropriate		as appropriate		Rejected
141	N/A	A.1.10.4	14	Minor	N/A	If Annex A is intended to be aligned with SORA Main Body v2.5 and its associated Annexes, this section should also account for the "workplace environment, including ergonomy of the workstation" in line with updated Annex E (OSO #17).			Acknowledged
460	Crew health		14	274		My understanding is that the crew should declare itself fit to operate before the operation according to OSO 17 low robustness level.	Include in the guidance: " The policy for the crew fitness should contain a self-declaration of each crew member that they are fit to operate before the operation. This declaration should include self-assessment of the crew health"		Accepted
224	Crew health	A.1.10.4	14	274	SAIL III and IV Describe the remote crew flight duty and resting time cycles and how this is logged.	Logging the resting cycles from flight duty is not required for SAIL III/IV categories. This is an additional burden to the operator without adding safety benefit if the comply with the FIT TO OPERATE policy (including if they are not mentally tired).	To change the mentioned bullet by: "Describe the remote crew flight duty and resting time cycles."		Rejected
73		A.1.10.4 Crew health (OSO #17)	14		• Describe the crew fitness policy.	OSO 17 (SAIL I): The applicant has a policy defining how the remote crew can declare themselves fit to operate before conducting any operation.	Describe the crew fitness policy defining how the remote crew can declare themselves fit to operate before conducting any operation.	Minor	Accepted
379			14		A.1.10.4 Crew Health	I did not see crew vetting for security captured anywhere in the document. Would suggest adding please.	Please add: "Crew security vetting by competent authorities." to SAIL V and VI requirements		Rejected
461	Safety and Risk Management		15	275	A.1.11 Safety and Risk Management	The guidance for SAIL I, II and III reminds me strongly of what is actually required for a LUC which is actually only required in SAIL IV according to OSO 1. Accounting that SAIL I is actually only possible with very small UAS over sparsely populated areas and with UAS <3 m over controlled ground area in empty airspaces, it seems rather conservative to ask for a formal Threat and Error Management for such very low risks operations. Furthermore OSO 1 actually asks for an SMS from SAIL III on. Note that pre-flight inspections and operational requirements are already part of the procedures and including that in Threat and Error Management actually creates a documentation redundancy	Move the part on "SAIL I upwards" in the guidance to starting at SAIL III and remove the pre-flight inspection aspect from this section		Accepted
282		A.1.11	15	276	Safety and Risk Management	People will ask Which OSO is linked?, Suggest to link to OSO 1			Accepted
287		A.1.11	15	276	SAIL I upwards 1. Threat and Error Management (TEM) • The organisation will manage threats by :	The points below should be all normal practices. Threats may be identified by other sources as well. Sharing of information among operators, previous safety reports, analysis of specific operating scenarios, etc.			Accepted

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283		A.1.11	15	276	SAIL I upwards 1. Threat and Error Management (TEM) • The organisation will manage threats by: • adhering to maintenance requirements and standards • complying with operational requirements • thorough pre-flight inspections • application of appropriate site controls. • The organisation will manage errors by: • training and currency of pilots to identify and react to errors in a timely manner • prioritising tasks: aviate, navigate and communicate • RPAS maintenance and configuration attention • employing a no-blame philosophy with regard to incident reporting debriefs. The organisation considers TEM in all aspects of operating procedures. Continuing risk assessment is the key activity to identify and mitigate potential issues for current operations. Job-specific TEM is identified initially via pre-flight planning (during SORA process) and on-site prior to operation. A risk assessment should be conducted for any risk that has not been adequately mitigated by existing risk control measures and procedures. If an assumption made in the initial assessment is no longer valid, or if a crew member identifies a new risk, these matters are considered and detailed.	Are we sure we want this for SAIL!??? I would suggest to make this not applicable for SAIL I and II			Accepted
142	N/A	A.1.11	15	Major	This section should provide a description of the methodology adopted in order to identify the risks associated with the UAS operations after the authorisation has been granted.	This guidance could be considered as overshooting SORA methodology. For this reason, we would like to propose that this section is linked to OSO #01, where only for Medium (M) and High (H) criteria it is stated that "the applicant has a method to identify, assess, and mitigate risks associated with flight operations. These should be consistent with the nature and extent of the operation specified".			Accepted
143	N/A	A.1.11	15	Minor	- employing a no-blame philosophy with regard to incident reporting debriefs.	We believe the concept of "just culture" should be mentioned herein.	**Just culture**		accepted
353		A1.11	15	N/A	Operators should set out a process similar to the below for continuous assessment of risk during operations.	TEM is a concept that may be difficult to integrate for UAS operators not familiar with this concept. TEM could be presented as an option / guidance material. Therefore it is suggested to rephrase the current wording as suggested here ==>.	Operators may set out a process similar to the below for continuous assessment of risk during operations based on the complexity and the level of risk of the operation and the environment.		accepted
354		A1.11	15	N/A	SAIL I upwards 1. Threat and Error Management (TEM) • The organisation will manage threats by: • adhering to maintenance requirements and standards • complying with operational requirements • thorough pre-flight inspections • application of appropriate site controls.	Threat management relies also on the ability for the operator to identify any "mismatch" between the ConOps and the actual operation. It is suggested to add this idea in the list, as suggested here ==>	SAIL I upwards 1. Threat and Error Management (TEM) • The organisation will manage threats by: • adhering to maintenance requirements and standards • complying with operational requirements • thorough pre-flight inspections • application of appropriate site controls. • assessing the consistency between the ConOps and the actual conditions of the operation		accepted
355		A1.11	15	N/A	SAIL I upwards A risk assessment should be conducted for any risk that has not been adequately mitigated by existing risk control measures and procedures. If an assumption made in the initial assessment is no longer valid, or if a crew member identifies a new risk, these matters are considered and detailed.	The main flaw of TEM is observed when operators properly identify threats and errors but do not take action to mitigate them. It is suggested to explicitly mention this mitigation.	SAIL I upwards A risk assessment should be conducted for any risk that has not been adequately mitigated by existing risk control measures and procedures. If an assumption made in the initial assessment is no longer valid, or if a crew member identifies a new risk, these matters are considered and detailed so that new mitigation can be taken.		accepted
74	This section is linked to the SAIL, but it does not mention any OSO.	A.1.11 Safety and Risk Management	15						accepted
145	N/A	A.1.11	16	Minor	Update this paragraph to show the difference between what is assessed for authorisation and what operators can use for continuous assessment of risk during operations.	This seems an internal note of the author(s) of the document, which should be removed.	Remove sentence.		accepted
32		A.1.11 Safety and Risk Management	16	274 G	detail any othe relevant safety information, as required	What are possible other safety requirements?			accepted
490		A.1.11	15			The provided text is good but I am missing the most essential element of SMS: learning from mistakes and ensuring they are not repeated			accepted
75	RPAS term should be replaced for UAS in the full document.	A.1.11 Safety and Risk Management	15		RPAS maintenance and configuration attention	Replace RPAS for UAS	• UAS maintenance and configuration attention	Editorial	Accepted
385			15		A.1.11 Guidance paragraph 1 SAIL I upwards: 1. Threat and Error Management (TEM) - 2nd to last bullet point	Please spell out and add to Annex I Acronym list	• Remote Pilot Aircraft System (RPAS) maintenance and configuration attention	Editorial	Rejected
380			15		A.1.11 Safety and Risk Management Section	Need to include security as part of risk management efforts	A.1.11 "Safety, Security and Risk Management"	Minor	Rejected

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
381			15		A.1.11 Requirements Describe how safety is integrated within the organisation and any safety management system that is in place.	Need to include security as part of risk management efforts	**Describe how safety and security is integrated within the organisation and any safety and security management systems that are in place.**	Minor	Rejected
382			15		A.1.11 Guidance paragraph 1 SAIL 1 upwards 1. Threat and Error Management 4th bullet point	Please add the following	• thorough pre-flight planning and inspections	Minor	Rejected
383			15		A.1.11 Guidance paragraph 1 SAIL I upwards: 1. Threat and Error Management (TEM)	Please add the following bullet point	• vetting personnel	Minor	Rejected
384			15		A.1.11 Guidance paragraph 1 SAIL I upwards: 1. Threat and Error Management (TEM)	Please add the following bullet point	* implementing UAS safety and security protocols (i.e., data management, cybersecurity protocols, aircraft management and storage, etc.)	Minor	Rejected
200			16	276	Examples of occurrences that may be reported	Recommended to add some occurrences to be reported	Operation of the aircraft: *Unintentional release of cargo/payload	Minor	Accepted
386			16		A.1.11 Guidance paragraph 4 Starting at SAIL III: Validation of identified risks & their treatments	Please add safety and security risks to capture all types of UAS related risks.	"Validation of identified safety and security risks & their treatment"	Minor	Rejected
387			16		A.1.11 Guidance paragraph 4 1st bullet • "...those identified risks should be validated and logged."	Please add safety and security risks to capture all types of UAS related risks.	• "... those identified safety and security risks should be validated and logged."	Minor	Rejected
388			16		A.1.11 Guidance paragraph 5. Safety and security risk assessments and mitigation Note: Additional Risk Analysis tools could be utilised by the operator to continuously assess and manage safety and security risks outside the scope of the SORA methodology. Update this paragraph to show the differences between what is assessed for authorisation and what operators can use to continuously assess risk during operations. Detail any other relevant safety and security information, as required.	Please add safety and security risks to capture all types of UAS related risks.	5. Safety and security risk assessments and mitigation Note: Additional Risk Analysis tools could be utilised by the operator to continuously assess and manage safety and security risks outside the scope of the SORA methodology. Update this paragraph to show the difference between what is assessed for authorisation and what operators can use to continuously assess risk during operations. Detail any other relevant safety and security information, as required.	Minor	Rejected
144	N/A	A.1.11	16	Minor	- Conduct engagement with stakeholders as planned and continue the discovery of new stakeholders that may be affected by current operations.	Replace "discovery" with "identification".	- Conduct engagement with stakeholders as planned and continue the identification of new stakeholders that may be affected by current operations.	Minor	Accepted
31		A.1.11 Safety and Risk Management	16	274 G	operation, closer to tim eof operation and during operations, those		operation closer to the time of operation and during operation. Those	minor	Accepted
33		A.1.11.1 Occurrence Reporting (OSO #08, #11, #14, #21, M3)	16	275 G	Examples of occurrence that may be reported	Should "may" be "must"?	Examples of occurences to report	Major	Acknowledged
76		A.1.11.1 Occurrence Reporting (OSO #08, #11, #14, #21, M3)	16			Clarify that at least should be included the mandatory by law. but the operator optionally can have an internal occurrence reporting that could be included in the OM		Minor	accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
77		A.1.11.1 Occurrence Reporting (OSO #08, #11, #14, #21, M3)	16		Examples of occurrences that may be reported: …	Proposal to add IN ADDITION TO THOSE DEFINED IN REGULATION (EU) 376/2014 FOR UAS:	For the UAS operating in 'specific' category under authorisation, it should be reported the following occurrences: 1) Any operational safety-related occurrence resulting in a call to an emergency service (example: police, ambulance, civil guard or other military authority, fire brigade, etc.). 2) Unforeseen or uncontrolled fire, explosion, smoke, leakage of fluids, gases or toxic fumes in the unmanned aircraft, dangerous to persons or the environment. 3) Loss of control of the unmanned aircraft as a result of unlawful interference or unauthorised access. 4) A collision in the air or on the ground, with another aircraft, terrain or an obstacle (it can be a vehicle). 5) A near collision in the air or on the ground, with another aircraft, or an obstacle (it can be a vehicle) requiring an emergency avoidance manoeuvre to avoid a collision. 6) Airspace violation. 7) Uncoordinated flight of the UAS within an aerodrome protection zone or in controlled airspace or FIZ. 8) Technical failure (engine, rotor, propeller, fuel or electrical system, batteries or other essential system) resulting in a hazardous situation for the safety of persons, other aircraft, particularly critical installations (e.g. fuel storage facilities, air navigation services, petrochemical complexes, industrial installations, transport or service infrastructures, nuclear power plants, etc.) or environmental safety. 9) Termination of the flight, attributable to meteorological conditions, which caused damage to other aircraft, particularly critical installations (e.g. fuel storage facilities, air navigation services facilities, petrochemical complexes, industrial installations, transport or service infrastructures, nuclear power plants, etc.), the environment or serious injury to persons. 10) After starting the operation, any unforeseen situation which makes the remote pilot unable and which has rendered the safe completion of	Minor	accepted
284		A.1.11.1	16	277	The standard operating procedures (SOP) may contain: • Reporting procedures in case of: • damage to properties; • a collision with another aircraft; or • a serious or fatal injury (third party or own personnel)	I would separate between the mandatory and voluntary reporting. For the voluntary introduce some language to encourage it At least the last 2 bullet should not be under 'may' since they are mandatory		Minor	Accepted
462	Occurrence Reporting		17	276		There is currently some amount of confusion as what is an occurrence and what is not. The guidance speaks of damage to properties, collision with another aircraft and/or serious or fatal injuries and then mentions further below situations of loss of control or aircraft that actually landed somewhere else than intended which do not show the same level of severity than defined at the beginning of the guidance. I suggest to consolidate knowing that in SAIL I and II, a lot of companies could actually be testing drones that could have a lot of errors and malfunctions which in my understanding of the SORA do not necessarily need to be reported (unless loss of containment) due to the fact that the operation actually takes place over controlled ground areas or with low kinetic energy UAS or with appropriate M1 or M2 mitigations.	Consolidate this chapter to exclude potential duplication of definitions of events to be reported	Major	Partially Accepted
78		A.1.11.1 Occurrence Reporting (OSO #08, #11, #14, #21, M3)	17		• Aircraft operated without required licencing , registration, or Operational Authorisation	clarify if the term licencing makes reference to the remote pilot certificate or CofA/Design verification.		Major	Accepted
146	N/A	A.1.11.1	17	Editorial	When you are considering whether an occurrence is reportable, you should also consider other situations where the same thing could have happened.	This sentence should be reworded in the third person.	When considering whether an occurrence is reportable, it should be assessed if a more serious outcome may have occurred in a different operating environment. For example, the actual occurrence may have been 'benign' as it happened in a remote area. However, if the full scope of how the aircraft could be operated is considered, for example over people, could the same occurrence in a different situation result in a more serious outcome?	Major	Acknowledged
147	N/A	A.1.11.1	17	Minor	- Inter crew communication - Briefing - Competency oversights	We would like clarification on how these points should be understood, especially the last one. Should they be understood as mitigations to reduce the likelihood of confusion / liaison errors between flight crew members?	N/A	Major	Accepted
389			17		A.1.11.1 (4th sentence under guidance) "When you are considering whether an incident is reportable…"	Changed to address security and clarify request.	When considering whether an occurrence is reportable, operators should consider other situations where the same or similar incident could have happened. For example, the actual occurrence may have been 'benign' since it happened in a remote area.	Minor	Rejected
483		A.1.12 ERP	17	277	Emergency Response Plan (ERP) (M3)	Our experience shows, that operators often aren't able to write an ERP with medium robustness. Please provide more information on requirements and guidance.	See attachment. If you could compress the information within the attachment, operators may have better guidance and won't struggle anymore.	Major	rejected

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
438		Text	18	277	The applicant should: … The purpose of the ERP is to reduce the severity of the consequence of a loss of control, by procedurally limiting the harm to third parties and UAS operator personnel. The ERP is different from the emergency procedures which primarily deal with the handling of the UA. The emergency procedures should explain how the ERP is activated. The ERP should reflect the size, nature and complexity of activities performed by the organisation. The emergency response plan should: • Contain the action to be taken by the operator or specified individuals in an emergency • Provide for a safe transition from normal to emergency operations and vice versa • Ensure coordination with the ERPs of other organisations, where appropriate • Describe general emergency training across the organisation, including periodic retraining • Describe roles and clear delineation of responsibilities • Contain necessary checklists and procedures that must be followed by UAS operator personnel, that form the ERP • Contain any necessary 'quick reference guides' and contact information that may assist personnel in the implementation of the ERP • Describe how the UAS operator will interact with other agencies and organisations during implementation of the ERP, including local air traffic service units and the emergency services	Definitions of "operator" vs. "UAS operator" vs. "applicant" vs. "UAS operator personnel" vs. "organisation" should be used more clearly in this complete Annex.	The applying operation organisation should: … The purpose of the ERP is to reduce the severity of the consequence of a loss of control, by procedurally limiting the harm to third parties and the operation organisation. The ERP is different from the emergency procedures which primarily deal with the handling of the UA. The emergency procedures should explain how the ERP is activated. The ERP should reflect the size, nature and complexity of activities performed by the operation organisation. The emergency response plan should: • Contain the action to be taken by the operation organisation or specified individuals in an emergency • Provide for a safe transition from normal to emergency operations and vice versa • Ensure coordination with the ERPs of other organisations, where appropriate • Describe general emergency training across the operation organisation, including periodic retraining • Describe roles and clear delineation of responsibilities • Contain necessary checklists and procedures that must be followed by the operation organisation, that form the ERP • Contain any necessary 'quick reference guides' and contact information that may assist personnel in the implementation of the ERP • Describe how the operation organisation will interact with other agencies and organisations during implementation of the ERP, including local air traffic service units and the emergency services	Minor	Accepted
463	Mitigating the escalating effects of the situation		18	277		Include in the guidance that the ERP should mitigate the escalating effects of the situation by ensuring a proper response to the event. Note also that it should be clear that this section only applies whenever M3 has medium robustness and that it is currently not clear in the guidance what a high robustness ERP should contain?	To include in the guidance: " Mitigate the esclating effects of a loss of control and/or crash situation by ensuring a proper response to the event"	Minor	Accepted
285		A.1.12	18	278		Explain the scope of the ERP (for the befit of the operator personnel). The ERP may be provided as a different document or as an appendix. But it is operation and location specific	Explain the scope of the emergency response plan (ERP). Add in G: The ERP may be provided as a different document or as an appendix to the OM. In case of multiple ConOp a generic ERP may be provided with he adaptation needed for each ConOp, Similarly in case the operation is conducted in multiple locations.	Minor	Accepted
148	N/A	A.1.12	18	Minor	Provide for a safe transition from normal to emergency operations and vice versa	If Annex A is intended to be aligned with SORA Main Body v2.5 and its associated Annexes, it is to be taken into consideration that Annex B states that an adequate ERP is aimed at reducing the potential hazardous escalating / secondary effects after a loss of control of the operation. In any case, the safe transition from normal to emergency operations and vice versa may not always be possible. For this reason, we propose to delete this point.	Delete this point.	Major	Accepted
149	N/A	A.1.12	18	Minor	Identify what the triggers are for implementing the ERP, and what actions must be carried out for each situation. Include how the emergency is immediately promulgated to other aviation-related agencies, particularly in cases of a fly-away loss of control	We would like clarification on what is meant by "aviation-related agencies" and wonder whether "aviation-related organisations" may be more suitable.	**aviation-related organisations**	Minor	Accepted
79		A.1.12 Emergency Response Plan (ERP) (M3)	18			It would be useful to add a syllabus.	1. Functions and responsibilities of the personnel involved. 1.1. Emergency Response Manager (ERM). 1.2. Emergency Response Team (ERT). 1.3. Delimitation of responsibilities. 2. Emergency response elements. 2.1. Means 2.2. Material registration. 3. Situations and emergency categorization. 4. Procedures. 4.1. Transition from a normal operation to an emergency response phase. 4.2. Prioritization of actions 4.3. emergency registration 4.4. Handling of hazardous materials 5. List of contacts. 6. Checklist 7. ERP training and frequency of simulation exercises.	Minor	accepted
288		A.1.13	18	278	UAS maintenance within the organisation (OSO #03)	no need to specify that the maintenance is carried out within the organisation, this could not be always true	UAS maintenance (OSO #03)	Major	accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
286		A.1.13	18	279		Make the requirement not peculiar to an operation. Morover delete the G part and move to the operaiton specific chapter	This section should describe or provide references to: • Describe the maintenance organisation, if required, to include any third-party organisations as required • Describe the general maintenance philosophy of the UAS • Detail the system to ensure competence of the maintenance staff and any authorisations required, to include a system to record staff authorised to carry out maintenance • Describe the maintenance logging system From SAIL III upwards Detail how the maintenance program is developed and any associated standards used. From SAIL V upwards Detail how the maintenance procedure manual is developed.	Major	Rejected
390			18		A.1.11.1 guidance Interaction with other airspace users and the public (from previous page)	Add these two bullets under this heading to address these 3rd party interactions	• Intentional damage of an aircraft by a 3rd party. • Intentional interference with an aircraft by a 3rd party.	Minor	Accepted
391			18		A.1.11.1 guidance "Other emergencies - Any occurrence where the safety of the aircraft,"	Please add security concerns	"Other emergencies - Any occurrence where the safety and security of the aircraft,"	Minor	Rejected
392			18		A.1.12 The applicant should: " • Describe the procedures to limit the escalating effects of a crash; and"		• "Describe the procedures to limit the escalating effects of a crash or hijacking; and"	Minor	Rejected
393			18		A.1.12 (1st bullet under ERP guidance) The emergency response plan should: • Contain the action to be taken by the operator or specified individuals in an emergency	Please add security concerns	The emergency response plan should: • Contain the action to be taken by the operator or specified individuals in an emergency including, but not limited, to loss of command and control, physical, or cyber threats.	Minor	Rejected
289		A.1.13	19	278	This section should describe or provide references to: • Describe the maintenance organisation, if required, to include any third-party organisations as required • Describe the general maintenance philosophy of the UAS • Detail the competence of the maintenance staff and any authorisations required, to include a system to record staff authorised to carry out maintenance • Describe the maintenance logging system From SAIL III upwards Detail the maintenance program and any associated standards. From SAIL V upwards Detail the maintenance procedure manual.	paragraph reworded with the aim to improve clarity	This section should describe or provide references to: • The maintenance instructions • the competence required for the maintenance staff • A list of persons authorised to carry out maintenance on the UAS and a system to record evidence of their competence • the log system for the maintenance records From SAIL III upwards Detail the maintenance program. Details the procedure to release maintenance Details the competence required for the maintenance release staff Details the list of maintenance release staff From SAIL V upwards Detail the maintenance procedure manual. Describe recurrent training programme for maintenance release staff	Minor	Accepted
290		A.1.13	19	278	From SAIL III upwards The maintenance program and any associated standards should be part of this ConOps. This can be provided as a separate manual.	it is proposed to add one sentence at the end of SAIL III upwards	From SAIL III upwards The maintenance program and any associated standards should be part of this ConOps. This can be provided as a separate manual. • Description of scheduled maintenance intervals, timescales, and associated tasks	Minor	Accepted
225	UAS configuration management (OSO #02, #03, #07, #11, #14, #21)	A.1.13.1	19	279	Describe the process for introducing new UAS into the operation and how product conformity is assessed to meet the limitations of the approved ConOps.	Text "Describe the process for introducing new UAS into the operation" not clear. "Product conformity assessment" is not part of the Configuration management process but the "design assurance process". This process is should be described within the organization but in a different section.	To remove the mentioned text.	Major	Accepted
237		A.1.13.1	19	279	Describe the process for introducing new UAS into the operation and how product conformity is assessed to meet the limitations of the approved ConOps .	New UAS could be misunderstood: New type of UAS or new UAS flights (of the same UAS type) If its UAS types then add: "if applicable" as the operation could be generally linked to one type of UAS only and maybe for new UAS.	Describe the process for introducing new UAS types (if applicable) into the operation and how product conformity is assessed to meet the limitations of the approved ConOps .	Major	Accepted
464	UAS configuration management		19	279		While this section makes complete sense if the design has been verified or if the design fulffills certain standards, it is not very clear how this should apply in SAIL I and II where the only technical requirements is the complying with containment (FTS etc..) . In this context the design of the drone does not fulfill any standards and any modification does not impact SORA compliance as such. I would like to remind here that SAIL I and II were actually originally thought to be able to easily test different sorts of UAS and modifying the design easily.	I suggest specifying that changes should be managed but that an actual change management with version control and modification standard of the hardware and software is not expected below SAIL III.	Major	Rejected
294		A.1.15	19	281	Logs and records (OSO #01)		Logs and records (OSO #01, OSO #03)	Editorial	Accepted
291		A.1.13	19	278	SAIL V and VI The maintenance procedure manual should include information and procedures relevant to the maintenance facility, record keeping etc. This can be provided as a separate manual. Note: For all SAIL scores Competent Authorities may request maintenance and inspection logs.	reworded to increase clarity regarding expectations	SAIL V and VI The maintenance procedure manual should include information and procedures relevant to the maintenance facility, tools, material, record keeping, how the modifications, defects and repairs are managed, etc. This can be provided as a separate manual. Note: For all SAIL scores Competent Authorities may request consultation of the maintenance logs system.	Editorial	Accepted
439		Text	19	279	Describe how the operator manages changes to the UAS configuration.	Definitions of "operator" vs. "UAS operator" vs. "applicant" vs. "UAS operator personnel" vs. "organisation" should be used more clearly in this complete Annex.	Describe how the operation organisation manages changes to the UAS configuration.	Minor	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
150	N/A	A.1.13	19	Editorial	- Describe the maintenance organisation, if required, to include any third-party organisations as required - Describe the general maintenance philosophy of the UAS - Detail the competence of the maintenance staff and any authorisations required, including a system to record staff authorised to carry out maintenance - Describe the maintenance logging system	The verbs at the beginning of these bullets points are not needed. They should be removed.	- the maintenance organisation, if required, to include any third-party organisations as required - the general maintenance philosophy of the UAS - the competence of the maintenance staff and any authorisations required, to include a system to record staff authorised to carry out maintenance - the maintenance logging system	Minor	Accepted
153	N/A	A.1.13	19	Editorial	The relevant maintenance instructions should be referenced here, however, these can be separate to the ConOps.	Replace "separate to" with "separated from"	The relevant maintenance instructions should be referenced here, however, these can be separated from the ConOps.	Minor	Accepted
151	N/A	A.1.13	19	Minor	N/A	If Annex A is intended to be aligned with SORA Main Body v2.5 and its associated Annexes, it is to be considered that OSO #03 of Annex E requires the UAS operator to have "UAS operator maintenance instructions and requirements" defined for a Low (L) level of integrity. This should be reflected here.	**R** **From SAIL I upwards** **Detail the UAS operator maintenance instructions and requirements.** **G** **From SAIL I upwards** **The UAS operator maintenance instructions should contain the information establishing how to carry out the needed maintenance/repairs and the UAS operator maintenance requirements should cover the needs for maintenance on the UAS.**	Major	Accepted
152	N/A	A.1.13	19	Minor	N/A	If Annex A is intended to be aligned with SORA Main Body v2.5 and its associated Annexes, this section A.1.13 on UAS maintenance should be updated in line with the ongoing update of Annex E.	If Annex A is intended to be aligned with SORA Main Body v2.5 and its associated Annexes, update it in line with the ongoing update of Annex E.	Major	Accepted
154	N/A	A.1.13	19	Minor	Note: For all SAIL scores Competent Authorities may request maintenance and inspection logs.	The concept of inspection has not been mentioned before in this section on UAS maintenance.	This specific comment should be considered when adressing the general comment #32 (two rows above).	Minor	Acknowledged
155	N/A	A.1.13.1	19	Minor	A.1.13.1 UAS configuration management (OSO #02, #03, #07, #11, #14, #21)	Add OSO #08.	A.1.13.1 UAS configuration management (OSO #02, #03, #07, #08, #11, #14, #21)	Minor	Accepted
80		A.1.13 UAS maintenance within the organisation (OSO #03)	19			It is needed to include SAIL I and II with Low Level of Rosbustness	SAIL I and II Detail the maintenance instructions are documented, log system and list of maintenace staff.	Minor	Yes
81		A.1.13.1 UAS configuration management (OSO #02 , #03, #07, #11, #14, #21)	19			The tittle is not consistent with the description		Minor	Rejected
82		A.1.13.1 UAS configuration management (OSO #02 , #03, #07, #11, #14, #21)	19			If it is a marketed UAS, only modifications authorized by the manufacturer could be made		Minor	accepted
83		A.1.13.1 UAS configuration management (OSO #02 , #03, #07, #11, #14, #21)	19			The introduction of a new UAS into the operation related with an approved ConOps, implies the implication of the Authority throughout a new authorisation or update of an issued athorisation (miror/major change)		Minor	accepted
394			19		A.1.12 (8th bullet under ERP guidance) • Describe how the UAS operator will interact with other agencies and organisations during implementation of the ERP, including local air traffic service units and the emergency services	Please add Law Enforcement.	• Describe how the UAS operator will interact with other agencies and organisations during implementation of the ERP, including local air traffic service units, law enforcement, and the emergency services	Minor	Rejected
395			19		A.1.13 UAS Maintenance	Add two requirements bullets to capture security needs	• Describe how batteries and other hazardous material systems are stored and tested. • Describe process for acquiring, returning, refurbishing and tracking parts.	Minor	Rejected
209			20	280	A.1.14 Security and Privacy	No recommendation, nor guidance about the Privacy is included		Minor	Accepted
157	N/A	A.1.14	20	Minor	A.1.14 Security and Privacy	Privacy is not addressed in the Recommendations (R) section below. Delete "and Privacy".	A.1.14 Security	Minor	Accepted
238		A.1.14	20	280	Security and Privacy	Link to Cyber Annex	Link to JARUS Cyber Annex	Minor	Accepted
440		Text	20	281	Explain how logs and records are stored within the organisation.	Definitions of "operator" vs. "UAS operator" vs. "applicant" vs. "UAS operator personnel" vs. "organisation" should be used more clearly in this complete Annex.	Explain how logs and records are stored within the operation organisation.	Minor	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
158	N/A	A.1.15	20	Editorial	- Copies of any authorisations issued, including any other permissions received, such as airspace access permission.	Replace "issued" with received"	- Copies of any authorisations received, including any other permissions received, such as airspace access permission.	Minor	Accepted
160	N/A	A.1.15	20	Major	- Pilot competency records	See proposed text to stay in line with OSO #09, #15, and #22	**- Remote crew competency and/or training records**	Minor	Accepted
161	N/A	A.1.15	20	Major	- Any relevant support staff such as maintenance personnel competency records	See proposed text to stay in line with OSO #03	Any relevant qualifications, experience and/or training completed by the maintenance staff	Minor	Accepted
156	N/A	A.1.13.1	20	Minor	Examples of change management include version control and the utilisation of modification standards.	We would like clarification on what type of modification standards are considered here.	N/A	Minor	Acknowledged
159	N/A	A.1.15	20	Minor	- Modification records	If Annex A is intended to be aligned with SORA Main Body v2.5 and its associated Annexes, the following text is proposed to stay in line with updated OSO #07.	**- UAS conformity checks and modification records**	Minor	Accepted
396			20		A.1.13.1 UAS Configuration Management ®	Add third "Describe" sentence to capture security concerns.	**Describe the process for new and updated UAS operator and support staff training.**	Minor	Rejected
397			20		A.1.14 Security and Privacy	Please emphasize that physical security considerations should include the operator and the control station	Describe the physical security of system elements and assets, for example ensuring adequate physical protection is afforded to system assets, including the operator and control station	Minor	Rejected
398			20		A.1.14 Security and Privacy	Add third "Describe" sentence to capture security concerns.	**Describe measures to mitigate security risks and threats to the UAS system, data stream, and people and property on the ground and in the air, as well as mitigation actions.**	Minor	Rejected
513			20			A description of the purpose limits the applicability of the ConOps, e.g. if the purpose is infratructure inspection it is not possible to film		Minor	Rejected
292		A.1.16	21	284		The title should reflect better the content	~~Detailed Recommendations and Guidance – OperationsSpecific operation information~~	Minor	Partially Accepted
441		Text	21	286	UAS operator.	Definitions of "operator" vs. "UAS operator" vs. "applicant" vs. "UAS operator personnel" vs. "organisation" should be used more clearly in this complete Annex.	operation organisation.		Acknowledged
442		Text	21	291	• Dropping or dispensing or articles, to include aerial spraying	Typo/Spelling	• Dropping or dispensing of articles, including aerial spraying	Minor	Accepted
226	Area(s) of operation and volumes of airspace considerations (GRC determination, M1, ARC determination, Strategic Air Risk mitigation)	A.1.16.2	21	293	Detail the population density and the source of the data used.	"Detail the population density" should be limited to evaluate that the area to be overflown complies with the maximum density allowed by the CONOPS. Examples or sources to get the data to evaluate the population density are required.	The population density of the area to be overflown should not exceed the maximum allowed population density declared in the CONOPS.	Minor	Rejected
4		A.1.16.1	21	261	VLOS, EVLOS and/or BVLOS.	Different considerations if remote pilot is at a different location	Change to "VLOS, EVLOS, BVLOS with remote pilot on-site, and/or BVLOS with remote pilot off-site"	Minor	Rejected
34		A.1.16 Operational information	21	290 G	For any question that involves the carraige of dangerous goods, a separate authorisation should be obtained	Could this be part of the authorisation and not be separate?		Minor	Rejected
293		A.1.16	21	285		Add the text in red	The following sections should provide information regarding the operations to be conducted by the UAS operator. In case of multiple ConOps, the following sections could be replicated, one for each individual ConOps . Note: when seeking an authorisation for one or more ConOps, applicants may coordinate and agree with the Competent Authority the format of the submission. See paragraph A.0.4 for further information. In case the OM includes multiple operations an introductory chapter A.3 should be introduced listing the operations. Than for each of them the following chapters should be introduced. IN this case the chapter level will be increased of 1 (e.g. next chapter will be A.2.1.1 for the first operation, A.2.2.1 for the second operation etc…)	Major	accepted
465	Type of Operation		21	292/293/294		A good part of the content of this section is actually redundant with the SORA evaluation itself. I suggest in order to avoid duplication and confusion to specify that information on the type of operation, the area of operation, airspaces used and operating limitation may be included here or may be available in the SORA evaluation itself but that duplication is not required.		Major	Accepted
84		A.1.16.2 Area(s) of operation and volumes of airspace considerations (GRC determination, M1, ARC determination, Strategic Air Risk mitigation)	22		Applicants could provide the geographic data for the required location descriptions in a digital format or format acceptable to the Competent Authority.	It should be mandatory at least a geographical explanation (drawing in a map or simmilar) of the operational volumes for a representative location	Applicants shall provide the geographic data for the required location descriptions in a digital format or format acceptable to the Competent Authority.	Major	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
295		A.1.16.2	21	293		Make this more for the benefit of the operator personnell	Describe the proposed area(s) of operation(s). Describe the following: • Operational volume, consisting of flight geography and a contingency volume • Ground risk buffer • Relevant adjacent area/airspace for the intended location of the operation Detail the population density and the source of the data to be used . Detail the Air Risk characterisation and the source of the data to be used ..... Applicants could provide use the geographic data for the required location descriptions in a digital format or format acceptable to the Competent Authority.	Major	Accepted
443		Text	22	294	Allowable weather conditions • Consider the aircraft performance limitations as outlined in Section A.2	Hot engine parts and fumes can cause fires at start/landing sites as well as on crash sites.	Allowable weather conditions • Consider the aircraft performance limitations as outlined in Section A.2 • Consider the wood and grasland burning indizes	minor	Rejected
313			22	309		Add a new chapter name and the suggested paragraph	Information peculiar to the location of operation The following chapters may be repeated for each authorised location if an adaptation of the procedures is needed	Minor	Acknowledged
314			22	309		Add a new Chapter	A.2.5 Revised procedures and adaptation to ERP to location xxx R: For the approved location xx List the operational, contingency and emergency procedures List the adaptation needed to the ERP G: In case the operation is conducted in multiple locations requiring the adaptation of the procedures and the ERP to meet the local conditions, this should be described in the following paragraph. The operator should replicate the paragraph for each location.	Minor	Acknowledged
315			22	309		Add a new Chapter	A.2.6 Additional information R: Detail any additional information about the operation(s) but has not already been covered in this section.	Minor	Accepted
210			22	296	A.1.17 Strategy and Procedures	This section is not fully in line with Annex E, E.3 OSOs related to operational procedures of SORA, while at the same time in line with terms used in SORA semantic model, and therefore it is confusing. E.g. a new term "Standard Operating Procedures (SOP)" is used - often interpreted differently and might cover procedures to cope with abnormal situations and emergencies.	Align this section with Annex E, E.3 OSOs related to operational procedures of SORA and consider the following structure of this section: A.1.17.1. Normal procedures A.1.17.x [sub-sections with procedures to be A.1.17.2. Contingency procedures A.1.17.3. Emergency procedures	Minor	Accepted
466	Normal Operating Strategy		23	297		In my understanding the description entailed in this chapter could as well be part of the subsequent chapters on SOP, task feasibility assessment, notification to relevant third parties and communciations etc. I suggest to simplify and to include the information required in A.1.17.1 in the subsequent chapters and to delete A.1.17.1		Minor	Accepted
211			23	297	Normal operating strategy	Even though this section makes sense, it is confusing at the same time because of duplicating/wrapping up the information that is already available in multiple other sections. In addition, should there be a section "Abnormal operating strategy"		Minor	Accepted
297		A.1.17	22	296	To be added if required	Not sure what we ask, example needed, or delete		Minor	Partially Accepted
35		A.1.17 Strategy and Procedures	22	295 R & G	Describe the overarching operation princioples. To be added if required	What might such overarching principles be? Under what cirumstances would this description be required? Please provide an example.		Minor	Acknowledged
162	N/A	A.1.16.2	22	Minor	- The type and class of airspace to be used (e.g., segregated area, fully integrated, etc)	The class of airspace is not addressed in the e.g. next.	- The type (e.g., segregated area, fully integrated, etc) and class of airspace to be used	Minor	Accepted
399			22		A.1.16 Operational Information Guidance	Please clarify what is meant by Dropping or dispensing or articles… what is meant by "articles"?	Dropping or dispensing anything, to include aerial spraying	Minor	Rejected
400			22		A.1.16.1 Type(s) of operation	Please add summary of potential risks and mitigation efforts	**Describe the type of operation(s) the operator intends to carry out (i.e. VLOS, EVLOS, BVLOS) and any potential risks and mitigation efforts.**	Minor	Rejected
227	Normal operating strategy (GRC and ARC determination, OSO #13, #16, Step #9)	A.1.17.1	23	297	Coordination with ANSP	Not in all cases the coordination with ANSP is required.	As in previous bullet, add "if applicable": • Coordination with ANSP, if applicable.	Minor	Accepted
242	USSP in OSO13	A.1.17.1	23	297	Consider inclusion of information on necessary third-part service providers if utilised in support of the operation: UTM service provider.	USSP (and maybe CISP) should be considered in the new loop, according to the new regulation.	The ability to rely on the services of a certified USSP should be included in some OSOs. The certificate that will make it USSP will be a valid guarantee for the low, medium and high levels of robustness. It should be considered all the external system factors, and evaluate for which of these a USSP can guarantee the safety and the copliance with the robustness. In my opinion, the concept of OSO13 should be broadened and differentiated according to the different technological solutions that a USSP can offer.	Minor	Acknowledged
299		A.1.17.1	23	297	• Crew training, to include multi-crew coordination, if applicable	Crew training should be dealt with elsewhere. Here we would expect operational procedures for crew coordination. See also our comment on the training section below.		Major	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
36		A.1.17.1 Normal operating strategy (GRC and ARC determination, OSO #13, #16, Step #9)	23	296 R	Describe the safety measures, that	Also indent "Describe"	Describe the safety measures that	Editorial	Accepted
163	N/A	A.1.16.3	23	Minor	- Allowable weather conditions	'weather conditions' should be replaced with 'environmental conditions' to stay in line with updated OSO #23. Environmental conditions include meteorological conditions such as wind, rain, and icing, as well as external factors that may interfere with the performance of systems such as HIRF.	- Allowable environmental conditions	Editorial	Accepted
296		A.1.16.4	22	295		OM should just say which UAS can be used	List all models of UAS approved to be used for this operation and their main operational limitations (e.g environmental conditions etc..). The detailed information on the UAS, described in chapter A.3, may be provided in an appendix to the OM. Explain the limitations in place for cases where the UAS operator seeks to operate various different types of UAS. Examples: limitations for the class of UA, weight, manufacturer and/ or model. A UAS may be used for multiple approved operations. In this case its description may be provided in an appendix to the OM and here a reference may be sufficient. Otherwise the UAS description may be provided here, following the structure of chapter A.3,	Major	Accepted
164	N/A	A.1.16.4	23	Minor	Examples: limitations for the class type of UA, weightmass, manufacturer and/ or model.	"class" should be replaced with "type" to avoid misunderstanding with the class marking used by EASA in the 'open' category; "weight" should be replaced with "mass"	Examples: limitations for the type of UA, mass, manufacturer and/ or model.	Minor	Acknowledged
401			23		A.1.16.2 Area (end of section)	Please change "applicant could provide" to "applicant should provide"	Applicants should provide the geographic data for the required...	Editorial	Accepted
5		A.1.17.2	24	261	New	The SOP should include the standards for crew communication to other organizations too	Add to bottom of guidance "Terminology, phrasing, and method to communicate such as: emergencies with ATC, maintenance actions, required crew actions, etc."	Minor	Acknowledged
298		A.1.17.2	24	298		Why describe the SOP? Here we need them Should it not be merged within the flight procedures chapter listed later?	~~Describe Include the standard operating procedures (SOP) applicable to all approved operations for which an approval is requested.~~	Minor	Accepted
491		A.1.17.2	24		SOP	In my mind the SOP are provided in A.1.17.3 thorugh A.1.17.11	Delele A.1.17.2 or make it an introduction to the following.		Acknowledged
212			24	298	Term "Standard Operating Procedures (SOP)" is often interpreted differently and is confusing.		Use "Normal procedures" instead of "Standard Operating Procedures (SOP)"	Minor	Acknowledged
213			24	298	The procedure for multi-crew coordination if more than one person is directly involved in the flight operations.	It could be complemented with a guidence of designation of the remote pilot-in-command in case of more than one remote pilot is nominated for UAS operation.	The procedure for multi-crew coordination if more than one person is directly involved in the flight operations. In case of more than one remote pilot is nominated for UAS operation, the procedure for designation of the remote pilot-in-command	Minor	Accepted
228	Task feasibility assessment	A.1.17.3	24	299	Describe the process to determine the feasibility of each intended task. For example, explain how the relevant aspects associated with the operation are assessed and prioritised.	Unclear to understand what are the tasks mentioned in this paragraph.Or what are the "relevant aspects" associated with the operation.	More explanation is required.	Major	accepted
467	Site planning assessment		24	300		Note that if one should describe the process to carry out a site assessment, it probably makes sense to check compliance with the ground risk of the operational volume and ground risk buffers at this stage as well for efficiency reasons and because it is strongly linked. Since here the site planning procedures should be described, it implicitly means that there is sufficient amount of trust with the applicant to evaluate such an area on its own and that the SORA is not location specific which is in slight contradiction with A.1.16.2 where the exact location is actually required. In order not to confuse applicants and authorities, I suggest merging both chapters and specifying that there is the possibility to describe each and every little detail of the area where the flight will take place OR to describe the procedures intended for site-assessment depending on the compentent authority confidence to the intended operation and its associated risks.		Major	Partially Accepted
85		A.1.17.4 Site planning assessment	24		Describe the process to carry out a site assessment.	It should be also included for generic authorisation the description of the process to identify/assess the local conditions and their compliance to the limitations given by the authorisation, alined with GM2 UAS.SPEC.030(2)	Describe the process to carry out a site assessment. Describe the process to identify/assess the local conditions and their compliance to the limitations given by the authorisation.	Minor	Rejected
6		A.1.17.4	25	261	New	Under guidance missing main factor for services	Add to site planning assessment guidance factors bullete "Access to third party and emergency services"		Acknowledged
37		A.1.17.4 Site planning assessment	24	299 R		Please clarify that site planning does not include en route, but only takeoff and landing		Minor	Acknowledged
166	N/A	A.1.17	24	Major	Consider the inclusion of information on necessary third-party service providers if utilised in support of the operation.	Replace "third-party service providers" with "external services supporting the UAS operation" to stay in line with OSO #13.	Consider the inclusion of information on necessary external services supporting the UAS operation, if any.	Editorial	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
165	N/A	A.1.17	24	Minor	- The technical means required for the support of multi-crew operations.	Technical means' does not cover the use of a proper phraseology, which is in line with OSO #16. For this reason, 'technical' should be deleted and the following text should be added at the end: "including the communication devices".	- The means required for the support of multi-crew operations, including the communication devices	Editorial	Accepted
404			24		A.1.17.1 Requirements main bullet , 2nd to last sub-bullet • The technical means required for the support of multi-crew operations	Suggest changing text to simplify and clarify request.	Suggest: "The technical operating requirements necessary to support multi-crew operations."	Editorial	Accepted
167	N/A	A.1.17	24	Minor	- UTM service provider	If Annex A is intended to be aligned with SORA Main Body v2.5 and its associated Annexes, the following should be added: "including surveillance Supplemental Data Service Provider (SDSP) and weather SDSP" to stay consistent with updated OSO #13.	UTM service provider, including surveillance Supplemental Data Service Provider (SDSP) and weather SDSP	Editorial	Accepted
168	N/A	A.1.17	24	Minor	For example: - UTM service provider - C2 link service provider - Navigation services - Communication services - Surveillance services	If Annex A is intended to be aligned with SORA Main Body v2.5 and its associated Annexes, the following should be added: "External electrical power provider" to stay consistent with updated OSO #13.	For example: - UTM service provider - C2 link service provider - Navigation services - Communication services - Surveillance services - External electrical power provider	Editorial	Accepted
403			24		A.1.17.1 (7th sub-bullet under 1st main bullet)	Please add reference to other traffic services such as UTM.	Use of air traffic control services or cooperative traffic management services (e.g. UAS Traffic Management)	Editorial	Accepted
402			24		A.1.17.1 Normal Operating Strategy	Add "security" to safety measures in 2nd and third bullets	General safety and security measures Specific safety and security measures	Minor	Rejected
405			24		**A.1.17.1 Requirements 2nd main bullet - Describe the safety measures, that are put in place to ensure that the UAS can fulfil the operation within the approved limitations, and so that the operation remains in control.**	Clarified text and added security requirements.	**Describe the safety and security measures, that are put in place to ensure that the UAS can fulfil the operation within the approved limitations, and so that the operator remains in control.**	Minor	Rejected
406			24		A.1.17.1 Guidance - This section should also describe the mitigation measures implemented to reduce the risks, if any	Both safety and security risks need to be included in 2nd sentence.	This section should also describe the mitigation measures implemented to reduce the safety and security risks, if any	Minor	Rejected
302		A.1.17.5	25	301	It may be necessary to inform local police of the planed flight to avoid interruption or concerns from the public.	And/Or local authorities could be added		Minor	Accepted
38		A.1.17.5 Notificaiton to third parties	25	300 G	All efforts should be made to inform third parties within the flight volume, which may be in close proximity to the UA, and obtain any necessary agreeement	Delete as overly broad and impractical. Is this limited to takeoffs and landings?		Minor	Accepted
169	N/A	A.1.17.2	25	Major	N/A	The following elements in line with OSOs #08, #11, #14, and #21 are not explicitly considered in this Annex A: - "procedures to evaluate environmental conditions before and during the operation (i.e., real-time evaluation)"; - "procedures to cope with unintended adverse operating conditions (e.g., when ice is encountered during an operation not approved for icing conditions)".		Major	Accepted
8		A.1.17.6	26	261	new	Just having a communications license doesn't mean it is valid for planned operation	Add bullet at bottom of guidance "The operator must ensure the communications license is appropriate for the planned operation. Some licenses are specific to regions or type of operations (e.g. not flight worthy)."	Minor	Accepted
7		A.1.17.6	26	261	Any specific phraseology used by the operator for communication between flight crew should be detailed and included as part of any training for the remote crew.	Suggest cover as part of SOP in A.1.17.2	Replace last sentence in guidance with "Terminology and phrasing should be in the SOP; see A.1.17.2" Consider changing section header to "Communications devices"	Minor	Accepted
170	N/A	A.1.17.4	26	Minor	- Weather considerations	Weather' should be replaced with 'environmental' to account for external factors that may interfere with the performance of the systems, such as HIRF.	- Environmental considerations	Minor	Accepted
407			26		A.1.17.4 Site Planning Assessment	Please add bullet under Guidance after Weather Considerations.	Reflectivity/visibility considerations (i.e., potential impacts from sunlight and/or artificial light sources)	Minor	Accepted
300		A.1.17.7	26	303		This will be a chapter for a single operation	Explain the weather limits for the operation(s).	Minor	Accepted
171	N/A	A.1.17.5	26	Minor	It may be necessary to inform local police of the planned flight to avoid interruption or concerns from the public.	Rather than 'local police', it may be more suitable to refer to 'local institutions and law enforcement authorities'.	It may be necessary to inform local institutions and law enforcement authorities of the planned flight to avoid interruption or concerns from the public.	Minor	Accepted
408			26		A.1.17.5 Notification to relevant third parties	Please add sentence under "Requirements"	**Describe what minimum information should be provided to third parties.**	Minor	Partially Accepted
86		A.1.17.6 Communications	26		Detail any licences that may be needed for use of any communication equipment	This is already included in the point A.1.10.1		Minor	Acknowledged
307		A.1.17.8	27	304	Assembly and functional checks	there may not always be an 'assembly' before flight	Pre-flight Assembly and inspection (OSO #03, OSO#07)	Minor	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
308		A.1.17.8	27	304	Describe the checks to be conducted after the system has been assembled. Examples of assembly and functional checks that should be conducted: • Visual inspection of the aircraft and its structure to ensure the security of objects such as access panels, engines/motors, propellers/rotors, landing gear and external loads • Check batteries are correctly installed • Check the C2 link is functioning • Check any flight termination devices are functioning correctly • Check all electrical and avionics equipment is serviceable and functioning • Check the flight controls and engines/motors function correctly • Check the payload release mechanism(s) function correctly • Complete items detailed by the UAS manufacturer	the points listed here are “pre-flight checks” (which can be done by the pilot), not maintenance; see also A.1.17.9. For this reason it is proposed to deleted them	Describe the assembly and associated checks (if applicable) and pre-flight inspection. Assembly and associated checks: follow UAS manufacturer instructions Pre-flight inspection should include: • Visual inspection of the aircraft and its structure to ensure the security of objects such as access panels, engines/motors, propellers/rotors, landing gear and external loads • Check batteries are correctly installed Complete items detailed by the UAS manufacturer	Minor	Accepted
444		Text	27	304	• Visual inspection of the aircraft and its structure to ensure the security of objects such as access panels, engines/motors, propellers/rotors, landing gear and external loads	security = protection of systems against external threats, safety = protection of systems/environment against system inherent failure	• Visual inspection of the aircraft and its structure to ensure the safe condition of objects such as access panels, engines/motors, propellers/rotors, landing gear and external loads	Minor	Accepted
301		A.1.17.9	27	305		Should we merge with the chapter of SOP? We should have here the actual procedure…not just a description	~~Describe Include the pre-flight check procedures that should be conducted immediately prior to flight.~~ ~~Describe Include the in-flight procedures and checks.~~ ~~Include Describe the post-flight checks.~~ ~~Include Describe the logging requirements after each flight.~~ ~~Include Describe the process for reporting defects and maintenance actions.~~ ~~Include Describe the de-brief process, and how this is logged.~~	Major	accepted
309		A.1.17.9	27	305	Describe the process for reporting defects and maintenance actions.	no maintenance actions are expected here	Describe the process for reporting defects	Editorial	Accepted
445		Text	27	305	Provide any checklists used to support these items and explain which (if any) items are memory items.	memory items are not common in context of aviation	Provide any checklists used to support these items and explain which (if any) items are mandatory items.	Editorial	Accepted
446		Text	27	305	• Check the reported and actual battery/fuel capacity is sufficient for the flight	sufficient refers only to a lower limit, while "appropriate" means an optimum	• Check the reported and actual battery/fuel capacity is appropriate for the flight	Editorial	Accepted
89		A.1.17.9 Flight procedures	27		• Check the reported and actual battery/fuel capacity is sufficient for the flight • Check the C2 link and any functions associated with the loss of the link operate correctly • Check the GNSS is receiving sufficient satellites to begin the flight • Check the navigation system or command unit is programmed with the correct route information • Check the flight controls and engines/motors function correctly	This points could be included in the bullet A.1.17.8. This prefilght checklist shoud be more operational to avoid repeat information.		Editorial	Accepted
303		A.1.17.9	27	305		We should have here the actual procedure…not just a description	~~Detail Include the required contingency procedures and describe how these procedures return the operation to a normal state or allow safe cessation of the flight~~	Minor	Accepted
87		A.1.17.9 Flight procedures	27		Describe the pre-flight checks that should be conducted immediately prior to flight.	This should be already described in A.1.17.8		Editorial	Accepted
88		A.1.17.9 Flight procedures	27		• Communications: • Explain any on site communication procedures not already covered in section 4.7 above	This should be deleted in order to avoid repeat information.		Editorial	Accepted
9		A.1.17.9	28	261	new	procedures need to cover all information needed to ensure safe operations	Add bullet under pre-flight examples "Check interfaces with external systems (e.g. remote ID, internet connections, UTM, surveillance, etc.)"	Minor	Accepted
492		A.1.17.9	27			Nowhere does it mention contingency procedures	Add seprate section for contingency procedures or include in A.1.17.9	Major	Accepted
172	N/A	A.1.17.10	29	Minor	Examples for contingencies to be considered:	Although this is not explicitly mentioned in Annex E, adverse operating conditions should be considered as another example for contingency.	**- Adverse operating conditions**	Major	accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
214			28	306	A.1.17.10 Contingency Procedures	More guidance and examples would be preferred	Any applicable normal and failure indications should be provided and included in appropriate checklists. Applicable preventative measures should also be considered. In cases where UAS operation supported by observers, the phraseology to be used should be described. In order to help properly identify the procedures related to the deterioration of external systems supporting the UAS operation, it is recommended to: (a) identify the external systems supporting the operation (e.g. GNSS, LTE network, USSP service etc.); (b) describe the deterioration modes of these external systems which would prevent the operator maintaining a safe operation of the UAS (e.g. complete loss of GNSS, drift of the GNSS, latency issues etc.); (c) describe the means put in place to detect the deterioration modes of the external systems; and (d) describe the procedure(s) in place once a deterioration mode of one of the external systems is detected (e.g. activation of the emergency recovery capability, switch to manual control, etc.).	Major	Accepted
304		A.1.17.10	28	306		We should have here the actual procedure…not just a description	~~Detail Include the emergency procedures to be carried out after an event that leads to a loss of control of the operation. This should include appropriate checklists as required.~~	Major	Accepted
409			28		A.1.17.8 Assembly and functional checks: Check the C2link is functioning.	Please add information to address security concerns	Check that the C2 link is functioning, including from back-up systems	Minor	Rejected
305		A.1.18	29	308		please add the suggested text	Explain the composition of the remote crew and associated support staff. Explain the responsibilities and duties of the remote crew personnel and support staff, Describe the required remote crew competence for the proposed operation(s).	Minor	Accepted
306		A.1.18	29	308			In the G section pleas add: • Support personnel. Examples of support personnel: • Visual observer • Launch/recovery crew • Radio operators • Maintenance (if directly involved in flight operations) Note: It is not necessary to include the names of the individuals who hold these roles.	Minor	Accepted
410			29		A.1.17.9 Examples of pre-flight checks and procedures that may be necessary	Suggest adding text to capture preflight checks of RID and various other sensors.	Added bullets - "Confirm Remote ID operation - Confirm operation of sensors needed for navigation or surveillance, including DAA"	Minor	Accepted
311		A.1.17.11	31	307	• Abnormal environmental conditions	What is meant by environmental conditions? Is it weather or something else? Eletromagnetic interferences?		Minor	Accepted
215			29	308	A.1.18. Remote crew competence	This should be a separate section	A3: Training information	Major	Accepted
312		A.1.18	29	308	If more than one person is directly involved in flight operations, training should cover multi-crew coordination.	This is what I meant in my comment before. The element of multi crew coordination is well placed here.		Major	Accepted
310			30	309	Describe the processes and procedures that the UAS operator uses to qualify all staff involved in operations.	Do we need this here? It is not relevant for the personnel… Maybeit shoud be in the risk assessment		Major	Accepted
493		A.1.18	29		Remote Crew Competence	Sections A.1.18 will fit better in the document under section A.1.10	Move to section A.1.10	Major	Accepted
411			30		A.1.17.9 after "Debrief the flight crew…"	Add sentence at end of this section	Log and download any system data obtained by the vehicle if not automatically downloaded via the operator link.	Minor	accepted
412			30		A.1.17.10 - Add bullet after "Degradation a C2 Link"	To capture security concerns	• Loss of C2 link (hostile/criminal act) that could lead to loss of vehicle and/or data	Minor	Rejected
173	N/A	A.1.18.1	31	Minor	Note: The competency requirements for the remote pilots should be set out. There may be additional competence and training requirements specific to the operator and the operation that need to be addressed. These may be over and above the basic requirements of the Competent Authority.	The guidelines on initial training and qualification should include on-the-job training and familiarisation with the UAS operator's manual.	Include on-the-job training (OJT) and familiarisation with the UAS operator's manual.	Minor	Accepted
482		A.1.18 Training	29	308-311	Training	Our experience shows, that operators often aren't able to write a proper training syllabus. Please provide more information on requirements and guidance, especially more precise learning goals.	See attachment. If you could compress the information within the attachment, operators may have better guidance and won't struggle anymore.	Minor	Acknowledged
90		A.1.18.3 Training program : SAIL I and II	30		Detail reference to training material used .	Set out what kind of training material is referred to.		Minor	Acknowledged
10		A.1.18.3	31		new	Clear communications critical to safe operations	add under guidance practical training "Proficiency in communications terminology and phraseology"	Minor	Acknowledged
91		A.1.18.3 Training program	31		These learning objectives should cover at least the following domains: - air safety	Proposal to supersede air safety by aviation safety.	Aviation safety	Minor	Acknowledged
92		A.1.18.3 Training program	31		These learning objectives should cover at least the following domains: - general knowledge	Proposal to supersede by 'General knowledge of UASs and external systems that support the operation of UAS.'	General knowledge of UASs and external systems that support the operation of UAS.	Minor	Acknowledged
93		A.1.18.3 Training program	31		Technical and operational mitigation measures for air risks	Assess to cover a new point 'Technical and operational mitigation measures for ground risks'.	Technical and operational mitigation measures for ground risk.	Minor	Acknowledged

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
94		A.1.18.3 Training program	31		Normal, contingency, and emergency procedures	Assess to cover a new point 'Pre-flight and post-flight procedures and documentation'.	Pre-flight and post-flight procedures and documentation.	Minor	Acknowledged
95		A.1.18.3 Training program	31		In case the UAS operation is expected to cover specific types of flights (e.g., night operations, transport of dangerous good, dropping of cargo, swarm operations etc), the theoretical and the practical training should be adapted to properly cover these types of operation.	Include more detail about the additional theoretical and practical training adapted to the specific CONOPS.		Minor	Acknowledged
413			31		A.1.18 Remote Crew Competence	Add guidance bullet to address security issues	• Any remote crew security and safety vetting requirements.	Minor	Rejected
414			31		A.1.18.1 Initial training…	Please add guidance text to support security concerns	The use of any training centre, facility or school should be detailed, including the course provided and any resulting qualification(s). What processes and procedures were used to check and evaluate staff licenses and history for potential safety and security concerns.	Minor	Rejected
175	N/A	A.1.18.3	32	Editorial	In case the UAS operation is expected to cover specific types of flights (e.g., night operations, transport of dangerous good, dropping of cargo, swarm operations etc), the theoretical and the practical training should be adapted to properly cover these types of operation.	Add an 's' in 'good'.	In case the UAS operation is expected to cover specific types of flights (e.g., night operations, transport of dangerous goods, dropping of cargo, swarm operations etc), the theoretical and the practical training should be adapted to properly cover these types of operation.	Editorial	Accepted
176	N/A	A.1.18.4	32	Editorial	A.1.18.4 Flight Simulated Training Devices (FSTD)	FSTD' stands for 'Flight Simulation Training Devices'. Replace 'Simulated' with 'Simulation'.	A.1.18.4 Flight Simulation Training Devices (FSTD)	Editorial	Accepted
174	N/A	A.1.18.3	32	Major	These learning objectives should cover at least the following domains: - air safety - aviation regulations - navigation - human performance limitations - airspace operating principles - UAS general knowledge - meteorology - Technical and operational mitigation measures for air risks - Operational procedures - Managing data sources	In line with OSOs #09, #15, and #22, the competency-based, theoretical and practical training should ensure knowledge of: a) UAS regulation; b) UAS airspace operating principles; c) Airmanship and aviation safety; d) Human performance limitations; e) Meteorology; f) Navigation/Charts; g) UA knowledge; h) Operating procedures; i) Use of external services. Also, note that the details of the areas to be covered for the different subjects above is provided by JARUS WG1 in "JARUS RECOMMENDATION FOR REMOTE PILOT COMPETENCY (RPC) FOR UAS OPERATIONS IN CATEGORY A (OPEN) AND CATEGORY B (SPECIFIC)".	**The competency-based, theoretical and practical training should ensure knowledge of:** **- UAS regulation;** **- UAS airspace operating principles;** **- Airmanship and aviation safety;** **- Human performance limitations;** **- Meteorology;** **- Navigation/Charts;** **- UA knowledge;** **- Operating procedures;** **- Use of external services.**	Major	Accepted
316		A.2	33	317		the operator may just refer to the manufacturer manual	This section details the recommendations and guidance relating to technical information on the UAS to be used by the applicant. In this section the applicant should detail the system(s) being used or refer to the relevant chapter of the manufacturer instruction where the information may be found.	Comment	Acknowledged
229	ConOps technical manual template Introduction	A.2	33	320	The template below provides section headings detailing the subject areas that should be addressed when producing the Operations Manual, for the purposes of demonstrating that a UAS operation can be conducted safely. The template layouts as presented are not prescriptive, but the subject areas detailed should be included in the Operations Manual documentation as required for the particular operation(s), in order to provide the minimum required information and evidence to perform the SORA.	In the mentioned paragraph, the term "Operations Manual" should not be replaced by "Technical Manual"? I cannot understand very well the mention here of the operations manual when I think this paragraph refers to the Technical part of the information.	Replace "Operations Manual" by "Technical Manual".	Editorial	Rejected
39		A.2 ConOps technical manual template -- Introduction	33	325	Where ncessarry operators shojld requiest the necessary data from the manufactureer to complete the relevant sections of this chapter where possible	Necessary or possible? Sentence is confusing as written		Editorial	Accepted
317		A.2	33	326	Operators should endeavour to provide as much information as possible .	It depends on the SAIL…for lower SAIL maybe I need very few information		Editorial	Rejected
230	Detailed recommendations and guidance – Unmanned Aircraft and Systems	Paragraph	33	337	e.g. a design review report up to a specified SAIL	Design Review Report is not a common name used in the EASA terminology. Please refer to that as Design Verification Report.	Replace "Design Review Report" by "Design Verification Report".	Editorial	Accepted
319		A.2	33	343	If the UAS has no form of pre-approval by an authority, the level of technical detail described in this section of the ConOps must be sufficient such that the competent authority can assess whether the design meets the technical design related OSOs for the relevant SAIL of an application.	The purpose of this document is not to satisfy the NAA but to the benefit of the personnel. In case such description should be in the risk assessment The description of the UAS in the manual is independent of the certificate the UAS has		Comment	Acknowledged
320		A.2	33	346	Explain any technical or design standards adopted, whether aviation related or not. If available, this should include evidence of test and evaluation.	This should be in the risk assessment		Comment	Acknowledged
318		A.2	33	348	From A.2.1 to A.2.20	align with the rest of the document numbering	change to A.4.1 to A.4.20	Editorial	Acknowledged
468	Manufacturer information		33	326	Operators should endeavour to provide as much information as possible	This sentence is actually misleading since it is not useful to provide that much information at lower SAILs	Modify to:" Operators should endeavour to provide as much information as required by the applicable Operational Safety Objectives and their SAIL associated robustness levels"	Editorial	Accepted

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40		A.2 Detailed recommendations and guidance--Unmanned Aircrft and Systems	33	340-341	TC	Move sentence to being next paragraph on line 342	TC.	Editorial	Accepted
231	Detailed recommendations and guidance – Unmanned Aircraft and Systems	Paragraph	33	346-347	Note: this section is not expected to be fully completed by every operator, but to prompt the operator to fill out as much information as necessary, dependent on the SAIL score and ConOps.	To add that the operator can rely on the help of the manufacturer to comply with these part of the CONOPS.	Note: this section is not expected to be fully completed by every operator, but to prompt the operator to fill out as much information as necessary, dependent on the SAIL score and ConOps, with the help of the manufacturer.	Editorial	Partially Accepted
11		A2	33		.- What to submit in A.2 if don't have a design review or a restricted TC	Not clear what this is trying to say	delete	Editorial	Accepted
97		Detailed recommendations and guidance – Unmanned Aircraft and Systems	33		Note: this section is not expected to be fully completed by every operator, but to prompt the operator to fill out as much information as necessary, dependent on the SAIL score and ConOps.	For all this section, initially it would be enough a reference to the technical information provided by the manufacturer. In further iterations with the NAA more information about some components could be required.		Editorial	Accepted
98		A.2.1 Details of design and manufacturing – (OSO #2, #4 and #05)	33		Detail the designer and/or manufacturer of the unmanned aircraft. Explain any technical or design standards adopted, whether aviation related or not. If available, this should include evidence of test and evaluation.	This is also similar to the information provided on A.1.9.2. it is required to avoid duplicities.		Editorial	Rejected
431		A.2	33		ConOps technical manual template	No operator can provide information according to the description of the guidelines, these are technical data held by the designer and manufacturer.Partly applicable only when privately built. Why copy/paste information from manufacturers' documentation to OM?	Reference to manufacturer's documentation or testing performed when built privately should be allowed for inclusion in the OM.	Minor	Acknowledged
232	Details of design and manufacturing – (OSO #2, #4 and #05)	A.2.1	34	348	Any evidence or data available from tests or evaluations should be included in an Annex to the ConOps.	To remove this paragraph. There is no need to make the CONOPS (even with annexes) unnecessarily long. Declaration of the standards is sufficient. It is not the intention to make the CONOPS a certification plan/report.	To delete this sentence.	Editorial	Partially Accepted
243	characteristic dimension	A.2.2	34	349	Characteristic dimension	It should be analyzed if the characteristic dimension of a fixed-wing is one of the proposed (e.g. wingspan) or something not written. For example, I know about fixed-wing eVTOL that has a wingspan < 3m, fuselage lenght <2m, but the total lenght is >3m.	add a row in the table in which is identified the characteristic dimension.	Editorial	Acknowledged
177	N/A	A.2 - Detailed recommendations and guidance - UAS	34	Minor	.- What to submit in A.2 if don't have a design review or a restricted TC	This sentence seems to be slightly disconnected from the rest of the paragraph.	Reword or remove sentence.	Editorial	Accepted
99		A.2.1 Details of design and manufacturing – (OSO #2, #4 and #05)	34		Examples of industry conformance standards: EUROCAE and RTCA, or product standards such as ISO, ASTM, and STANAG. Refer to individual websites for further information on standards developed by these bodies .	Mention CEN and ASD-STAN		Editorial	Accepted
100		A.2.2 Unmanned aircraft physical characteristics (GRC)	34		Empty mass	It would be necessary to define what exactly is meant by empty mass.		Editorial	Rejected
416			34		A2 Intro.. For operators using COTS UAS	Please write out acronym first time in third paragraph to avoid confus	For operators utilising Commercial-Off-The-Shelf (COTS)	Editorial	Accepted
417			34		A2 Detailed recommendations and…	Include security considerations and other editorial change in third paragraph	"...the operational safety and security objectives regarding organisation and training which may require technical detail of the used UAS. In other words, what to submit…"	Editorial	Rejected
418			34		A.2.1 Details of Design ®	Please add sentence after first "Explain" sentence in the recommendations for this section	Detail any UAS system, data collection, encryption and/or other security protocols provided by the manufacturer.	Editorial	Partially Accepted
432		A.2.2	34		Length of aircraft body	Does the aircraft body length include the rotor arms to propeller center	Diagonal wheelbase in case of multi-rotor / length between front rear rotor center	Minor	Accepted
433		A.2.2	34		Width of aircraft body	Does the width of the aircraft body include the rotor arms to propeller center		Minor	Accepted
434		A.2.2	34		Height of aircraft body	Whether the height of the aircraft body includes the landing gear		Minor	Accepted

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41		A.2.2.1 Details of design and manufactu ring (OSO #2, #4, and #05)	35	349 G	from an environmental conditions' perspective	remove the apostrophe	fron an environmental conditions perspective	Minor	Accepted
178	N/A	A.2.2	35	Minor	Describe in detail the physical characteristics of the aircraft (mass, centre of gravity (CG), dimensions, etc.). Include photos, diagrams, and schematics, whatever is deemed necessary to support the description of the UA.	Some information on the materials would be useful to have a complete picture of the UA physical characteristics.	Add a reference to the materials used.	Minor	Accepted
494		A.2..3	35		Decribe in detail the electrical poewr system and the electrical load distribution	This is way overkill for SAIL I/II	Describe the electrical system	Editorial	Acknowledged
42		A.2.3 Electrical power system (OSO #4)	36	350 G	it's components		its components	Minor	Accepted
179	N/A	A.2.2.1	36	Minor	The following information should be included:	The following information should also be included: - Max. rate of climb; - Max. rate of descent; - Turn rate limits; - Nominal cruise speed; - Never-exceed speed.	Add: - Max. rate of climb; - Max. rate of descent; - Turn rate limits; - Nominal cruise speed; - Never-exceed speed.	Minor	Accepted
101		A.2.4 Propulsion system (OSO #04)	36			Include in the box a row for the number of motors/engines installed		Minor	Accepted
495		A.2.4	36			Overkill for SAIL I/II	Describe the propulsion system	Minor	Acknowledged
43		A.2.4 Propulsion system, (OSO #04)	37	351 G	Does the engine hae in-flight restart capabilities?	Text is repeated on page 238, line 1		Minor	Accepted
321		A.2.5	38	353	Describe in detail the unmanned aircraft fuel system and its installation .	Do we need for SAIL I and II?	change to A.4.1 to A.4.20	Editorial	Acknowledged
322		A.2.5.1	38	354	Describe safety considerations in relation to hazards created by the fuel system.	Not for SAIL I and II Not relevant for the personnell… This is an information for the risk assessment		Editorial	Acknowledged
12		A.2.6	38		new	Input side of controls missing	Add under guidance"Sensors used for Flight Control (e.g. 2 ADC, 3 AHRS, 2 flaps positions, etc.)"	Editorial	Acknowledged
102		Fuel system (OSO #04)	38		Examples of fuel type include electrical, liquid, hybrid, solar etc.	The term fuel does not seem appropriate to refer to electric and solar energy. It is more appropriate for fuel-powered propulsion systems.	Replace the term "fuel" for "power source"	Minor	Rejected
180	N/A	A.2.4	38	Major	- What status indicators, alerts (such as warning, caution and advisory) messages are provided to the operator? - How is information on battery status and remaining battery capacity provided to the operator (if one is in the loop) or watchdog system? - What status indicators and alerts (such as warning, caution and advisory) messages are provided to the operator?	The information, indicators, and alerts referred to in these points are normally provided to the remote crew, not the UAS operator.	- If required for safe operation, what status indicators, alerts (such as warning, caution and advisory) messages are provided to the remote crew? - If required for safe operation, how is the information on battery status and remaining battery capacity provided to the remote crew (if one or more members are in the loop) or watchdog system? - If required for safe operation, what status indicators and alerts (such as warning, caution and advisory) messages are provided to the remote crew?	Editorial	Partially Accepted
240		A 2.7	39	358	• Geo-awareness for the purpose of supporting avoidance of specific areas or confinement to a given area	As Geo-Awareness is an EASA terminology for EU purposes only I would recommend to make this more generic. If the control system doesn`t have a visual interface at all but the remote pilot is flying in VLOS then this should be allowed as well	Rephrase this criterea more broadly and make it optional (if applicable)	Editorial	Partially Accepted
323		A.2.6.1	39	356	Describe the design and operation of the flight control surfaces and servos/actuators etc.	Not for SAIL I and II Not relevant for the personnell… This is an information for the risk assessment		Editorial	Acknowledged
239		A 2.6.2	39	357	Examples of auto flight functions: autopilot, automatic take-off and landing, and stabilisation. Are any of the auto flight functions commercial off-the-shelf (COTS) equipment? If so, name the type/manufacturer and provide the criteria that was used in selecting the COTS equipment.	"and provide the criteria that was used in selecting the COTS equipment." The rationale of this request is not clear. The requirement should be based on the performance of the equipment and not of the decision criteria like "costs".	Delete the second part of the sentence or rephrase it to focus on the performance criteria only.	Editorial	Rejected
324		A.2.6.2	39	357	Describe and detail the auto flight functions	Not for SAIL I and II This is an information for the risk assessment		Editorial	Acknowledged
181	N/A	A.2.5.1	39	Editoria l	Highlight any hazardous substances that are associated with this fuel system such as flammability, corrosiveness, irritant, etc.	Following the same approach as with 'flammability' and 'corrosiveness', 'irritation' should be used here.	Highlight any hazardous substances that are associated with this fuel system such as flammability, corrosiveness, irritation, etc.	Editorial	Accepted
103		Auto flight functions (OSO #04, #18)	39		Auto flight functions (OSO #04, #18)	It's already included in A.2.6 in "Details of any automatic functions"		Editorial	Acknowledged
419			39		A.2.5.1 Fuel System Safety	Please add text to support security concerns in the first recommendation	Describe safety and security considerations in relation to hazards created by the fuel system.	Editorial	Rejected

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420			39		A.2.5.1 Fuel System Safety	Please add guidance text to support hazard concerns for batteries and other hazardous substances under the guidance for this section.	Highlight where the batteries and other hazardous substances stored, access to these systems, and how are they disposed.	Editorial	Rejected
496		A.2.6.1	39			Overkill for SAIL I/II	Describe the flight control system	Editorial	Acknowledged
497		A.2.6.2	39			Overkill for SAIL I/II	Describe the auto flight functions	Editorial	Acknowledged
244	DAA system	A.2.8	40	360	used of combined actions	It's important to consider the effect of the use of more than one system to detect and avoid the traffic.	It should be considered, by the applicat, how different systems should integrate different data, what is the more reliable, which data has priority of the other, etc. If there are more than 1 system, this analysis it should be done.	Minor	Accepted
325		A.2.8	40	360			Describe in detail any detect and avoid system (if fitted) to support the following functions:	Minor	Accepted
45		A.2.8 Detect and Avoid (DAA) systems (if used) (TMPR, OSO #04)	40	359 G	technical solutions	Is tactical intended?		Editorial	Accepted
44		A.2.8 Detect and Avoid (DAA) systems (if used) (TMPR, OSO #04)	40	359 R	Technical	It is either strategic or tactical	Tactical	Editorial	Accepted
104		A.2.8 Detect and Avoid (DAA) systems (if used) (TMPR, OSO #04)	40		Electronic Conspicuity (EC) devices such as:	Include TCAS/ACAS		Minor	Accepted
105		A.2.8 Detect and Avoid (DAA) systems (if used) (TMPR, OSO #04)	40		Non-cooperative traffic Conflict Avoidance:	It should be included in this part a justification of the % of detection of traffics.		Minor	Acknowledged
421			40		A.2.6.2 Auto Flight Functions	Please add guidance text to support security concerns	Are any of the auto flight functions encrypted or are there systems in place to detect or repel unwanted access? If so, provide high level information (i.e., firewalls or advanced encryption for wireless systems) that is used to protect the system. Is this built into the system from the manufacturer or added by the organisation?	Editorial	Rejected
498		A.2.7.1	40		Navigation position error	I think what you mean here is what we call Flight Technical Error which includes navation but also things like autopilot performance etc.	Change accordingly.	Editorial	Acknowledged
499		A.2.8	40		Terrain and obstacle avoidance	This is irrelvant for TMPR which only deals with air risk	Delete	Editorial	Rejected
326		A.2.9	41	361		and any relevant technical specifications is for the risk assessment part	Explain what elements make up the command unit and describe in detail the operating system and any relevant technical specifications	Editorial	Accepted
46		A.2.8 Detect and Avoid (DAA) systems (if used) (TMPR, OSO #04)	41	359 G	Remote ID (both Network and Direct		Remote ID (both Network and Direct Broadcast)	Minor	Accepted
183	N/A	A.2.8	41	Major	Ground risk: - Terrain and obstacle avoidance Technical air risk mitigation: - Adverse weather avoidance	Terrain and obstacle avoidance falls outside the scope of the current SORA. Delete such references. The TMPR requirements are limited to the collision avoidance with crewed aircraft.	Delete.	Editorial	Accepted
182	N/A	A.2.7	41	Minor	N/A	Some information on the calibration of the navigation means could be useful here.	Add: "How the navigation means can be verified and, where applicable, calibrated before the intended operation".	Editorial	Accepted
13		A.2.8	41		Avoidance (e.g., vision based, PSR data, LIDAR, etc.)?	missing acoustic	Add after LIDAR, "acoustic,"	Minor	Accepted
16		A.2.9	41			Should the CU be moved down after all the UA specific sections to align with FAA AE?	Move down after ...	Minor	Accepted
106		A.2.8 Detect and Avoid (DAA) systems (if used) (TMPR, OSO #04)	41		Does the system have its own built-in test (BIT)? What are the BIT test parameters?	This requirement does not seem necessary to define a DAA.		Editorial	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
107		A.2.9 Command unit (CU) (OSO #06, #18, #19.3, #20)	41		Details of hardware and software update processes	Include Software name and version	Details of hardware and software update processes, including name and version	Editorial	Accepted
184	N/A	A.2.8	42	Major	Electronic Conspicuity (EC) devices such as: - ADS-B Out/In transponder. - Mode-S ES (Extended Squitter) transponder. - FLARM (Flight Alarm) - Power FLARM - Pilot Aware Rosetta - Sky Echo 2 - Remote ID (both Network and Direct)	This list combines electronic conspicuity solutions for both crewed and uncrewed aircraft; however, the TMPR requirements are dedicated to avoidance (by the UAS) of crewed aircraft, so we propose to limit it to the technologies that could make crewed aircraft conspicuous.	Limit the list to the technologies that could make crewed aircraft conspicuous.	Major	Accepted
185	N/A	A.2.8	42	Major	Examples of technical solutions for terrain and obstacle avoidance could include: - TAWS (Terrain Awareness and Warning Systems). - LIDAR (Light Detection and Ranging). - Optical sensors. - Laser ranging equipment. - RADALT (Radar Altimeter). Is the equipment qualified? If so, list the detailed qualification to the respective standard. If the equipment is not qualified, provide the criteria that were used in selecting the system.	Terrain and obstacle avoidance falls outside the scope of the current SORA. Delete such references.	Delete.	Editorial	Accepted
186	N/A	A.2.8	42	Major	Non-cooperative traffic Conflict Avoidance:	Add "if any", as this is not a must.	Non-cooperative traffic Conflict Avoidance, if required:	Editorial	Accepted
187	N/A	A.2.8	42	Major	- What equipment is installed for non-cooperative Conflict Avoidance (e.g., vision-based, PSR data, LIDAR, etc.)? - If the equipment is qualified, list the detailed qualification to the respective standard. - If the equipment is not qualified, provide the criteria that were used in selecting the system. Describe any interface from the Conflict Avoidance to the flight control computer.	What seems to be missing here is that the UAS operator may also get information from services relying on ground-based surveillance.	Consider the possibility of the UAS operator getting such information from services relying on ground-based surveillance.	Major	accepted
14		A.2.9	42		"The following information should be included" is listed at beginning and middle of section	Redundant	Delete "The following information should be included" in the middle of list	Editorial	Accepted
15		A.2.9	42		new	The CU has other information critical to safe flight	Addin following information list "What interfaces and indications are provided to the remote pilot for third party systems (e.g. weather, surveillance, UTM, etc.)?"	Editorial	Acknowledged
47		A.2.10 Command and control (C2) link (OSO #06, #24)	43	361 G	Porivde the Link Budget Calculation, wherever possible	What is the Link Budget Calculation?		Comment	Accepted
48		A.2.10 Command and control (C2) link (OSO #06, #24)	43	361 G	hat alerts		What alerts	Editorial	Accepted
188	N/A	A.2.9	43	Major	- What alerts, such as warning, caution and advisory, does the system provide to the operator.	The information, indicators, and alerts referred to in these points are normally provided to the remote crew, not the UAS operator.	- What alerts, such as warning, caution and advisory, does the system provide to the remote crew.	Major	Accepted
422			43		A.2.9 Command Unit (G)	Please add text to 4th bullet	Radio signal strength, interference, and/or health indicator or similar display to the remote pilot	Minor	Accepted
423			43		A.2.9 Command Unit (G)	Please add two bullets after "What precautionary measures…" to address radio signal interference.	• What precautionary measures are used in cases of signal interference? • Are there critical commands or other precautionary measures that could override unwanted signal/system take-over?	Major	Accepted
424			43		A.2.9 Command Unit (G)	Please add text to second to last bullet in section	Examples of displayed warnings: low fuel or battery, failure of critical systems, operation out of control, signal interference, etc.	Minor	Accepted
448		Text	44	362	• What is the datalink margin in terms of the overall link bandwidth at the maximum anticipated distance from the CS?	Definitions of "command unit (CU)" vs. "control station (CS)" should be used more clearly in this complete annex.	• What is the datalink margin in terms of the overall link bandwidth at the maximum anticipated distance from the CU?	Editorial	Accepted
447		Text	44	362	What are the control link(s) connecting the UA the CS and any other ground systems or infrastructures, if applicable?	Definitions of "command unit (CU)" vs. "control station (CS)" should be used more clearly in this complete annex.	What are the control link(s) connecting the UA to the CU and any other ground systems or infrastructures, if applicable?	Editorial	Accepted
189	N/A	A.2.10	44	Major	For satellite links, estimate the latencies associated with using the satellite link for aircraft control and air traffic control (ATC) communications.	Add "if applicable" at the end, since many UAS operations do not make use of satellite links or require communications with ATC.	For satellite links, estimate the latencies associated with using the satellite link for aircraft control and air traffic control (ATC) communications, if applicable.	Major	Accepted
108		A.2.10 Command and control (C2) link (OSO #06, #24)	44		What are the control link(s) connecting the UA the CS and any other ground systems or infrastructures, if applicable?	This paragraph is confusing, it should be separated from the items that are developed below.		Editorial	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
109		A.2.10 Command and control (C2) link (OSO #06, #24)	44		What are the control link(s) connecting the UA the CS and any other ground systems or infrastructures, if applicable?	Use terminology CU for the Control Unit		Editorial	Accepted
110		A.2.12 Emergency recovery and safety systems (M2, Main Body Step 9, OSO #10, #12)	44		Propeller guards	That's not a FTS neither ARS		Editorial	Accepted
327		A.2.14	45	364	Detail and explain all known failure conditions relating to safety critical systems.	Not relevant for the personnell… Maybe more for the risk assessment		Editorial	Accepted
328		A.2.14.1	45	365	Describe in detail the SPOF for the unmanned aircraft system (unmanned aircraft and command unit).	Not relevant for the personnell… Maybe more for the risk assessment		Editorial	Accepted
356		A2.2.12	45	365	Emergency recovery and safety systems (M2, Main Body Step 9, OSO #10, #12) (…) Include any manufacturer supplied data relating to equipment or components included in the system i.e., data sheets, specification sheets, performance data etc.	FTS and parachutes have a significant effect on risk mitigation and areas of operation, contingency and buffer. The performance of these systems should be detailed in order to describe how they affect other aspects of the ConOps. For example, FTS performance should include latencies, range of the command signal, independency, etc. Parachute should have their rate of descent, reaction time, height loss before being deployed so that the ConOps show the consistency between the technical part and the operational part.	It is suggested to complement the current paragraph with a note reminding that the technical description of systems like FTS and/or parachute should affect operational procedures : Performance of systems such as FTS and ballistic parachutes should be included to the extent that it shows the consistency between the technical part of the manual and the operational part. This may include latencies, height loss during deployment, final kinetic energy for example.	Major	Accepted
469	Failure Conditions		45	367	Detail and explain all known failure conditions relating to safety critical systems.	It is probably helpful here to specify that this should be described only whenever the SAIL >2 or when operating over populated areas	Add a note: "To be described whenever operating over populated areas or when the SAIL is higher than 2.	Editorial	Acknowledged
190	N/A	A.2.12	45	Major	The use of schematic diagrams may help describe the system layout and how this is constructed to include the following examples if installed: - A flight termination system (FTS) function that aims to immediately end the flight Examples of safety systems or functions/features could include the following: - Flight termination functions	'means to terminate the flight' seems more suitable from a performance-based/technology-agnostic approach than "flight termination system (FTS) function".	The use of schematic diagrams may help describe the system layout and how this is constructed to include the following examples if installed: - Means to terminate the flight Examples of safety systems or functions/features could include the following: - Means to terminate the flight	Editorial	Accepted
111		A.2.12 Emergency recovery and safety systems (M2, Main Body Step 9, OSO #10, #12)	45		Airbags	That's not a FTS neither ARS		Editorial	Acknowledged
112		A.2.13 Auxiliary Systems	45		Examples of auxiliary systems include Remote ID systems used to broadcast RPAS information.	Remote ID is not an auxiliary system, it's a safety and security device.		Editorial	Acknowledged
113		A.2.13 Auxiliary Systems	45		Examples of auxiliary systems include Remote ID systems used to broadcast RPAS information.	Replace RPAS for UAS		Editorial	Accepted
114		A.2.14 Failure conditions (OSO #05, #10, #12, #19.3)	45			This point is closely related to A.2.12, perhaps they should be joined.		Major	Rejected
425			45		A.2.10 Command and Control (G)	Add text after "Triggering of an emergency recovery.."	• Flight termination (Kill switch) which causes immediate landing of UA.	Editorial	Rejected
500		A.2.14.1	45		Describe in detail the SPOF	This is overkill for SAIL I/II. If you have a UAS which is proven by expirience to have very few failures affecting operation, the understanding of SPOF is not needed. We should not go above what step 9 requires	Delete for SAIL I/II	Editorial	Acknowledged

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
245		A.2.14.2	46	367	If there are technical systems supporting containment, (Step 9 of SORA Main Body) this should also be explained here. How does the unmanned aircraft respond, and what safeguards are in place to mitigate the risk of propulsion system loss for each of the following? • Low battery • Failed signal input from the control station • Motor controller failure What are the most critical propulsion-related failure modes/conditions and their impact on system operation?	In line with instructions included in Step 9 of SORA Main Body, and to align with other paragraphs in the proposed Annex A, some questions should be added regarding the Development Assurance Level. The proposal is to add it in the Guidance Material provided to the applicant in A.2.14.2, for those SW or CEH items which failures may derive into risks to third parties. The proposal is just to make some reference to SW DAL data.	If there are technical systems supporting containment, (Step 9 of SORA Main Body) this should also be explained here. Are these mitigations performed by a SW or CEH item? If yes, which is the related Development Assurance Level ? How does the unmanned aircraft respond, and what safeguards are in place to mitigate the risk of propulsion system loss for each of the following? • Low battery • Failed signal input from the control station • Motor controller failure What are the most critical propulsion-related failure modes/conditions and their impact on system operation?	Major	accepted
248		A.2.14.2	46	367	Example of failure modes: Propellers fitted incorrectly. Example of preventative strategies: Follow manufacturers installation instructions. Example of addressing failure modes: Incorporate a pre-flight check of propellers to ensure they are correctly fitted	The example provided is due to a deviation in the application of existing procedures, but the applicant should be also aware that not only these failure modes should be taken into account, but in general all functional failures. The proposal is to add more examples.	1st Example. Example of failure modes: Propellers fitted incorrectly. Example of preventative strategies: Follow manufacturers installation instructions. Example of addressing failure modes: Incorporate a pre-flight check of propellers to ensure they are correctly fitted. 2nd Example. Example of failure modes: Flight Control System malfunction (performs differently from expected). Example of preventative strategies: Follow Emergency procedures. Example of addressing failure modes: FCS DAL according to Standards/Flight Termination Unit available. 3rd Example. Example of failure modes: GPS data loss. Example of preventative strategies: SW contingency plan. Follow emergency procedures Example of addressing failure modes: SW DAL according to Standards 4rd Example. Example of failure modes: C2 link loss. Example of preventative strategies: SW contingency plan. Follow emergency procedures Example of addressing failure modes: SW DAL according to Standards	Editorial	Acknowledged
233	External lighting	A.2.15	46	369	Describe any external lighting on the unmanned aircraft if fitted for the purpose of visual conspicuity or aircraft separation.	There is no clarity to manufacturers to understand when lighting is required. Please add clarification about when installing lighting for conspicuity is required.	Text declaring when lighting to increase conspicuity is required (probably out of the scope of this annex but worthy to mention).	Editorial	Acknowledged
234	External lighting	A.2.15	46	369	What is the location, colour and type of lighting fitted to the unmanned aircraft? What is the operating function of any lighting i.e., controlled remotely or always active? What lighting modes, if any, are available i.e., flashing, strobe effect etc.	All these requirements shall be coming from a standard, like e.g., ASD-STAN 4709-004 or ASTM F3298 − 19.	Lighting in UAVs shall comply with equal lighting system (following a standard) in order to unify the conspicuity. There shall not be the election of the applicant to decide the type, color, lighting modes, etc., of the UAV.	Editorial	Rejected
241		A.2.15	46	369	Describe any external lighting on the unmanned aircraft if fitted for the purpose of visual conspicuity or aircraft separation.	Visual conspicuity should be more clearly defined to avoid misunderstandings. In the understanding of EU regulation lights for the purpose of conspicuity on the ground have to follow certain requirement (green blinking / flashing) Why is this limited to external lighting only? Shouldn*t there be a overall section explaining the overall lighting scheme (lights for controllability and/or conspicuity) of an UA and then this needs to be linked to the intended operation	Change requirement to lighting in general including all (internal and external) lighting systems at the UAS.	Editorial	Rejected
246		A.2.14.2	46	367	Failure conditions are defined as effects on the aircraft, both direct and consequential, caused or contributed to by one or more failures, considering relevant adverse operational or environmental conditions.	EASA defines RPAS Failure Condition differently in SC-RPAS.1309-01/03 : A condition having an effect on the RPAS (incl. separation assurance), the remote crew and/or third parties, either direct or consequential, which is caused or contributed to by one or more failures or errors, considering flight phase and relevant adverse operational or environmental conditions, or external events. This one explicity mentions third parties, so it is found more appropiate.	Failure Conditions are those that have an effect on the RPAS (incl. separation assurance), the remote crew and/or third parties, either direct or consequential, which is caused or contributed to by one or more failures or errors, considering flight phase and relevant adverse operational or environmental conditions, or external events.	Editorial	
247		A.2.14.2	46	367	How does the unmanned aircraft respond, and what safeguards are in place to mitigate the risk of propulsion system loss for each of the following? • Low battery • Failed signal input from the control station • Motor controller failure What are the most critical propulsion-related failure modes/conditions and their impact on system operation?	The example provided is due to a deviation in the application of existing procedures, but the applicant should be also aware that not only these failure modes should be taken into account, but in general all functional failures. The proposal is to add some additional questions in line with other paragraphs of this Annex and Step 9 of SORA Main Body.	How does the unmanned aircraft respond, and what safeguards are in place to mitigate the risk of propulsion system loss for each of the following? • Low battery • Failed signal input from the control station • Motor controller failure What are the most critical propulsion-related failure modes/conditions and their impact on system operation? Are there any subsystems or items which improper functioning may affect safety of third parties? Which mitigations are in place? Are these mitigations performed by SW items? In this case, which is the Development Assurance level?	Editorial	
50		A.2.14.2 Failure modes (OSO #05, #10, and #12)	46	367 G	preventative strategies: Follow manufacturers		preventive strategies: Follow manufacturer's	Editorial	Accepted
49		A.2.14.2 Failure modes (OSO #05, #10, and #12)	46	367 R	ote		Note	Editorial	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
191	N/A	A.2.12	46	Major	Examples of safety systems or functions/features could include the following:	Add "aircraft frangibility" to the list	**- Aircraft design features (e.g., frangibility)**	Major	Rejected
194	N/A	A.2.14.1	46	Major	A single point of failure is a part of a system that, if it fails, will stop the entire system from working.	This definition of SPOF is not in line with OSOs #10 & #12 (OSO #05 does not talk about SPOF). Instead, this section should address SPOF that directly lead to the loss of control of the operation. Therefore, SPOF of external systems activated/used after the loss of control of the operation should not be considered.		Major	Acknowledged
192	N/A	A.2.13	46	Minor	Examples of auxiliary systems include Remote ID systems used to broadcast information.	Replace "broadcast" with "transmit", since a UAS operator may choose network remote identification instead of direct remote identification.	Examples of auxiliary systems include Remote ID systems used to transmit information.	Minor	
193	N/A	A.2.13	46	Minor	N/A	Some information on non-payload sensor equipment onboard the UA and its role may be useful.	"Non-payload sensor equipment onboard the UA and its role".	Minor	
115		A.2.15 External lighting	46		A.2.15 External lighting	Include paintings or stickers	A.2.15 External lighting, painting and stickers	Minor	Rejected
195	N/A	A.2.15	47	Minor	Describe any external lighting on the unmanned aircraft if fitted for the purpose of visual conspicuity or aircraft separation.	Physical conspicuity characteristics, in general, should be considered, such as painted elements that are visible (e.g., marks) and/ or significant (e.g., colour, shape), as well as lights.	Consider physical consicuity characteristics in general.	Minor	Accepted
501		A.2.14.2	46			This is overkill for SAIL I/II. If you have a UAS which is proven by exp	Delete for SAIL I/II	Editorial	
329		A.2.18	47	372			Add in R: Detail the maintenance procedure manual Add in G: The relevant maintenance instructions should be referenced here, however, these can be separate to the ConOps. The system describing the maintenance logging should be addressed here. From SAIL III upwards The maintenance program and any associated standards should be part of this ConOps. This can be provided as a separate manual. SAIL V and VI The maintenance procedure manual should include information and procedures relevant to the maintenance facility, record keeping etc. This can be provided as a separate manual. Note: For all SAIL scores Competent Authorities may request maintenance and inspection logs.	Editorial	Accepted
471	Maintenance		47	372	Life cycle maintenance, inspection and repairs	For simplicity and because we are not dealing with traditional aviation, I suggest to merge A.1.13 and A.2.18 since the content is quite the same and we are anyway not dealing with maintenance organisations.	Merge in A.2.18	Major	Partially Accepted
357		A.2.15	47	N/A	External lighting Note: This may be for the purpose of VLOS Strategic Mitigation, and to warn other airspace users. This section supports the normal operating strategy contained in Section A1.	UAS lighting is believed to be a tactical mitigation mean.	External lighting Note: This may be for the purpose of VLOS Tactical Mitigation, and to warn other airspace users. This section supports the normal operating strategy contained in Section A1.	Editorial	Acknowledged
116		A.2.18 Life cycle maintenance, inspections, and repairs (OSO #03, OSO #07)	47		A.2.18 Life cycle maintenance, inspections, and repairs (OSO #03, OSO #07)	Maintenance is not part of the technical characterization of a UAS.		Comment	Acknowledged
117		A.2.18 Life cycle maintenance, inspections, and repairs (OSO #03, OSO #07)	47		Maintenance Describe in detail the maintenance regime for the UAS. Inspections Explain the inspections that need to be carried out. Repairs Explain the repair methodology.	This has been also covered in point A.1.13. Leave manteinance only once to avoid duplicities		Major	Accepted
235	Parts (OSO #03)	A.2.18.1	48	373	Explain how parts are procured and validated. Explain how suppliers are chosen and how the suitability of the parts is determined.	Clarify if these parts are "replacement parts" as considered applicable inside the Maintenance Manual, not at supplier level like for the manufacturing process.	Replacement parts shall be procured as declared in the Maintenance Manual. Approved suppliers of replacement parts are declared in the Maintenance Manual.	Minor	Accepted
330		A.2.18.1	48	373	Explain how parts are procured and validated. Explain how	Not relevant for the personnell… Maybe more for the risk assessment		Minor	Acknowledged
335		A.2.18.1	48	373		This should be part of the 'maintenance procedure manual'		Comment	Acknowledged
336		A.2.19	48	374		This should be part of the 'maintenance procedure manual'		Comment	Acknowledged
472	Parts		48	373	Parts	My understanding is that the Parts section is rather OSO 2 Production relevant and as such it would make sense to move this part to A.1.9.2 Design and Production	Move this part to A.1.9.2 and probably merge	Major	Rejected

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470	Other external systems supporting the operation		48	374	Ground Support equipment, transportation, and storage	I suggest to rename this chapter that should probably relate to OSO 11 and that aims at describing the other external system relevant for the operation and especially their limitations. This could for instance as well contain: sources of electrical power (el. generators), systems used to assess weather conditions (thermometer, anemomether etc.), etc.	Rename : "A.2.19 Other external systems supporting the operation" and add in R: "Explain any other system supporting the operation and describe their limitations" and add in G: " What equipment is used to provide electrical power? Pre-flight checks or to support to the operation in general? What are the limitations of this equipment?"	Major	Rejected
51		A.2.18 Life cycle maintenance, inspections, and repairs (OSO #03, OSO #07)	48	371 G	If a third party provide		If a third party provides	Editorial	Accepted
52		A.2.18 Life cycle maintenance, inspections, and repairs (OSO #03, OSO #07)	48	371 G	meeting, or exceeding		meeting or exceeding	Editorial	Accepted
331		A.2.18	48	372		general comment: There is overlap with A.1.13 and A.1.17.8 – do we really need this chapter, or can we make a reference?		Comment	Acknowledged
332		A.2.18	48	372	Maintenance Describe in detail the maintenance regime for the UAS. Inspections Explain the inspections that need to be carried out. Repairs Explain the repair methodology.	to improve wording and clarity	scheduled Maintenance/inspection Describe in detail the scheduled maintenance/inspection for the UAS. pre-flight Inspections Explain the pre-flight inspections that need to be carried out. Repairs/modifications Explain how the repair/modifications are managed and embodied. Defects Explain how the defects are evaluated, and rectified or deferred	Editorial	Accepted
333		A.2.18	48	372	Maintenance The following information should be included: • Description of scheduled maintenance intervals, timescales, and associated tasks • Maintenance procedures and where these are sourced from, for example, manufacturer driven or based on operational experience and equipment reliability • How scheduled and unscheduled maintenance tasks are recorded and where these records are stored Which staff carry out these tasks and what is the scope of their approval to do so? If a third party provide any of these services, then this should be detailed and described here. Inspections What inspection tasks are carried out?	the first bullet is already covered by the maintenance programme of OSO#03 in A.1.13. the pre-flight inspection is already covered by A.1.17.8	Maintenance/inspection The following information should be included: • Description of scheduled maintenance intervals, timescales, and associated tasks • Maintenance instructions and requirements and where these are sourced from, for example, manufacturer driven or based on operational experience and equipment reliability • How scheduled and unscheduled maintenance tasks are recorded and where these records are stored Which staff carry out these tasks and what is the scope of their approval to do so? If a third party provide any of these services, then this should be detailed and described here. Pre-flight Inspections What inspection tasks are carried out before flight?	Editorial	Accepted
334		A.2.18	48	372	Repairs What repairs are carried out? And by whom? Manufacturers will generally provide maintenance information with the platform. The operator should use this to define their maintenance program. Repair methodology example: how will the integrity of the repair be assessed as conforming to meeting, or exceeding the requirement of the original design data?	Repairs will not be listed in the maintenance programme because it is unscheduled maintenance		Comment	Accepted
118		A.2.19 Ground support equipment, transportation, and storage	48		A.2.19 Ground support equipment, transportation, and storage	It is already included in A.2.11.		Comment	Rejected
426			48		A.2.16 Payloads	Add bullets to support security concerns before "Any other relevant information."	2 bullets: • Identify if hazardous material * internal or external carriage	Minor	Partially Accepted
502		A.2.18.1	48		Explain how parts are produced and validated	Overkill for SAIL I/II	Delete for SAIL I/II	Editorial	Acknowledged
449		Text	49	374	Explain how and where the UAS and supporting equipment is stored.	Security should be emphasised in the context of storage.	Explain how and where the UAS and supporting equipment is stored, protected against damage and manipulation.	Editorial	Acknowledged
53		A.2.19 Ground support equipment, transportation, and storage	49	373 G	practice		practices	Editorial	Rejected
427			49		A.2.18 (G)	Add text to support security concerns just before "Inspections".	Are these personnel vetted and by what agency?	Editorial	Relected

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358		A.3	50	390	N/A	Suggestion to add a note in order to facilitate the work of both the applicant and the competent authority	Note : competent authorities may have developped SORA templates. Applicant are invited to check if such templates are available.	Minor	Acknowledged
473	Step #1		51	400	Step #1 Concept of Operations	This part seem to provide an unnecessary redundancy of information since it is all already described in A.1.16.1 and A.1.16.2. If the CAAs want to be able to get this information rapidly they could either read this part of the ConOps or include such fields of information directly in their application forms but requiring to get this information again is a redundancy which does not bring any added value.	Remove Step #1 since the 49 first pages of this document were the Step #1	Major	Accepted
17		A.3 1.1	51		☐Visual line of sight (VLOS) ☐Extended visual line of sight (EVLOS) ☐Beyond visual line of sight (BVLOS)		change BVLOS to "BVLOS with remote pilot on-site", and add "BVLOS with remote pilot off-site"	Minor	Rejected
18		A.3 1.2	51		the the	clerical	delete repetitive "the" before risk buffers	Editorial	Accepted
119		#1.2 Reference to Concept of Operations file and relevant locations	51		Give reference to GPS coordinates for the operational volume	It is not appropriate to include it in specific GPS coordinates since a generic authorization can be issued. (e.g. GM2 UAS.SPEC.030(2) A 'generic' operational authorisation does not contain any precise location (geographical coordinates) but applies to all locations that meet the approved conditions/limitations).		Minor	Accepted
337		A.3	52	400		Change as suggested	Remarks/Reasoning for Step #2 Describe the flight geography area, the operational area and ground risk buffer, in case attach maps. The level of risk is defined by the higher value of the population density in the operation area+ground risk buffer This field may be used to eExplain the derived risk class. - How did the applicant choose the reference speed for the kinetic energy computation? - How can the applicant justify that the population density is assessed accurately (data source)? How does the applicant verify that the outer limits of the ground risk buffer are used for the GRC assessment?	Minor	Acknowledged
474	Ground Risk Buffer and Contingency Volumes		52	400	Step #2 UAS intrinsic Ground Risk Class	Here I believe that it would be helpful for everyone to have more information on the way the contingency volume and ground risk buffer were chosen and their appropriateness	How were the contingency volume and ground risk buffer sizes determined?	Major	Rejected
339		A.3	53	400			Remarks/Reasoning for Step #4 Describe the flight geography volume and the operational volume, in case attach aeronautical maps. Explain what data source was used to determine the airspace classification. Describe how you determine the air risk class using the flow chart defined in SORA Figure 4	Minor	Acknowledged
197	N/A	A.3 - #4.2	53	Minor	#4.2 Specify the Initial Air Risk Class and the reasoning for choosing it (multiple answers possible)	The reasoning should be provided below under the Remarks/Reasoning for Step #4 section.	Move this to the Remarks/Reasoning for Step #4.	Minor	Acknowledged
338		A.3	53	400			Remarks/Reasoning for Step #3 Provide elements to demonstrate that for each credit claimed there is an effective reduction of 1 order of magnitude in the population at risk, compared to the one defined in Step #2. Please refer to SORA annex B for additional information. If the assessment of the ground risk is qualitative, also the assessment of the reduction may be qualitative. A credit may be reached when you demonstrate that the final ground risk (after the application of the mitigation) is equivalent to the lowered GRC. In case the level of robustness is claimed as high, evidences of a third party validation should be provided This field may be used to explain the underlying assumption of the applied mitigation, e.g. - Why is the used M2 method appropriate to lower the GRC? - Which official did you coordinate the M3 ERP with if applicable? Why is the used M1 strategic mitigation method appropriate? Which sources were used for the assessment? For example • if M1 is used you may provide maps showing the actual flight path and the demonstrating the reduction of the population density overflown. • If the shelter factor is used for M1 you may provide justifications on why it is applicable; • If M2 is used a description of the system and its effectiveness showing how you can claim the reduction in the population at riks	Minor	Rejected
196	N/A	A.3 - Remarks/reasoning for Step #3	53	Minor	Which official did you coordinate the M3 ERP with if applicable?	Replace 'official' with 'organisation(s) and/or authority(ies)'	Which organisation(s) and/or authority(ies) did you coordinate the M3 ERP with if applicable?	Minor	Accepted
340		A.3	54	400	#5.3 Residual Air Risk Class	Why ARC -a is missing?		Minor	Accepted
504		A.3	54			Why no option for residual ARC-a, that is possible?	Add option for ARC-a	Minor	Accepted
201	There is not ARC-a		54		**#5.3 Residual Air Risk Class**	Lowering the initial ARC to residual ARC-a is posible with a segregated airspace	Add to the table the click box of ARC-a.	Minor	Accepted

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341		A.3	54	400			Remarks/Reasoning for Step #5 ● This step must be repeated for all Initial ARC identified in Step #4 if they are Arc-c or Arc-d and strategic mitigations are available Describe how you apply the strategic mitigations and its effectiveness	Minor	Rejected
503		A.3	54			Other types of stragegic mitigation is possible	Add option other	Minor	Accepted
198	N/A	A.3 - Remarks for Step #7, #8, and #9	54	Minor	Remarks for Step #7 (MA Input) - Usually, no remarks are necessary unless the operator plans to deviate from the SAIL mapping table, which the authority might only allow in certain unusual boundary cases. Remarks/Reasoning for Step #8 (MA input) Remarks/Reasoning for Step #9 (MA input) - Some quick tips to better define the adjacent area (Step#9 under update?)	These seem to be internal notes. Remove them.	Delete.	Minor	Accepted
342		A.3	55	400	Remarks/Reasoning for Step #8 (MA Input) ● Compliance evidence with various OSOs needs inputs from Operator, UAS designer and manufacturer, depending on the required LOR and OSO category. ● Which sources have been used for the compliance for which OSO? Example: Some evidence supplied by an OEM, others by service providers, others by the operator itself. It may be useful to identify this work share at this stage in order to ease the Step #10.	I think here we may just ask to reference to the table below with the compliance of OSOs		Minor	Accepted
343		A.3	55	400	#9 Safety requirement for containment		Add: Size of the adjacent area: _____ and Level of containment ☐ Basic ☐ Enhanced	Major	Accepted
344		A.3	55	400			Remarks/Reasoning for Step #9 (MA inputs) ● Some quick tips to better define adjacent area (Step#9 under update?) ● Step #9 may be analysed and assessed together with OSO#10 and OSO#12 (single failure criterion, SW-HW methodology) ● Provide a description of the adjacent area and volume, in case attach maps	Major	Accepted
236	Step #7, #8, #9	MA comments	55	400	All MA inputs (in red).	Agree with all of them.	Propose to include them as fixed text in the Annex.	Major	accepted
19		Step 8	55		It may be useful to identify this work share at this stage in order to ease the Step #10.	clerical	rephrase to "If the planned means of compliance is available for the Step 10 SORA Annex E, that table can be referenced here."	Editorial	accepted
20		Step 9	55				Add option "The above considerations do not apply"	Major	accepted
345		A.3	56	400			Add a new column for evidences and a foot note: List the procedures or evidences showing compliance with the SORA provisions.	Major	accepted
346		A..3	56	404		For Ground Risk Mitigations – SORA Annex B, Strategic Air Risk Mitigations – SORA Annex C, Adjacent area/airspace considerations Operational Safety Objectives – SORA Annex E	Add a foot note to the header "Reference to documentation" In case the procedures or evidences to show compliance the SORA provision are multiple, multiple reference may be provided.	Minor	Rejected
475	Columns Comprehensive Safety Portfolio		56	404		I suggest to to include in the columns the criterias stemming from the Annexes and to rename the reference to the documentation column, Compliance evidence/Reference to documentation	"Criteria", "Compliance Evidence/Reference to Documentation"	Major	Acknowledged
199	N/A	A.3 - TMPR level	56	Major	- VLOS	Add N/A, as UAS operations in VLOS do not need to meet the TMPR.	**N/A (VLOS)**	Major	Rejected
505		A.3	56		GRC mitigation	The table only provides option to reference a document, it should be possible to provide the "answer" in the table itself. There is not reason to have it in another document. Example, i declare, fits nicely into a table	Add option	Major	Accepted
506		A.3	56		Strategic air risk mitigation	The table only provides option to reference a document, it should be possible to provide the "answer" in the table itself. There is not reason to have it in another document. Example, i declare, fits nicely into a table	Add option	Major	Accepted
507		A.3	57		TMPR	The table only provides option to reference a document, it should be possible to provide the "answer" in the table itself. There is not reason to have it in another document. Example, i declare, fits nicely into a table	Add option	Major	Acknowledged
120		OSO #03	58			When there are several criteria, it would be opportune to reflect it, because the evidence of the procedure may not be in the same place as that of the training or the records.		Major	Rejected
508		A.3	58		Adjacent area	The table only provides option to reference a document, it should be possible to provide the "answer" in the table itself. There is not reason to have it in another document. Example, i declare, fits nicely into a table	Add option	Major	Acknowledged
509		A.3	58		OSO	The table only provides option to reference a document, it should be possible to provide the "answer" in the table itself. There is not reason to have it in another document. Example, i declare, fits nicely into a table	Add option	Major	Acknowledged

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428			60		Adjacent area/airspace considerations	Add security to requirements in this table	**Safety and security requirements**	Major	Rejected
476	Comprhensive Safety Portfollio		61	408		A compliance table for Step 9 would probably also be helpful	Add a compliance table for step 9	Major	Accepted
429			61		Table OSO #09	Add to demonstrate that Remote Crew must be vetted by appropriate agencies.	OSO #09: Remote crew trained, vetted, and current and able to control the abnormal situation	Major	Rejected
430			61		Table OSO #10	Add that need to consider security	OSO #10 Safe and secure recovery from a technical issue	Major	Rejected
347	is there a plan to address flight time limitations?	n/a		n/a				Major	Rejected
348	Navigation data, charting, flight planning etc. are typically covered in OM Part C. Are these things potentially relevant for drone operations? for long flights or depending on the airspace flown, they might be relevant and we would expect something on navigation in the ops manual.	n/a		n/a				Major	Acknowledged
123	Add a hyphen when two compound adjectives come before the noun they modify. Some examples are shown in the Proposed Text.	N/A		Editorial	N/A	See General Comment	"location-specific mitigations", "occurrence-reporting procedures", "third-party provider(s)", "aviation-related agencies", "record-keeping procedures", "low-speed mode", "high-level details", "on-site communication", "competency-based training", "fixed-wing aircraft", "manufacturer-supplied data", "vision-based equipment", "crash-resistant container", "operation-specific assumptions", "human-machine interface", "safety-critical systems", etc.	Editorial	Acknowledged
125	All the verbs under the Recommendations (R) sections should be highlighted in bold.	N/A		Editorial	N/A	See General Comment	N/A	Editorial	Acknowledged
127	Replace "competence" with "competency" when talking about the training, qualification, etc. of the remote crew.	N/A		Editorial	competence	See General Comment	**competency**	Editorial	Acknowledged
121	Wing supports the proposed arrangement of the UAS technical and operational information proposed in this new version of Annex A and would like to thank the group for such an effort.	N/A		Major	N/A	See General Comment	N/A	Editorial	Acknowledged
122	We would like to request clarification on whether this document goes along with the already published set of Main Body + Annexes or the next iteration. In case it is the latter, this Annex A would need to be updated in line with the ongoing improvements in Annexes B, E, etc.	N/A		Major	N/A	See General Comment	N/A	Editorial	Acknowledged
124	Since SORA does not make any distinction depending on the applicant is a natural person or an organisation, we propose that "company" be removed throughout the whole document.	N/A		Minor	company/applicant	See General Comment	**applicant**	Editorial	Acknowledged
126	For harmonisation purposes, 'RPAS' should be replaced with 'UAS' along the whole document.	N/A		Minor	RPAS	See General Comment	**UAS**	Editorial	Accepted
128	Replace "mission" with "operation", as the former is normally used in the military context.	N/A		Minor	mission(s)	See General Comment	**operation(s)**	Editorial	Accepted
129	Use the verb "to be" in the plural when going with the noun "criteria" (the plural form of "criterion").	N/A		Minor	criteria is/was	See General Comment	**criteria are/were**	Editorial	Accepted
130	For harmonisation purposes, use "command unit" ("CU") instead of "control station" ("CS"), "control unit", or "ground control station" ("GCS").	N/A		Minor	control station (CS); control unit; ground control station (GCS).	See General Comment	**command unit (CU)**	Editorial	Accepted
131	For harmonisation purposes, please use the whole concept of "command and control (C2) link" along the document.	N/A		Minor	command link; control link.	See General Comment	**command and control (C2) link; C2 link**	Editorial	Accepted
132	In order to remain technology-agnostic, please replace "GPS" with GNSS along the document.	N/A		Minor	GPS	See General Comment	**GNSS**	Editorial	Accepted
133	For harmonisation and clarity purposes, use "remote crew" or "remote crew members", as applicable, instead of "flight crew", "pilot", or "remote pilot". This will also allow accounting for multi-crew operations.	N/A		Minor	flight crew; pilot; remote pilot	See General Comment	**remote crew [members]**	Editorial	Partially Accepted
54		Whole document				This document represent a significant change for the operator which tipically organise their documentation in Operation Manual, Risk Assesment and Systems Technical Chararacterization. With this new approach all of these documents are included all-in-one (in the ConOps of SORA)? Or is it possible to refer to different documents for maintaining the current documental structure?		Major	Acknowledged
359	When referring to Risk please include both Safety and Security Risks					Throughout the document, additional references to security are often needed	General comment that should be addressed with other specific comments unless an instance has been overlooked.	Minor	Rejected

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
450	Annex A of SORA seems to contain all requirements and guidance also for UAS to be certified and organisations to be certified (LUC) => a distinction or labelling of requirements would be helpful							Major	Accepted
477	developed to be much more than it was intended to be: A structure for a ConOps that gives operators guidelines, how to group the data that should be included in a ConOps. The structure might group OSO criteria and establish standardized subchapters. (Like OM-A to OM-C how it was done in CR (EU) 965/2012) The current version of Annex A often details the requirements of OSOs, interprets their meaning and defines what an operator should present to an NAA, doubling other Annexes. We very much appreciate this work, as it is much needed for operators and NAAs to be implemented as GM to Annex E for example. However, defining some OSO requirements in significant detail (see e.g. OSO #01) in Annex A and by that doubling the requirements for Annex E will break the system! Additionally, some elements that are included cannot be linked to any OSO, a mitigation or a description of the operation. An example is in "A.1.11 Safety and Risk Management". We do not find any justification for a "Threat and Error Management system"						do not use the new Annex A	Major	Accepted
478	We greatly appreciate the work that was done to clarify what operators need to present to achieve a given level of robustness for an OSO. However, we believe that it would be more beneficial to present this as guidance material for each OSO individually. Giving details for OSOs in individual guidance material to Annex E would also be beneficial in case an OSOs changes (e.g. test-based approach for OSO #04). One would only need to update that individual document and not open up multiple documents (Annex E and Annex A and Annex) This probably makes version control and small improvements much easier in the future.							Major	Accepted
480	Here is an example to elaborate our point: Take a new operator that wants to develop a ConOps for an operation and uses the new Annex A. From a new operator point of view, Annex A currently looks like a unique tool to copy a ConOps, which details all required information that must be included. We believe that most operators will simply copy Annex A, and develop their ConOps purely based on this document. This is because operators often do not exactly understand what is meant with certain OSOs and how to fulfil their requirements. Instead what operators would need to do to make their ConOps complete, is take Annex A, stick to the structure and requirements, but also scan Annex E to make sure that all OSO requirements on the given robustness are fulfilled. This is arguably maximum painstaking and poses a huge likelihood for mistakes. We know that this may lead to confusion and fear a decrease in the quality of ConOps, which NAA receive.							Major	Accepted

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
479	What we believe matters for an authorization is that an applicant adequately describes the intended operation, fulfils all OSOs based on Annex E, and if necessary, all mitigation measures. However, first-time readers like new operators with little to no experience with SORA do not understand this. As we learned from the publication of the current Annex A to AMC1. We fear that this Annex A may lead to even more confusion. NAAs might end up having a huge workload to explain to operators, that Annex A gives only structuring information and what matters is to fulfil all OSOs, mitigations and describe the operation.							Major	Accepted
484	I think this version of Annex A is highlighting a problem we have discussed many times: is the CONOPS a document written for/only to be used by the Competent Authority? Or is it the document which the operator uses to perform the operations once authorized? The Operational Manual described in the AMC of the EASA specific category is very much an operator centric document whereas this CONOPS version seems solely focussing on the needs of the Competent Authority.					I think we should reconsider the structure of the document to be more focussed on the needs of the operator. Esepcially for SAIL I/II we are going to ask a lot of documentation whis is irrelevant once the operation starts. On the other there are aspect missing which I think is relevant such as secuirty considerations, environmental considerations etc.		Major	Accepted
485	The format for numbes should be the same as that used on ICAO. I don't have an ICAO reference handy, but a review of ICAO documents shows that a space is used between the thousands digit and the hundreds digit and a "." is used between the single digit and the one-tenth digit.	Numbers	General	Various	A general example is "1 500.25" to denote one thousand, five hundred and 25 hundredths rather than the number format of "1,500,25" or similar that is used currently.	See various ICAO SARPs and technical manuals for examples, including the ACAS Manual.	As noted in the general comment at left.		Rejected
	Explanations for every abbreviation used as a subscript for variables		General	Various	Sav, Scm, Ham	Explanations for every abbreviation used as a subscript for variables, such as AV, CM and AM are given preferably in a dedicated table, which is for easy reference.	Explanations for every abbreviation used as a subscript for variables, such as AV, CM and AM are given preferably in a dedicated table, which is for easy reference.		Rejected
	5.2.3 "Computation Contingency Volume"	Section 5.2.3	32		Based on S=1/2 a t_R ^2+V_0 t_R follows for a	I would recommend that deleting the this sentence, since α and S is not defined here, and I don't see how it contribute to the calculation of the SCM. Correct me if I misunderstood.	deleting the current text		
	5.2.3 "Computation Contingency Volume" 5.2.4 "Computation Ground Risk Buffer"	Section 5.2.3 & 5.2.4	32&35		N/A	I would recommend that adding the text of "For reference only" or "example only" to section 5.2.3 and 5.2.4, because these methods are more straightforward ones as compared to the means such as that in article "Ground impact probability distribution for small unmanned aircraft in ballistic descent", which is more accurate and some operators would like to opt for.	adding the text of "For reference only" or "example only" to each section		Rejected
	Ref. document: WG-SRM "SORA Annex B"								
52			3	23	"A proposed mitigation may or may not have a positive effect on reducing the ground risk associated with a given operation. In the case where a mitigation is available but does not reduce the risk on the ground, its level of integrity should be considered equivalent to "None".	Same comment as in SORA Main body: It is acknowledged that the M3 ERP mitigation removal makes perfect sense. However another M3 must be considered: employees' awareness which actually significantly reduces the risks for people. We have a concrete example of a company which established a specific awareness/training session for any employee due to enter a site where a drone is operated (drone location, paths, missions, how it behaves in case of issue and how employees should behave). All these actions do take place before the crash itself and by that concur to enhance local safety compare to a site where such awareness is not taking place (also echoes "operator's operational safety culture" see line 612, page 19). Non-involved people may therefore be considered as involved persons (informed of the risk as per footnote 5 page 25)	**Insert another line in the table of mitigations as follows:** **M3 - UAS Awareness Safety Training (for initially non-involved people at site of operations)** **Low: -1 Medium: N/A High: N/A**	Acknowledged	Acknowledged; although it is good practice to make uninvoved people aware of UAS operations, if these people do not perform any action or follow procedure during an emergency event, these people are staying uninvolved people and no credit of their awareness training can be taken credit of in the operator SORA.
53		Adjacent area mitigations			-	Annex B does not contain information on M1 and M2 mitigations for adjacent area. Level of integrity and level of assurance for these mitigations must be included (especially on demonstrating frangibility), even if additional justification is not required. In addition, consider renumbering the mitigations for adjacent areas, as the numbering is so similar to mitigations M1(A) and M2 for the operational area, although M2 mitigations for adjacent areas do not allow applicants to use parachutes or special descent manoeuvres by default.		Aknowledged	Annex F section 5.3.5 has guidance of applying mitigation to the adjacent area.
87	M1(A) and M1(B) mitigations are not related between eachother. It would make more sense to rename it as M1 and M2, and current M2 as M3. For example.							Partialyl accepted	Mitigations renamed after splitting of M1(A)

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101	Increase in SAIL due to changed mitigations for the same operation with SORA 2.5 comapred with 2.0				Annex B	It was envisioned and promised that current operations would be able to continue under SORA 2.5 with virtually no additional requirements... (SAIL is expected to be largely the same). In my opinion, this is not true because: - iGRC increased by 1 point from populated (BVLOS) to density below 25,000 ppl/km2 (most major cities) - M1(B), which is supposed to be a mitigation for VLOS, has an additional condition - the prohibition to overfligh people, which is often impractical. In 2.0 this condition did not exist. - M1(A) scores less on H, although the same principle applies to reducing the number of people... - M3 mitigation is gone - on H it gave 1 point of iGRC reduction	The comment above under 6 could reduce the difference in SAIL, and be one of the partial solutions.	Aknowledged	iGRC numbers have been revised to match SORA 2.0 more closely. A complete alignment is impossible, but existing operations should be able to continue under 2.5 even though the mitigations are not identical.
102	n/a	n/a	n/a	n/a	n/a	SORA 2.5 does not sufficiently take into account small UAS. The iGRC in many cities will be 6, whereas the iGRC is 4 under the current SORA 2.0. Of course, credit for VLOS under SORA 2.5 can now be taken during step #3, but still the iGRC will be too high for small UAS and disproportionate compared to the Open category. I would suggest an extra mitigation to reduce the iGRC during step #3 to further reduce the GRC for UAS with small ground impact (comparable to subcategory A1 of the Open category).The variable used would be the typical kinetic energy expected, which is used during step #2 under the current SORA 2.0. If the impact energy stays under 1000 J (comparable to the impact of a Class C1 drone weighing 900 grams falling from a height of 120 meters) without any technical or procedural mitigation (e.g. parachute or spinning descent), then a correction of -1 may be applied to the GRC. Of course, in the case of applying M2(B), no credit may be taken from M2(A).This way, VLOS operations in busy cities may still be performed using small UAS within SAIL II and comparable to the Open category, which is proporionate for these kind of operations.	"M2(B) - Typical kinetic energy expected upon UA impact is < 1000 J" (Picture available in "Feedback SORA Annex B" file)	Accepted	Simple mass limitation added as a possible M2 mitigation to aligning CAT B better with CAT A operations.
126	Description for M1 mitigation 'use of a tether' been removed from Annex B. In general this makes sense as 'use of a tether' is more relevant as a means of containment than as a strategic ground risk mitigation. However, for Airborne Wind Energy Systems, the tether is a very important part of the system as it contrains the operational geography to a very well defined volume. Furthuremore, if a sufficient degree of robustness can be demonstrated, the tether may also be used as an alternative means of compliance towards the ehanced containment requirements.	NA	NA	NA	NA	Please keep comments regarding 'use of a tether' in containment requirements in Annex E, section 4.	See Annex E, comments 1, 2 and 3.	Accepted	Tether is included as part of Annex E containment requirements.
						Ref. document: WG-SRM "SORA Annex E"			
12		0. General	All	All		OSO NUMBERING Go back to the previous OSO numbering. Remove duplicate OSO's and replace with RESERVED for future use.	Go back to the previous OSO numbering. Remove duplicate OSO's and replace with RESERVED for future use.	Acknowledged	During JARUS-SRM meeting in April 2023, it was decided that the SORA 2.0 OSOs numbering will not be changed, due to the high impact on external documents (such as those made by standardization bodies, authorities, etc.) and given the expected future work on OSOs in SORA 3.0. Solution is to revert back to the original SORA v2.0 numbering for OSOs
13		0. General	N/A	N/A		OSO NUMBERING We suggest not using roman numbers for OSOs, but rather another notation such as "A, B, etc." or replacing with new regular numbers.		Rejected	See comment #12
14		0. General	N/A	N/A		OSO NUMBERING Review the OSO numbers in Annex E, to change all the references from the old numbers (SORA 2.0) to the new ones (SORA 2.5).		Acknowledged	See comment #12
16		1. How to use SORA Annex E	3	50	#4 "Optional" cases defined in SORA Main Body Table 8 do not need to be defined in terms of integrity and assurance levels in Annex E. No robustness level is required for OSOs for which an "optional" level of robustness is defined in Table 6 "Recommended operational safety objectives (OSO)" of the SORA Main Body.	CONSISTENCY In the main body there are no more 'optional' cases. They are now named 'not required' therefore this wording should be reflected here to prevent any confusion	cases where the demonstration of compliance is not required (NR)…(…)	Accepted	replaced "optional" with "non required (NR)"
17		1. How to use SORA Annex E	3	50	#4 "Optional" cases defined in SORA Main Body Table 8 do not need to be defined in terms of integrity and assurance levels in Annex E. No robustness level is required for OSOs for which an "optional" level of robustness is defined in Table 6 "Recommended operational safety objectives (OSO)" of the SORA Main Body.	This is just one of many examples that shows that this document has been rushed. The table refers to a SORA main document table, with the wrong cross-reference and mentioning the term "optional" that has been amended in the main body SORA document to NR	Delay the inclusion of the new Annex E until a proper review is conducted, explanatory notes are given and a workshop is conducted	Accepted	See comment #16

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18		1. How to use SORA Annex E	3	50	#4 “Optional” cases defined in SORA Main Body Table 8 do not need to be defined in terms of integrity and assurance levels in Annex E. No robustness level is required for OSOs for which an “optional” level of robustness is defined in Table 6 “Recommended operational safety objectives (OSO)” of the SORA Main Body.	Table references should probably be Table 10. Also, "optional" does not exist anymore and was renmed in "NR"		Accepted	See comment #16
117		2. OSO #IX (OSO #16) Assurance	20	143	The applicant declares that the required level of integrity has been achieved.	The low assurance requirement and associated comment below it refer to a low integrity requirement that is N/A.	Delete the low assurance requirement and associated comment.	Accepted	low assurance requirement for criterion #3 and associated comment deleted
111		2. OSO #IX (OSO #16) Integrity	18	142	N/A	We believe it would make more sense to put OSO IX behind OSO X, because in parts multi crew coordination is a subpoint of remote crew competencies.		Rejected	See comment #12
78		2. OSO #V (OSO #03) Integrity	11	101	Same as Low. In addition: • Preventative/Scheduled maintenance / inspection of each UAS is organised and in accordance with ...	Preventive?	Preventive	Accepted	Replaced "Preventative" with "preventive"
90		2. OSO #VI (OSO #07)	13	113	2) This OSO does not describe a pre or post flight inspection as part of normal operations, these are covered under OSO #8.	OSO #8 has been renamed OSO #IV	(…) covered under OSO **#IV ~~#8~~**.	Acknowledged	See comment #12
91		2. OSO #VI (OSO #07)	13	113	2) This OSO does not describe a pre or post flight inspection as part of normal operations, these are covered under OSO #8.	OSO#8 became included in OSO# IV ?		Acknowledged	See comment #12
92		2. OSO #VI (OSO #07)	13	113	2) This OSO does not describe a pre or post flight inspection as part of normal operations, these are covered under OSO #8.	Roman numbering is now used for OSOs, OSO VIII does not match, do you mean the new procedures OSO #IV?		Acknowledged	See comment #12
93		2. OSO #VI (OSO #07)	13	113	2) This OSO does not describe a pre or post flight inspection as part of normal operations, these are covered under OSO #8.	We should be more consistent with the new numbering of the OSOs if this is what is eventually adopted. Otherwise, see our comment #22 on keeping the existing OSOs numbering to avoid confusion.	Amend based on the new numbering of the OSOs if this is what is eventually adopted.	Acknowledged	See comment #12
94		2. OSO #VI (OSO #07)	13	113	2) This OSO does not describe a pre or post flight inspection as part of normal operations, these are 114 covered under OSO #8.	New OSO number should be referenced		Acknowledged	See comment #12
99		2. OSO #VII (OSO #23)	14	120	(a) Environmental conditions include meteorological conditions such as wind, rain, and icing, as well as external factors that may interfere with the performance of systems such as HIRF.	editorial - define HIRF, many persons do not know what this acronym means	**high intensity radiated field (**HIRF**)**	Accepted	expanded HIRF acronym: high intensity radiated field
100		2. OSO #VII (OSO #23)	14	120	(a) Environmental conditions include meteorological conditions such as wind, rain, and icing, as well as external factors that may interfere with the performance of systems such as HIRF.	HIRF is not explained anywhere		Accepted	See comment #100
130		2. OSO #XI (OSO #19)	23	183	Note: the flight envelope protection is excluded from this OSO since it is specifically covered by OSO #18.	OSOs have been renamed	Note: the flight envelope protection is excluded from this OSO since it is specifically covered by OSO **#XIV ~~#18~~**.	Acknowledged	See comment #12
131		2. OSO #XI (OSO #19)	23	183	Note: the flight envelope protection is excluded from this OSO since it is specifically covered by OSO #18.	became OSO # XIV ?		Acknowledged	See comment #12
132		2. OSO #XI (OSO #19)	23	183	Note: the flight envelope protection is excluded from this OSO since it is specifically covered by OSO #18.	New OSO number should be referenced		Acknowledged	See comment #12
136		2. OSO #XI (OSO #19) Assurance	25	190	...theOSO #XI Criteria #1 and…	Missing space	…the OSO #XI Criteria #1 and…	Accepted	added missing space
139		2. OSO #XII (OSO #04)	26	196	(a) Starting at SAIL IV, it is considered that the safety objective associated to the SAIL of one operation (e.g. probability of loss of control of the operation below 10-4/FH for a SAIL IV operation) **can not** be achieved without a complete demonstration of compliance to Airworthiness Design Standard (ADS) (unless an FTB-approach is chosen by the UAS designer), where the term Airworthiness Design Standard (ADS) refers to the “applicable regulations” (e.g. 14 C.F.R. § 21.17(1)) or “airworthiness code” (e.g. EASA 21.A.16A and 21.A.17).	Spelling	(a) Starting at SAIL IV, it is considered that the safety objective associated to the SAIL of one operation (e.g. probability of loss of control of the operation below 10-4/FH for a SAIL IV operation) **cannot** be achieved without a complete demonstration of compliance to Airworthiness Design Standard (ADS) (unless an FTB-approach is chosen by the UAS designer), where the term Airworthiness Design Standard (ADS) refers to the “applicable regulations” (e.g. 14 C.F.R. § 21.17(1)) or “airworthiness code” (e.g. EASA 21.A.16A and 21.A.17).	Accepted	replaced "can not" by "cannot"
170		2. OSO #XVI (OSO #06) Integrity	34	280	OSO #06	Should be OSO #XVI	Change to OSO #XVI.	Acknowledged	See comment #12
171		2. OSO #XVI (OSO #06) Integrity	34	280	OSO #06	OSO #XVI		Acknowledged	See comment #12
172		2. OSO #XVI (OSO #06) Integrity	34	280	OSO #06	There is a typo in OSO #06 (instead of OSO #XVI).	OSO #XVI	Acknowledged	See comment #12

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173		2. OSO #XVI (OSO #06) Integrity	34	280	OSO #06	We should be more consistent with the new numbering of the OSOs if this is what is eventually adopted. Otherwise, see our comment #22 on keeping the existing OSOs numbering to avoid confusion.	Amend based on the new numbering of the OSOs if this is what is eventually adopted.	Acknowledged	See comment #12
185		2. OSO #XVIII (OSO #10) Assurance	38	326	OSO #XVIII	EDITORIAL : The name seems to be missing. The rest of the document indicates the fulll names of the OSOs	OSO #XVIII **Safe recovery from technical issue with the UAS or external systems**	Accepted	See comment #178
178		2. OSO #XVIII (OSO #10) Integrity	38	326	OSO #XVIII	EDITORIAL : The name seems to be missing. The rest of the document indicates the fulll names of the OSOs	OSO #XVIII **Safe recovery from technical issue with the UAS or external systems**	Accepted	Expand OSO #XVIII / 10: "Safe recovery from technical issue with the UAS or external systems"
194		3. Functional Test-Based (FTB) Approach	40	345	ii. as a MoC to support UAS designers in demonstrating the UAS operational,		as a MoC to support UAS designers in demonstrating the UAS operational **reliability**	Accepted	added 'reliability' at the end of: "as a MoC to support UAS designers in demonstrating the UAS operational"
233		4. Containment - Criterion #3 - Integrity	44	491	Criterion #3 - Definition of the GRC buffer	TYPO: should read Definition of the Ground Risk Buffer	Definition of the **Ground Risk** buffer	Accepted	replaced "Criterion #3 - Definition of the GRC buffer" by "Criterion #3 - Definition of the ground risk buffer"
242		4. Containment - Criterion #4 - Integrity	45	491	Criterion #4 - GRC buffer containment	Typo?	**ground risk buffer containment**	Accepted	replaced "Criterion #4 - GRC buffer containment" by "Criterion #4 - ground risk buffer containment"
221		4. Containment requirements	44	485	a. In SORA Main Body, Step #9 : Determination of containment requirements [...]	Wrong step?	"a.In SORA Main Body, Step #8 : Determination of containment requirements …"	Rejected	There was no issue identified in this section
223		4. Containment requirements	44	489	b. The following section provided the detailed containment requirements for the following 3 levels of containment: Low, Medium and High.	Spelling	"b.The following section provides the detailed containment requirements for the following 3 levels of …"	Accepted	replaced "provided" by "provides"
2		0. General	N/A	N/A		LINKING REQUIREMENTS TO CORRECT PARTIES Currently all SORA requirements are linked to the UAS operator. However many of the requirements in the OSOs are actually aimed at Designers, Manufacturers, Training organisations or others. Please link the requirements to correct targets.		Rejected	During JARUS-SRM meeting in April 2023, it wasa clarified that an operator should not be allowed to apply for an OA without data provided by the designer or at least at the disposal of the CAA for review; this may need to be clarified in the Main Body . As well, there is consensus that it may not be possible to define an interface between operator and designer which match 100% of cases. For this reason, it was decided not to add specific requirements for the designer and/or manufacturer in Annex E
4		0. General	N/A	N/A		USABILITY Please add SAIL to robustness levels in Annex E. Otherwise the applicant always has to jump back & forth between main body & annex E (had already several applications with copy & paste error)		Accepted	We integrated the SAIL information to the integrity and assurance tables in Annex E
5		0. General	N/A	N/A		USABILITY Currently the Annex E is sometimes difficult to read because OSOs applicability is driven by Table 10 of the main body. For more convenience, it would be great to include the level of robustness of each OSO in the respective OSO description in the Annex E		Accepted	We integrated the SAIL information to the integrity and assurance tables in Annex E
10		0. General	N/A	N/A		For any technological OSO, will be enough to use a UAS with Class mark for justify low level assurance? This way the assurance would be higher than a declaration. In this case, which Class mark would be acceptable?		Rejected	European centric comment which needs to be adressed with EASA and the Member States
34		2. OSO #II (OSO #02) Integrity	5	59	• occurrence analysis procedures for design related in-service events reported to the designer by the Operator.	Is this to the UAS operator (applicant) or the manufacturer/designer to do that?	Consider including the manufacturer/design organisation declaration as requirement.	Rejected	Refer to adjudication of comment #2
48		2. OSO #IV (OSO #08)	8	81	(a) Standard Operating Procedures are a set of instructions covering policies, procedures, and responsibilities set out by the applicant that supports operational personnel in ground and flight operations of the UA safely and consistently during normal situations.	The manufacturer should be required to provide manuals and procedures provide appropriate information to meet the requirements of OSO #IV. (SOPs)		Rejected	Refer to adjudication of comment #2
49		2. OSO #IV (OSO #08)	8	81	(a) Standard Operating Procedures are a set of instructions covering policies, procedures, and responsibilities set out by the applicant that supports operational personnel in ground and flight operations of the UA safely and consistently during normal situations.	The manufacturer should be required to provide manuals and procedures provide appropriate information to meet the requirements of OSO #IV. (SOPs)		Rejected	Refer to adjudication of comment #48

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52		2. OSO #IV (OSO #08) Integrity	8	93	• Normal, Contingency and Emergency procedures are compiled in an Operation Manual.	This might be misleading. The operations manual (the new wording for ConOps) must contain descriptions to fulfill all OSOs and mitigations in order to be acceptable to the authority. Why is it explicity stated here, that Normal, Contingency and Emergency procedures are compiled in an OM?		Partially Accepted	During JARUS-SRM meeting in April 2023, it was clarified that it is not the objective of the operations manual to contain the compliance elements to the OSOs and mitigations. It was as well decided to avoid the use of the term "Operation Manual" in Annex E, whenever possible. In the specific case of OSO#08, the sentence: "Normal, Contingency and Emergency procedures are compiled in an Operation Manual." was simply deleted.
58		2. OSO #IV (OSO #08) Integrity	9	93	6 [...] Additional information regarding these exceptional cases can be found in Annex F section.	This seems like it should be a single "." rather than "…"	Make editorial change or provide additional detail on Annex F reference if that is the intention.	Partially Accepted	Reference to Annex F was deleted since there is no possibility anymore to reduce the GRC based on the ERP in SORA v2.5
60		2. OSO #IV (OSO #08) Integrity	9	94	6 [...] Additional information regarding these exceptional cases can be found in Annex F section.	The reference to the section is missing.	Insert the reference to the correct section.	Partially Accepted	Reference to Annex F was deleted since there is no possibility anymore to reduce the GRC based on the ERP in SORA v2.5
68		2. OSO #V (OSO #03)	11	100	OSO #V - UAS maintained by competent and/or proven entity	We suggest to change the name of OSO#V to encompass more aspects of the OSO#V, such as procedures, training (Note: this would also better fit the inclusion of ICA into OSO#V, should this be confirmed)		Rejected	Refer to adjudication of comment #2
69		2. OSO #V (OSO #03) Integrity	11	101	Text under Low Level of Integrity requirements	There is an inconsistency between Table 10 of the Main Body document and OSO #V in Annex E: OSO #V does not contain any requirement for manufacturers. (Also refer to our first comment in the Main Body Excel) We assume the intent was to add a requirement for the manufacturer to develop Instructions for Continuing Airworthiness (ICA). We are supporting the idea of having such OSO for ICA, but we would like to keep it out of OSO#V. We recommend the principle of having OSOs dedicated to operators only and other OSOs dedicated to manufacturers only. Implementing this principle would favour clarity for all stakeholders and avoid mixing different types of requirements under the same OSO. Therefore, we suggest adding an ICA-related requirement to a design-related OSO.	No change to OSO#V Add the following to a design-related OSO: **The UAS Designer defines the instructions and requirements for the maintenance of the UAS (or ICA: Instructions for Continuing Airworthiness).**	Rejected	Refer to adjudication of comment #2
77		2. OSO #V (OSO #03) Integrity	11	101	The maintenance staff is competent and has received an authorisation to carry out UAS maintenance.	How does that work in practice when an operator buys a drone from a manufacturer, and the operator want's to use the manufacturer services for maintenance? How can e.g. staff of DJI be authorised by the operator? The operator does not know the persons at DJI personally. It is very typical that operators use DJI drones and they don't maintain the UASs themselves.		Rejected	Refer to adjudication of comment #2
85		2. OSO #V (OSO #03) Integrity	11	101	3 The UAS designer instructions and requirements for maintenance are sometimes referred to as ICA (Instructions for Continued Airworthiness).	The ICA will be used by the Operator to perform the maintenance of its UAS. Maintenance activities are planned and are ensuring its **Continuing** Airworthiness, thus part of Continuing Airworthiness activities. For instance, maintenance is under the scope of Regulation (EU) EU 1321/2014 which is the Continuing Airworthiness Regulation. On the other hand, **Continued** Airworthiness is related to the management of the Type Design, on which safety issues can emerge. Dealing with these safety issues through reactive measures (e.g. Airworthiness Directives) and changes is part of Continued Airworthiness activities.	3 The UAS designer instructions and requirements for maintenance are sometimes referred to as ICA (Instructions for **Continuing ~~Continued~~** Airworthiness).	Accepted	Replaced "Continued AW" with "Continuing AW"
96		2. OSO #VI (OSO #07) Integrity	13	115	The Operator periodically1 ensures that the UAS is in a condition for safe operation and conforms to the approved concept of operation, taking into account the lifecycle of the aircraft.2	The scope of a conformity inspection should be defined. It should also be kept in mind that the operator might not be able to make himself avail of the relevant design data to perform a conformity inspection as required by 14CFR21.33 for example… Moreover, it is unclear what documentation of the manufacturer and maintenance personnel should be considered, i.e. certificates of conformity, maintenance records or other continuing airworthiness documentation. The intent of this OSO is appreciated; however, the scope must be clearly defined.		Rejected	Refer to adjudication of comment #2
101		2. OSO #VII (OSO #23) Integrity	14	121	Environmental conditions for safe operations are defined and reflected in the flight manual or equivalent document.	the conditions must be explained in the OPERATIONS MANUAL		Rejected	During JARUS-SRM meeting in April 2023, it was clarified that it is not the objective of the operation manual to contain the compliance elements to the OSOs and mitigations.
110		2. OSO #VIII (OSO #13) Assurance	17	137	1 Supporting evidence for this declaration may still be requested by the competent authority.	This is true for any OSO not only this one : in any case, the competent aurthority should always be entitled to check any declaration. Mentioning it here may imply that this situation is dedicated to OSO VIII	The sentence "Supporting evidence for this declaration may still be requested by the competent authority." could be introduced as a generic remark after the title "2. OSOs integrity and assurance criteria" and before OSO #1.	Rejected	The sentence "Supporting evidence for this declaration may still be requested by the competent authority." is systematically added when statement "The applicant declares ..." is made in Annex E
126		2. OSO #X (OSO #09) Integrity	22	170	Service Level 1 (as described in Annex H) Service Level 2 (as described in Annex H) Service Level 3 (as described in Annex H)	Annex H is not released. There can be no link to a non-published Annex.		Rejected	Refer to adjudication of comment #123

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127		2. OSO #X (OSO #09) Integrity	22	170	Service Level 1 (as described in Annex H) Service Level 2 (as described in Annex H) Service Level 3 (as described in Annex H)	Annex H is not published by JARUS	Remove text about Annex H	Rejected	Refer to adjudication of comment #123
128		2. OSO #X (OSO #09) Integrity	22	170	Service Level 1 (as described in Annex H) Service Level 2 (as described in Annex H) Service Level 3 (as described in Annex H)	Annex H is not in V2.5	Not sure. Maybe annotate that it's coming?	Rejected	Refer to adjudication of comment #123
129		2. OSO #X (OSO #09) Integrity	22	170	Service Level 1, 2 and 3 (Level of integrity and assurance): 'Training materials are provided to cover: ● The intended use of the service ● The limitations of the service, as defined in the SLA ● The service operational procedures, including system recovery	It is not possible to analyse in a detailed manner the different levels of SLA, since annex H has not been published yet.		Rejected	Refer to adjudication of comment #123
134		2. OSO #XI (OSO #19) Assurance	24	190	The applicant declares that the required level of integrity has been achieved.	Is this to the UAS operator (applicant) or the manufacturer to do that?	Consider including the manufacturer declaration as requirement.	Rejected	Refer to adjudication of comment #2
167		2. OSO #XV (OSO #20) Assurance	33	247	2 In particular, the functional tests supporting the FTB design appraisal gained by the UAS designer have been executed within the full operational scope/envelope intended by the UAS operator	Does this means that the designer have to perform the tests according to the operational scope of the UAS operator? How are designers and operators going to collaborate for each operation?		Rejected	Refer to adjudication of comment #2
175		2. OSO #XVII (OSO #24) Integrity	36	307	The UAS is designed to perform as intended in the environmental conditions defined and reflected in the flight manual.	This should be "operations manual". CAAs authorize operations manuals and not flight manuals. Of course this may be included in the manufacturer documentation. Nevertheless applicants would still need to hand in this evidence as part of their operations manual.		Rejected	During JARUS-SRM meeting in April 2023, it was clarified that it is not the objective of the operation manual to contain the compliance elements to the OSOs and mitigations.
206		3. Functional Test-Based (FTB) Approach	41	407	● The minimum number of test cycles are proportionate to the risk of the operation, with at least: ○ 30 hours for SAIL I; ○ 300 hours for SAIL II; ○ 3,000 hours for SAIL III; and ○ 30,000 hours for SAIL IV in order to achieve a 95% confidence (assuming a binomial/Poisson distribution for the operational level hazard rate and no failures during the test)	The flight hours (300/3000 etc) are contrary to the certification basis under which the DV or TC is applied (quantity of flight hours is not given). Also, to which requirement of the regulations (947) is this a MoC towards?	Delay the inclusion of the new Annex E until a proper review is conducted, explanatory notes are given and a workshop is conducted	Rejected	European centric comment which needs to be adressed with EASA and the Member States
228		4. Containment - Criterion #1 - Integrity	44	491	This may be achieved by a tether that prevents the drone from exiting the operational volume.	Please keep this comment in the final version. Description for M1 mitigation 'use of a tether' has been removed from Annex B. In general this makes sense as 'use of a tether' is more relevant as a means of containment than as a strategic ground risk mitigation. However, for Airborne Wind Energy Systems, the tether is a very important part of the system as it contrains the operational geography to a very well defined volume. Furthuremore, if a sufficient degree of robustness can be demonstrated, the tether may also be used as an alternative means of compliance towards the ehanced containment requirements.	NA	Acknowledged	Notes related to "tether" have been kept in the final version of the document
246		4. Containment - Criterion #4 - Integrity	45	491	● a tether that prevents the drone from exiting the ground risk buffer.	Following a previous comment, please keep this comment in the final version.	NA	Acknowledged	Notes related to "tether" have been kept in the final version of the document
224		4. Containment - Criterion #1 - Integrity	44	491	(Qualitative) No probable1 failure of the UAS or any external system supporting the operation shall lead to operation outside of the operation volume	Somehow, it should be stated that this level of robustness is not met by default for UAS whose design is unknown (off-the-shelf/market UAS)	Add a footnote [2] at the end of the paragraph: this level of robustness is not met by default for UAS whose design is unknown to the operator (off-the-shelf/market UAS)	Rejected	Considering that the level of integrity is already asking for a design and installation appraisal, the group considered that the proposed footnote was not necessary
225		4. Containment - Criterion #1 - Integrity	44	491	OR (Quantitative) The probability of the failure condition "UA leaving the operational volume"considering all failure modes of interest shall be less than 10-3/Flight Hour (FH).	Not clear		Accepted	"considering all failure modes of interest" deleted

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226		4. Containment - Criterion #1 - Integrity	44	491	(Quantitative) The probability of the failure condition “UA leaving the operational volume”considering all failure modes of interest shall be less than 10-3/Flight Hour (FH). (Quantitative) The probability of the failure condition “UA leaving the operational volume”considering all failure modes of interest shall be less than 10-4/Flight Hour (FH)4.	For criterion #1, the target probability for the fly-away is: * 10-3/FH for both Low and High * 10-4/FH for High robustness Comparing the SAIL Table with the Adjacent Area Containement requirements however yields that containment requirements apply from: * 3 points above the Final GRC Value for Low Robustness containment, * 4 points above the Final GRC value for Medium Robustness containment * 5 points above for High Robustness containment. However by default, the probability of fly-away of an UA is understood to be 10-SAIL/FH x 0.1 - so L and Medium Robustness are automatically met starting from SAIL II, and High Robsutness is met starting from SAIL III. But possibly the requirement is to be understood as "the target probability for a fly-away assuming Loss of Contol has occured"?	WOULD RECOMMEND TO MODIFY THE TARGET AS FOLLOWS: The probability of the failure condition “UA leaving the operational volume” considering all failure modes of interest shall be less than 10-3/Flight Hour (FH), **when Loss of Control has occured.** SAME PROPOSAL for HIGH ROBUSTNESS	Rejected	Loss of control of the operation does not systematically lead to the UA leaving the operational volume
227		4. Containment - Criterion #1 - Integrity	44	491	Level of integrity, Medium level (Criterion #1 and Criterion #4)	Level of integrity for Medium Level seems the same as High. While Criterion #1 is different for both (10-3 vs 10-4), both require that no single point of failure lead a breach of the operational volume. If a probability of failure of 10-2 is accepted for COTS, having no single points of failure leads to a probability of failure not higher than 10-4. Therefore, there would be no real differences between Medium and High levels of integrity, since the requirements for Criterions 2, 3 and 4 are shared between Medium and High level.	Merge Medium and High level of integrity for Criterion #1.	Rejected	Criteria #1 and #4 do not apply to the same volume; criterion #1 refers to the OV, criterion #4 refers to the limit with the ground risk buffer.
239		4. Containment - Criterion #1 - Integrity	44	491	4 This means a reduction by a factor of 10 of the likelihood of exiting the operational volume compared to low robustness containment.	it is also a reduction of 10 in relation to medium robustness	remove note 4	Accepted	Note deleted
230		4. Containment - Criterion #2 - Integrity	44	491	When the UA leaves the operational volume, an immediate end of the flight must be initiated through a combination of procedures/processes alongside technical means.	FTS required? And, once the UA is leaving the desired corridor - which could not be prevented before - the answer is no longer procedures/processes but action. This #2 seems to be a matter of Hazard Identification and Risk Assessment (Product & Operator). A tested Emergency Procedure is not robust enough as the "leaving corridor" event is a combination of hazards. This requires FMEA (design) for possible involved / relevant systems including "detectability" and Risk Assessment of the operator at the level of LUC or higher.		Question	The requirement is intentionally performance-based and not prescriptive (this we are not using the term FTS in the requirement); and agreed that to make sure the design is compliant with this requirement, some analysis needs to be performed to make sure all failure cases are covered
231		4. Containment - Criterion #2 - Integrity	44	491	When the UA leaves the operational volume, an immediate end of the flight must be initiated through a combination of procedures/processes alongside technical means.	The "technical means" for termination the flight must be fully independent from the failure condition in Criterion #1 for the math in the explanatory note to make sense. If the failure condition influences the ability to terminate the flight, the quantitative requirement behind Table 7 in the main body is not satified. For instance, typically, operators would use a combination of the radio link and the capabilites of the autopilot to end the flight, but this is obviously dependent on both radio link and no failures of the autopilot. Given that breach of containment is rather likely to be caused by a faulty autopilot, the "technical means" should be (in such cases) fully independent from the autopilot.	When the UA leaves the operational volume, an immediate end of the flight must be initiated through a combination of procedures/processes **~~and alongside~~** technical means. **Such techninal means must be independent (mechanically, electronically, and in software) from any failure condition in Criterion #1 that may cause breach of containment.**	Partially Accepted	"and alongside technical means" replaced by "and/or available technical means.
232		4. Containment - Criterion #2 - Integrity	44	491	When the UA leaves the operational volume, an immediate end of the flight must be initiated through a combination of procedures/processes alongside technical means.	In the criterion#2 "end of flight upon exit of the operational volume", it is not clear if the system to be installed is an independent FTS or a simple RTH. Moreover, when leaving the operational volume the emergency procedures should apply and in this case are already considered in the ground risk model mitigation with the M2 mitigation + the emergency procedures developed by the applicant. The idea behind this criterion is quite confusing. The part of the analysis to define the level of containment done in the step2/3/4/8 are focused on the adjacent area/airspace. In most of the UAS equipped with a parachute, the FTS is integrated (independent or not), since you need to cut off the power of the UAS to be able to deploy the parachute. M2 is applied here. The remaining question is why the mitigation already applied within the ground and air be again asked for the containment? Should we double the parachute/FTS? if FTS is in any case applicable for any kind of operation, why not put this requirement in the M2 mitigation? This should make more sense for the applicant.		Rejected	

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153		2. OSO #XIII (OSO #05) Integrity	29	219	The equipment, […] are designed to minimize hazards in the event of a probable malfunction or failure of the UAS.	Malfunction is a type of failure, just like loss of function is also a type of failure. It should not be put at the same level as the failure in the sentence.	Delete malfunction in the sentence.	Accepted	That's correct, failures include loss and malfunction; we have deleted systematically the term malfunction when associated with failures (three occurrences in the doc)
234		4. Containment - Criterion #3 - Integrity	44	491	The Ground Risk Buffer must at least adhere to the 1:1 principle.	For fixed-wing UAS or UAs flyig high and/or fast, the 1:1 rule may not be suitable to meet the target level of safety.	After the current text, add the following text: The 1:1 rule may not be suitable to meet the target level of safety. In such cases, a balistic merthodology approach should be used to determine the size of the ground risk buffer.	Partially Accepted	Agreed to add the text of EASA MoC 2511: A ballistic methodology is based on free-fall or "free-fall" with drag dynamic models, so maybe not that appropriated for fixed-wing either (while imposing a gliding model is not necessarily representative of all fixed-wing UA). This answer doesn't cover the use of parachutes either. Therefore, proposal is to use the text of EASA MoC 2511. Such as: The 1:1 rule may not be suitable to meet the target level of safety for some UA configuration (e.g.: fixed-wing or UA equipped with a parachute). In thoses cases, the competent authority may require to define the ground risk buffer based on a ballistic methodology approach, a glide trajectory, representative flight tests and/or a combination of the abovementioned.
236		4. Containment - Criterion #3 - Integrity	44	491	• Improbable5 single malfunctions or failures [...]	Malfunction is a type of failure, just like loss of function is also a type of failure. It should not be put at the same level as the failure in the sentence.	Delete malfunction in the sentence.	Accepted	That's correct, failures include loss and malfunction; we have deleted systematically the term malfunction when associated with failures (three occurrences in the doc)
238		4. Containment - Criterion #3 - Integrity	44	491	• Meteorological conditions (e.g. wind),	It means that it is a dynamic ground buffer (following meteo conditions) or static ground buffer (with conservative value ie wind max) ?		Accepted	It is a static ground buffer considering the worst case conditions, etc. Text updated as follows: "Meteorological conditions (e.g. maximum sustained wind)"
243		4. Containment - Criterion #4 - Integrity	45	491	Criterion #4 - GRC buffer containment N/A	Industry is developing a new standard for Systems designed with Software (SW) and Airborne Electronic Hardware (AEH) different from DAL. To be consistent with the overall approach for GRC 4& 5 as aminimum, we would expect a mimum of DA if there is a direct contribution to the loss of containment.	**Systems designed with Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) could directly lead to operations outside of the ground risk buffer shall be developed to an industry standard or methodology recognized as adequate by the competent authority.**	Rejected	The EASA proposal to request system development assurance activities in addition to SW and AEH development assurance activities was not considered risk proportionate since this would impact SAIL I or II operations which are having a TLOS of between 10-1 and 10-2/FH.
247		4. Containment - Criterion #4 - Integrity	45	491	Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) could directly lead to operations outside of the ground risk buffer shall be developed to an industry standard or methodology recognized as adequate by the competent authority.	Same comment as on OSO 8. For consistency, DA should apply to system when also applies to SW/AEH.	**Systems designed with** Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) could directly lead to operations outside of the ground risk buffer shall be developed to an industry standard or methodology recognized as adequate by the competent authority."	Rejected	See comment #243
249		4. Containment - Criterion #4 - Integrity	45	491	Comments field	Add a note after "an industry standard" to clarify the standards we are talking about.	**7 Those standards should address system, software and AEH development assurance aspects.**	Rejected	See comment #243
241		4. Containment - Criterion #3 - Integrity	45	491	5 For the purpose of this assessment, the term "improbable" should be interpreted in a qualitative way as, "Unlikely to occur in each UAS during its total life but which may occur several times when considering the total operational life of a number of UAS of this type.	Why the term "improbable" is used? The definition given usually is assigned to "remote" probability. The term "improbable" is also not in line with the comment 2 on page 44 for "remote", which uses the same definition. As the Criterion #1 is prescribing also quantitative values for probable and remote failures, this should also be allowed in criterion #3	"5 For the purpose of this assessment, the term "remote" should be interpreted in a qualitative way as, "Unlikely to occur in each UAS during its total life but which may occur several times when considering the total operational life of a number of UAS of this type or in a quantitative way (10^-4/FH)"."	Partially Accepted	Improbable is replaced by "probable"
244		4. Containment - Criterion #4 - Integrity	45	491	• an independent Flight Termination Systems (FTS), that will initiate the end of the flight, when exiting the operational volume;	The notion of independency must be further defined. Based on ARP?		Rejected	The term "independence" is used in an example; the actual requirement of "no single failure" is contained in the criterion #4 and explicits what is meant.
245		4. Containment - Criterion #4 - Integrity	45	491	• an independent Flight Termination Systems (FTS), that will initiate the end of the flight, when exiting the operational volume;	This is a very tall order and immediately calls to mind the RCC 319 requirements. I've had a lot of experience with the RCC 319 requirements for an Independent FTS. I would contend that they are overkill for a smaller UAS. Can we discuss a way to soften this language? I know that this is only a list of examples, but often such lists take on a life of their own and become de facto requirements.		Rejected	The term "independence" is used in an example; the actual requirement of "no single failure" is contained in the criterion #4 and explicits what is meant.
248		4. Containment - Criterion #4 - Integrity	45	491	Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) could directly lead to operations outside of the ground risk buffer shall be developed to an industry standard or methodology recognized as adequate by the competent authority.	It is inconsistent for criterion #4 to state that Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) could directly lead to operations outside of the ground risk buffer shall be developed to an industry standard or methodology recognised as adequate by the competent authority when OSO #XIII only requires that software for UAS that require a high level of inegrity should be developed to industry standards.	Update OSO #XIII to require that all all Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) could directly lead to operations outside the ground risk buffer be developed to an industry standard considered adequate by the competent authority. The difference between low, medium and high levels of integrity could be modulated through the appropriate assignment of software levels and hardware design assurance levels, e.g. DO-178C/ED-12C Level A for a catastrophic failure condition at SAIL VI, Level D for a catastrophic failure condition at SAIL I.	Rejected	DAL levels are assigned based on architectures, not only on severity of failure conditions. As well, regulators have traditionally applied risk-based approach when assigning FDAL for catastrophic failure conditions depending on the application (e.g. asking SW/AEH DAL C for Class I Part 23 aircraft catastrophic failure conditions)

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220		4. Containment requirements	44	484	Main body + Annex E	In the main body 3 tables are available to define the level of containment of the adjacent area, the adjacent airspace and the Final Containment. Five levels of containments are applicable for the adjacent area but only 4 for the Final containment and 2 levels for the adjacent airspace. However, in the Annex E only three levels are described. It is not clear what is the next step for the applicant once the adjacent area or airspace level of containment is defined. Example: If the applicant obtains a medium level for the adjacent Area, what will he do with this information? Same goes for the adjacent Airspace? One of the levels for the adjacent area is to "consult with authority", but the meaning of this level of containment is not clear since it is not included in the final table containment. General comment: The proportionality between the SAIL of the operation and the level of containment is quite confusing. A SAIL II operation is more likely to have a high level of containment than a SAIL 6 operation. This approach can be quite disturbing for the applicant. The idea behind this conclusion needs to be explained either in the main body or inan additional annex for the containment.		Rejected	The objective of Annex E section 8 is to define the containment requirements for the "low", "medium" and "high" levels. The fact that there is a "consult with authority" in the main body will be addressed by the main body group (there were several comments raised on this topic during the external consultation)
222		4. Containment requirements	44	485	a. In SORA Main Body, Step #8: Determination of containment requirements addresses the risk posed by an operational loss of control that could infringe on areas adjacent to the operational volume and buffers. The ground risk (in the adjacent area) and air risk in the adjacent airspace dictate the level of safety requirements to be met by containment design features and operational procedures. b. The following section provided the detailed containment requirements for the following 3 levels of containment: Low, Medium and High.	All the criteria described here are to be applied in the operational volume and the ground risk buffer. Those could be considered as additional mitigation for the ground risk and air risk of the area of operation, that the applicant may apply in the corresponding STEPs. The analysis allows to define the level of containment, which in most of the case is advantageous for the applicant. This "good point" will not avoid the applicants to have questions about the concept/proportionality. - Why such analysis of the adjacent area/airspace could be useful when all requirement focus on Operational volume and ground risk buffer? - What is the meaning behind the analysis of such big area if nothing is applied to this area? However, It should be clear to which section the containment is applicable to facilitate the understanding. When following the steps of the analysis of the adjacent area/airspace, the applicant may not be able to understand the requirements for the containment that are only focused on the operational volume and the ground risk buffer.		Rejected	Containment requirements aim at avoiding that the UA leaves the operational volume and ground risk buffer. If the UA leaves the latter, a loss of control and fly-away should be assumed, which should be handled and mitigated through the Emergency Response Plan. The containment requirements deal with the events avoiding that situation and are proportionate to the actual risk of leaving the ground risk buffer.
189		3. Functional Test-Based (FTB) Approach	40	330	3. Functional Test-Based (FTB) Approach	In general, it appears that the level of detail expected within the document is too great, and should not look to define MoC, but rather determine the requirements themselves towards the OSO's	Delay the inclusion of the new Annex E until a proper review is conducted, explanatory notes are given an a workshop is conducted	Acknowledged	A review will be conducted before publication of the document by JARUS
190		3. Functional Test-Based (FTB) Approach	40	330	3. Functional Test-Based (FTB) Approach	FTB feels like it is trying to merge the world of low risk uncertified systems, and those that are following a design verification and route to TC and as such, is creating an unnecessary level of administration between those two worlds, particularly for those design and manufacturing organisations operating in/looking to achieve M/H risk ops	Delay the inclusion of the new Annex E until a proper review is conducted, explanatory notes are given and a workshop is conducted	Rejected	"FTB feels like it is trying to merge the world of low risk uncertified systems, and those that are following a design verification and route to TC" is exactly the intent of this section; the idea was to bridge the FAA D&R and EASA DVR activities with the SORA
192		3. Functional Test-Based (FTB) Approach	40	330	3. Function Test-Based Approach	It is believed that this section is out of scope and should not be part of SORA. This is a MoC to demonstrate compliance to airworthiness design standards, and defines in detail one specific airworthiness methodology which is not in scope of SORA. It is expected that competent authorities develop MoCs for the design of UAS, and link to SORA is done in such MoCs, it is proposed to remove the section alltogether. References to FTB compliance as included in some OSOs could remain in the SORA for awareness, or included in the competent authority's MoC, at the discretion of the JARUS group.	Consider this section as a separate document and not part of the SORA core documentation.	Rejected	The JARUS Annex E SG does not consider that the FTB is only a MoC to demonstrate compliance to airworthiness design standards since an operator can take credit of manufacturer FTB to justify the adequacy, for instance, of the operational procedures
197		3. Functional Test-Based (FTB) Approach	40	360	iii. While it is not the objective of this section to prescribe Means of Compliance for a Functional test based approach, competent authorities may want to consider the principles laid down in ASTM F3478- 20: “Standard Practice for Development of a Durability and Reliability Flight Demonstration Program for Low Risk Unmanned Aircraft Systems (UAS) under FAA Oversight.”	FTB is a completely normal approach within flight testing and requirements gathering, so this type of document may be useful for the low risk systems to provide demonstrable means of robustness as referred to in §3.b.iii, but not for systems of a higher risk who would look to operate within a DV or TC environment	Delay the inclusion of the new Annex E until a proper review is conducted, explanatory notes are given and a workshop is conducted	Rejected	A review will be conducted before publication of the document by JARUS but the Annex E SH would like to keep such an approach since EASA has already recognized this approach and the partial use of the ASTM standard in support of DV (up to SAIL III) and the purpose of the FTB section is to bridge the FAA D&R and EASA DVR activities with the SORA

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250		4. Containment requirements Assurance	45	492	The applicant declares that the required level of integrity has been achieved. In addition: For criterion #1, compliance is to be substantiated by a design and installation appraisal and includes as a minimum: ● design and installation features (independence, separation and redundancy); ● any relevant particular risk (e.g. hail, ice, snow, electro-magnetic interference) associated with the operation.	1) According to the main body chapter 1.4.2 "How SORA measures risk mitigations…": - The LOW level of assurance is where the applicant simply declares; - The MEDIUM level of assurance is where the applicant provides supporting evidences; - The HIGH level of assurance is when the integrity is validated by a competent third party. However, in this criterion evidences need to be provided for a LOW level of assurance. This should be taken into consideration to provide consistency to the document and avoid confusion for the applicant. When looking at the new assurance requirements, the LOW and MEDIUM level can be considered the same since in both case we ask for evidences.	LOW LEVEL OF ASSURANCE The applicant declares that the required level of integrity has been achieved.	Partially Accepted	This can still be declarative but Annex E is providing information related to the activities expected to be performed before an operator declares that the required level of integrity has been achieved. The Annex E group has proposed improvment in the text to remove the ambiguity
251		4. Containment requirements Assurance	45	492	Same as Medium. In addition, a competent third party validates the claimed level of integrity.	We understood that the new "high robustness" containment corresponds to enhanced containment from SORA 2.0. While this is true for the integrity part, the assurance now requires third-party VALIDATION which is a significantly higher requirement then compared to the enhanced containment requirement from SORA 2.0 ("standards that are considered adequate"). From an assurance perspective, our understanding is that the new medium assurance for containment, corresponds to the assurance of enhanced containment of SORA 2.0. Is this new conservatism in assurance desired?		Question	The deltas identified are related to the fact that there were only two levels of containment in SORA v2.0 when it has been considered necessary to introduce 3 levels in v2.5 but proportionality was kept, meaning the high level of containment is being triggered at more stringent criteria than enhanced containment in the past; no further changes to the doc expected
252		4. Containment requirements Assurance	46	492	1 Supporting evidence for this declaration may still be requested by the competent authority.	The distinction between the Low and Medium Level of Assurance under this Criterion is minimal. For Low, the note says the competent authority may still request supporting evidence. If the competent authority will always request supporting evidence under Medium, then there would be a more distinct difference. Otherwise, the two Levels of Assurance are almost the same except for criterion #2.	2 The applicant will provide the competent authority with a copy of the supporting evidence they used to justify that this level of integrity is achieved. When simulation is used…	Rejected	The Annex E SG agreed not to ask that the supporting evidence are systematically provided to the competent authority since this is still up to the competent authority to decide depending on the retained level of involvement, which is traditionally dependent on many factors, including if the applicant is new or not
25		2. OSO #I (OSO #01) Assurance	4	56	The audit conducted by the competent third party should be focused on items that can be connected to OSOs applicable for SAIL III.	What does that exactly mean? All OSOs applicable for SAIL II must also be fulfilled for SAIL III, sometimes with different robustness. For SAIL III, only one OSO (new OSO XII) is not required. Or does it mean the OSOs that were not required for SAIL II but are now required for SAIL III?		Partially Accepted	Clarification on the notes: "Audits should be adapted to the size of the operational organization, and focus on items that can be connected to the applicable OSOs depending on the SAIL of the operation."
30		2. OSO #I (OSO #01) Assurance	4	56	The audit conducted by the competent third party should be focused on items that can be connected to OSOs applicable for SAIL III	It is proposed to remove the comment (see point above)		Partially Accepted	Clarification on the notes: "Audits should be adapted to the size of the operational organization, and focus on items that can be connected to the applicable OSOs depending on the SAIL of the operation."
26		2. OSO #I (OSO #01) Assurance	4	56	The audit conducted by the competent authority to issue the certificate should be focused on items that can be connected to applicable OSOs depending on the SAIL of the operation.	Starting from SAIL IV, all OSOs are required for any operation, no OSO is optional. What is meant here?		Partially Accepted	Clarification on the notes: "Audits should be adapted to the size of the operational organization, and focus on items that can be connected to the applicable OSOs depending on the SAIL of the operation."
45		2. OSO #II (OSO #17) Assurance	6	74	● A competent third party validates the duty/flight duty times.	Considering the extreme importance of that point; responsability of the competent third party shall be high: meaning that in that case the competent third party shall be approved by NAAs.	**If not the Competent Authority itself, a competent third party approved by the Competent Authority validates the duty/flight duty times**.	Rejected	JARUS SORA is not intended to regulate how competent third parties are recognized in each juridiction / geographical area
47		2. OSO #IV (OSO #08)	8	81	(a) Standard Operating Procedures are a set of instructions covering policies, procedures, and responsibilities set out by the applicant that supports operational personnel in ground and flight operations of the UA safely and consistently during normal situations.	Consistency. Appendix B refers to manufacturer's instructions, Appendix E refers to designer's instructions. Clear distinction should be made between POA and DOA. The designer/manufacturer should be required to provide manuals and procedures provide appropriate information to meet the requirements described in OSO #IV. (SOPs)		Rejected	The Main Body SG decided to keep the word "designer" whenever the activities described are related to development/design, not manufacturing
53		2. OSO #IV (OSO #08) Integrity	8	93	1 […] The operational procedures should also consider the protection of involved persons that should be briefed of the potential risk and should be aware of the actions to take in case of misbehaviour of the UA.	Procedures to include protection of involved persons are meaningful and we support this. However, to make this really binding, the description should be part of the integrity requirement and not only a comment.		Accepted	Comment integrated in the requirement: "Pre-flight procedures including briefing of any involved persons about the potential risks and actions to take case of misbehaviour of the UA
56		2. OSO #IV (OSO #08) Integrity	9	93	The ERP contains at minimum: ● the list of probable emergency situations with secondary effects; ● the procedures for each of the identified probable emergency situation (including criteria to identify each of these situations); ● the training syllabus and a corresponding up to date record of trained Remote Crew members	We recommend to include a list of relevant contacts to reach (ATC, police, fire fighters, ...)		Accepted	Added: " (e.g. Air Traffic Control, police, fire brigade, first responders)"
70		2. OSO #V (OSO #03) Integrity	11	101	'UAS designer'	Consistency. Appendix B refers to manufacturer's instructions, Appendix E refers to designer's instructions. Clear distinction should be made between POA and DOA.	UAS manufacturer	Rejected	The Main Body SG decided to keep the word "designer" whenever the activities described are related to development/design, not manufacturing
71		2. OSO #V (OSO #03) Integrity	11	101	'UAS designer'	Be consistent in using the terms manufacturer and designer. Appendix B refers to manufacturer's instructions, Appendix E refers to designer's instructions.	UAS manufacturer	Rejected	Refer to adjudication of comment #70

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72		2. OSO #V (OSO #03) Integrity	11	101	'UAS designer'	Be consistent in using the terms manufacturer and designer. Appendix B refers to manufacturer's instructions, Appendix E refers to designer's instructions.	UAS manufacturer	Rejected	Refer to adjudication of comment #70
73		2. OSO #V (OSO #03) Integrity	11	101	[...] cover the UAS designer instructions and requirements2/3.	Consistency. Appendix B refers to manufacturer's instructions, Appendix E refers to designer's instructions. Clear distinction should be made between POA and DOA.	cover the **maintenance** instructions **listed in the UAS (maintenance) manual**	Rejected	The Main Body SG decided to keep the word "designer" whenever the activities described are related to development/design, not manufacturing
74		2. OSO #V (OSO #03) Integrity	11	101	[...] cover the UAS designer instructions and requirements2/3.		cover the **maintenance** instructions **listed in the UAS (maintenance) manual**	Rejected	Refer to adjudication of comment #73
75		2. OSO #V (OSO #03) Integrity	11	101	[...] cover the UAS designer instructions and requirements2/3.		cover the **maintenance** instructions **listed in the UAS (maintenance) manual**	Rejected	Refer to adjudication of comment #73
79		2. OSO #V (OSO #03) Integrity	11	101	[...] UAS Operator maintenance programme on the basis of the UAS designer scheduled maintenance requirements		UAS Operator maintenance programme on the basis of the **manufacturer** scheduled maintenance requirements and recommendations	Rejected	The Main Body SG decided to keep the word "designer" whenever the activities described are related to development/design, not manufacturing
80		2. OSO #V (OSO #03) Integrity	11	101	[...] UAS Operator maintenance programme on the basis of the UAS designer scheduled maintenance requirements		UAS Operator maintenance programme on the basis of the **manufacturer** scheduled maintenance requirements and recommendations	Rejected	Refer to adjudication of comment #79
81		2. OSO #V (OSO #03) Integrity	11	101	[...] UAS Operator maintenance programme on the basis of the UAS designer scheduled maintenance requirements		UAS Operator maintenance programme on the basis of the **manufacturer** scheduled maintenance requirements and recommendations	Rejected	Refer to adjudication of comment #79
82		2. OSO #V (OSO #03) Integrity	11	101	'Maintenance release'		Release **to service**	Accepted	Replaced "A maintenance release can only be accomplished by a staff member who has received a maintenance release authorisation for that particular UAS model/family." by "A release to service can only be accomplished by a staff member who has received an authorisation to release to service for that particular UAS model/family". Rest of the document was updated accordingly
83		2. OSO #V (OSO #03) Integrity	11	101	'Maintenance release'		Release **to service**	Accepted	Refer to adjudication of comment #82
84		2. OSO #V (OSO #03) Integrity	11	101	'Maintenance release'		Release **to service**	Accepted	Refer to adjudication of comment #82
89		2. OSO #V (OSO #03) Integrity	11	101	1 The maintenance may not be directly performed by the Operator (e.g. use of a third party)	The wording is confusing as it may imply that the Operator is not allowed to perform maintenance.	The maintenance may be performed by organisation other than the Operator (e.g use of a third party).	Accepted	Replaced "The maintenance may not be directly performed by the Operator (e.g. use of a third party)" by "The maintenance may be performed by an organisation other than the Operator (e.g. use of a third party)."
145		2. OSO #XII (OSO #04) Integrity	26	210	1 Example of Airworthiness Design Standards (ADS) are: • the EASA Special Condition Light-UAS, or • the JARUS Certification Specification for Light Unmanned Rotorcraft Systems (LURS), or • the JARUS Certification Specification for Light Unmanned Aeroplane Systems (LUAS).	can we enhance that list a little? E.g. STANAG 4671 or STANAG 4703 may be acceptable as well		Accepted	Examples added
146		2. OSO #XII (OSO #04) Integrity	26	210	1 Example of Airworthiness Design Standards (ADS) are: • the EASA Special Condition Light-UAS, or • the JARUS Certification Specification for Light Unmanned Rotorcraft Systems (LURS), or • the JARUS Certification Specification for Light Unmanned Aeroplane Systems (LUAS).	EASA SC Light UAS is a very high level, performance based, special condition. I'm not sure it's a great example of an ADS.	Delete this reference	Rejected	Other documents on the list are thought for category C of operations/where published before the definition for category B of operations and can be too strict for operations in category B. SC Light UAS is the only document of the list thought especifically for category B of operations, even though it might need additional documentation to be implemented.
147		2. OSO #XII (OSO #04) Integrity	26	210	N/A	As outlined in OSO#XII, for SAIL IV, V and VI, it is required that the UAS components essential to safe operations are designed to an Airworthiness Design Standards (ADS). For Airborne Wind Energy Systems, the relevant ADS is expected to be developed from a combination of standards from unmanned / manned aviation as well as the wind energy industry (SC-LUAS, CS-22, IEC 61400,...). It would be helpful to clarify that it is foreseen that specific types of UAS operations (like AWES for example), will require new Airworthiness Design Standards / Acceptable Means of Compliance to be developed. Add additional comment to footnote 1.	In the case that a relevant ADS is not available, the applicant is free to propose their own standard and means of compliance considered adequate by the competent authority.	Partially Accepted	Comment partially reproduced to include the possibility to propose standards and means of compliance in general: "The applicant is free to propose their own Airworthiness Design Standard(s) to the competent authority."

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154		2. OSO #XIII (OSO #05) Integrity	29	219	3 Eurocae ED-280 “Guidelines for UASsafety analysis for the specific category (low and medium levels of robustness)“ may be considered acceptable by the competent authority to support compliance with this criterion.	Would this not be Assurance ("[…]to support compliance with this criterion")?		Rejected	ED-280 adresses the integrity level of OSO#05, not the assurance level (FHA)
176		2. OSO #XVIII (OSO #10)	38	310	(a) The objective of OSO #XVIII is to complement the safety requirements for containment defined in the Main Body Step #08 by addressing the risk of a fatality within the operational volume, when operating over population density above 2,500 ppl/km2.	The application of this OSO to a overflown population density is not congruent with the idea of "SAIL". The SAIL is an operational reliability value associated with the combination of Population Density and Critical Area. This **combined** value is what drives the SAIL requirement. Effectively the SAIL indirectly describes a **risk** value, not a population density. You can have a large aircraft flying over a small population density with the same risk (SAIL) as a small aircraft flying over a large population density. To apply the OSO to one (over large population density) and not the other doesn't make sense. This should apply at the SAIL level, irrespective of population density. If this is too onerous, then this OSO should start applying at a higher SAIL level, rather than enforcing some population density value.		Accepted	Agreed to remove the population density threshold while coiming back to the original wording: "It can be reasonably expected that a fatality will not occur from any probably or single failure"
180		2. OSO #XVIII (OSO #10) Integrity	38	326	When operating over population density above 2,500 ppl/km2, • no probable1 failure2 of the UAS or any external system supporting the operation will lead to a fatality(ies).	It is proposed that the number can be increased based on ground risk mitigations and their adecuacy to the operation and the area overflown.	When operating over population densities above 2,500 ppl/km2, no probable failure of the UAS or any external system supporting the operation will lead to a fatality(ies). The number can increase when effective and representative ground risk mitigations are put in place to mitigate the GRC (M1(B) mitigations do not apply for this situation). For a given class of UA and SAIL, it is considerd that the population overflown is equivalent to the maximum population density that can be overflown for the resulting final GRC. For example, SAIL II operations with UAs in the category of 1 m require a final GRC 3 (equivalent to 25 ppl/km2), which means that at least three points need to be reduced in order to fly above 2500 ppl/km2. Therefore, when at least two points of the GRC have been reduced through other means than M1(B), the population density threshold can be multiplied by 10 for every additional point of the intrinsic GRC reduced.	Accepted	Refer to comment #176
181		2. OSO #XVIII (OSO #10) Integrity	38	326	When operating over population density above 2,500 ppl/km2, • no probable1 failure2 of the UAS or any external system supporting the operation will lead to a fatality(ies).	What is the rationale behind the 2500 ppl/km2 threshold? The risk of flying over populated area depends on the size class of the UA. Therefore, it is suggested that the reliability requirements vary depending on the size of the UA. Since a Low level of robustness is already required for SAIL I and II it is suggested that the population density thresold varies depending on the size of the UA.	When operating over population densities above a threshold that depends on the UA size class, no probable failure of the UAS or any external system supporting the operation will lead to a fatality(ies). [provide a classification of the threshold depending on the size/class of the UA]	Accepted	Refer to comment #176
182		2. OSO #XVIII (OSO #10) Integrity	38	326	When operating over population density above 2,500 ppl/km2, • no probable1 failure2 of the UAS or any external system supporting the operation will lead to a fatality(ies).	This 2,500 ppl/km² may be confusing : M1/M2 must be used to remain in SAIL I or II (with OSO #VIII low). In other words, 2,500 ppl/km² must correspond to an initial population density. If our understanding is correct, the table could make it more explicit in the table.	When operating over population density above 2,500 ppl/km2 (**before any mitigation is applied**), no probable failure of the UAS or any external system supporting the operation will lead to a fatality(ies)	Accepted	Refer to comment #176
188		3. Functional Test-Based (FTB) Approach	40	330	3. Functional Test-Based (FTB) Approach	Guidance for Functional Test Based methods CASA really appreciates the inclusion of FTB into Annex E. Although this is a great start, CASA would appreciate even more detail or guidance on how an authority/applicant can agree on the mechanisms by which this is undertaken in practice (understanding that JARUS may not be the best place for this kind of work)		Acknowledged	Thanks for the support
191		3. Functional Test-Based (FTB) Approach	40	330	a. The objective of this section is to give some insight into the Functional Test-Based (FTB) approach referenced throughout Annex E. This is articulated around three different but complementary perspectives:	This section should not just give insight but should fully describe the approach. FTB, the backgrounds and requirements are nowhere else defined other than here....		Rejected	The intent of the JARUS SORA group is not to fully define the FTB approach but bridge the D&R/FTB approaches used by EASA/FAA to the SORA framework. And EASA has already issued a MoC for FTB providing more detailed guidance on functional test based approaches and referring to industry consensus standards.
193		3. Functional Test-Based (FTB) Approach	40	338	iii. FTB as a means for UAS operators to take credit for safe and successful operations over time to expand	Could a given operator / UAS designer take credit for the flight hours of other operators (on same drone same operation)? To demonstrate UAS operational		Accepted	We added the following note: "The competent authority may accept accumulation of FTB hours between operators if the UAS configuration, operational procedures, training, etc. are demonstrated to be equivalent."
202		3. Functional Test-Based (FTB) Approach	41	390	ii. In order for a UAS Operator to take credit for a FTB design [...]	Is the mutualisation of FTB between operators possible ?		Accepted	We added the following note: "The competent authority may accept accumulation of FTB hours between operators if the UAS configuration, operational procedures, training, etc. are demonstrated to be equivalent."

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7		0. General	N/A	N/A	The term airworthiness has been introduced throughout the annex. According to ICAO, the term 'airworthiness' refers to certified aircraft, engine or parts. Therefore, the use of this term as part of the requirements for UAS categories other than the certified is contradictory.	USE OF THE TERM 'AIRWORTHINESS' The requirements for airworthiness of UAS should not be part of SORA. The introduction of the terminology and the whole concept of UAS airworthiness feels rushed. For instance, the term airworthiness, as per ICAO definitions, airworthiness means the status of an aircarft, engine, propeller or part when it conforms to its approved design. Design approvals is a comprehensive subject of the regulation and therefore too big to be included as part of SORA	Delay the addition of any new reference to airworthiness requirements and the inclusion of the new Annex E, until a more appropriate and individual consultation of the annex is made.	Rejected	There is any guidance in JARUS to limit the term airworthiness" to the Cat C / certified category of operations and the term is defined in Annex I
8		0. General	N/A	N/A	Annex E	It is unclear on how the document proposes to manage OA's, as it 'appears' to say that a few OA's are OK, but the Comp Auth might only grant specific OA's for Flight Tests, and that OA's in general are subject to safe and successful operation over a period of time before OA's can be expanded. Does this mean that only certain flight activities can be done in isolation before OA's to other flight routes can be applied for?	Clarification is required	Rejected	It seems the comment is more for NAAs to clarify how to authorize flight tests in a safe and controlled environement to support an OA application
11		0. General	N/A	N/A		COMPETENCY-BASED TRAINING Competency-based training in aviation is a broad concept with extensive implications. Since all aspects of SORA training indicate that it should be competency-based, it is considered necessary to provide a minimum guideline (framework) for UAS operators and NAAs that can be used to follow a structured approach of a CBTA training.		Rejected	This topic will not be adressed by JARUS-SRM. For information, the UK CAA is developing their own guidance; EASA has created a TF dedicated to training to adress this topic under the UAS TeB
15		1. How to use SORA Annex E	3	50	#2 Annex E does not cover the Level of Involvement (LoI) of the competent authority. LoI is based on the competent authority's assessment of the applicant's ability to perform the given operation.	We cannot rely on the applicant as a competent authority. Need approval from a certified 3rd party.	Change Principle # 2 as follows: "…LOI is based on the competent authority's assessment of the applicant's ability to mitigate risks in collaboration with third party assurance. Less-experienced applicant's may require third party assurance to meet a given OSO while applicant's with safety performance proven over time may not require it." Change Additional information for Principle # 2 to: "JARUS may develop additional recommendations in the future for competent authorities on the Level of Involvement and third party assurance needed to assess the abilities of applicants with varying levels of operational experience."	Rejected	This is a misunderstanding; we are not stating that the applicant can be the competent authority. But "LoI" and "level of assurance" are different notions and it is deemend important to clarifyx in Principle #2 that Annex E does not intent to define LoI criteria for a competent authority to get involved
27		2. OSO #I (OSO #01) Assurance	4	56	Prior to the first operation, a competent third party performs an audit of the organization.	Scope of the audit to be defined. A desktop review of the manuals might be commensurate with medium assurance. An on-site audit appears overdone.		Partially Accepted	Audits can take the form of desk reviews, if deemed appropriate.
28		2. OSO #I (OSO #01) Assurance	4	56	The applicant holds an Organizational Operating Certificate or is/has a recognized flight test organization. In addition, a competent third party recurrently verifies the Operator's competence.	Supervision of the organization by a competent third party should be determined and required in the organizational certificate or approval. Unnecessary to require it here.		Rejected	The recurrence of the oversight cannot be defined in the certificate because it will be risk based and for instance dependent on the maturity of the operator
29		2. OSO #I (OSO #01) Assurance	4	56	Audits should be adapted to the size of the operational organization.		""Audits should be adapted to the size of the ~~operational~~ organization, and focus on items that can be connected to the applicable OSOs depending on the SAIL of the operation."	Accepted	Term operational deleted in this sentence to align terminology with the rest of the OSO: "Audits should be adapted to the size of the ~~operational~~ organization, and focus on items that can be connected to the applicable OSOs depending on the SAIL of the operation."
31		2. OSO #I (OSO #01) Assurance	4	56	The audit conducted by the competent authority to issue the certificate should be focused on items that can be connected to applicable OSOs depending on the SAIL of the operation.	The criteria for High robustness says competent third party. The comment uses the term "competent authority". Why is SORA assigning this to the competent authority if JARUS has always been neutral and describing third party.	Please ensure the text reads third party	Accepted	We have replaced "competent authority" with "competent third party"
21		2. OSO #I (OSO #01) Integrity	4	55	• checklists, • maintenance, training, • responsibilities, and associated duties.	What exactly should the low integrity requirement be? This is not clearly defined. Other OSOs cover aspects like checklists, maintenance, training etc. So what should an applicant present here, what should a CAA check? There is a bullet point missing for "training"		Accepted	It has been clarified in a comment that: "Operational procedures (checklists, maintenance, training, etc.) can be justified in the context of other applicable OSO." and a bullet point was added for "training".
22		2. OSO #I (OSO #01) Integrity	4	55	Same as Low. In addition, the applicant has an organization appropriate1 for the intended operation. Also, the applicant has a method to identify, assess, and mitigate risks associated with flight operations. These should be consistent with the nature and extent of the operations specified	Isn't this the job of the SORA? So you can say the applicant needs to do a SORA, but this is necessary in any case and does not depend on OSO #I What is the integrity requirement here?		Accepted	The idea is was to slowly go in the direction of a SMS without imposing it for a medium level of robustness. The message we are trying to convey is that there is a need to continuously evaluate whether the operator is operating according to expectations and check whether the mitigations proposed as part of the OA are still appropriate. Text was modified as follows: "Same as Low. In addition, the applicant has an organization appropriate for the intended operation, including: * a method to continuously evaluate whether the operator is operating according to th terms of the OA and check whether the mitigations proposed as part of the OA are still appropriate; .../..."
23		2. OSO #I (OSO #01) Integrity	4	55	Same as Medium.	SAFETY MANAGEMENT SYSTEM Having a SMS system in accordance with ICAO Annex 19.	Same as Medium. **In addition a safety management system has to be put in place.**	Accepted	High level of robustness was replaced by: The operator has a safety management system in place in line with ICAO Annex 19 principles.

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24		2. OSO #I (OSO #01) Integrity	4	55	Same as Medium	Due to the terms "appropriate" "commensurate" "proportionate" of the Medium integrity column, keeping it the same for High makes no real sense. An example for High integrity should be at minimum the elements put in place in order to obtain a LUC which would make it consistent with the expected level for a High Assurance.	**The applicant put in place, at minimum, the ways & means required for a LUC application**	Partially Accepted	High level of robustness was replaced by: The operator has a safety management system in place in line with ICAO Annex 19 principles. In Europe, the associated approval will be a LUC
37		2. OSO #II (OSO #02) Assurance	5	60	Same as Low. In addition, evidence is available that the UAS has been manufactured in conformance to its design.	Is the intention that this evidence is provided only once? It seems that the design conformity inspection would be a regular occurance as part of the manufacturing process rather than one-off data produced to comply with the requirement during the OA process. This belief is reinforced by the fact that high assurance requires recurring audits of UAS design spec conformity. If so, then it is suggested to make this a integrity requirement instead.	Move the text to medium integrity level.	Partially Accepted	"The UAS" repkaced by "each UAS" to avoid any possible misunderstanding
38		2. OSO #II (OSO #02) Assurance	5	60	Same as Medium. In addition: ● manufacturing procedures, ● conformity of the UAS to its design and specification are recurrently verified through process or product audit by a competent third party(ies).	ISO 9001 companies should by default meet that Criterion	Level of Assurance HIGH "Same as Medium. In addition: ● manufacturing procedures, ● conformity of the UAS to its design and specification are recurrently verified through process or product audit by a competent third party(ies). **An ISO:9001 compliant company meets by the default this OSO with HIGH level of integrity and Assurance**"	Rejected	Credit from any certificate (e.g. ISO;9001) can always be taken credit of if an applicant can demonstrate the link between the two set of requirements
32		2. OSO #II (OSO #02) Integrity	5	59	● configuration control, ● occurrence analysis procedures for design-related in-service events reported to the designer by the Operator.	Configuration Control and Occurrence analysis seem more aligned in the Medium rather than Low.	We suggest moving the selected text to Medium.	Rejected	Proposed change not justified; configuration control and occurence analysis seems appropriate starting SAIL III
33		2. OSO #II (OSO #02) Integrity	5	59	● occurrence analysis procedures for design related in-service events reported to the designer by the Operator.	Occurrence analysis procedures should not be limited to design related topics. Firstly, it is not always clear from the very beginning what the root cause was. Secondly, in most cases it is a combination of factors and events that lead to an occurrence. Thirdly, design-related does not include manufacturing-related causes.		Partially Accepted	The occurence reporting process and th enecessary link between operator and designer was transferred to OSO#1
35		2. OSO #II (OSO #02) Integrity	5	59	● occurrence analysis procedures for design related in-service events reported to the designer by the Operator.	It is expected that the designer/manufacturer has established an occurrence reporting procedure to analyse the root cause of any reported event, the cause of which can be manufacturing, design, software, etc. Such occurence procedure, is however better suited for a design procedure, rather than a manufacturing procedure. Furthermore, a requirement for the operator to report in-dervice events to the manufacturer is currently missing in the regulation (such as exists in the certified category P21J) It is proposed to remove the last bulletpoint alltogether.	It is proposed to remove last bulletpoint	Partially Accepted	The occurence reporting process and th enecessary link between operator and designer was transferred to OSO#1
36		2. OSO #II (OSO #02) Integrity	5	59	Same as Medium. In addition, the manufacturing procedures cover at least: manufacturing processes [...]	The term "manufacturing processes" is vague; manufacturing procedures would logically cover manufacturing processes. The requirements already listed for low and medium integrity that the manufacturing procedures shall cover can all be considered as manufacturing processes.	Either be more specific in what is intended by "manufacturing processes" or delete it.	Acceped	"Manufacturing processes" was deleted from the text description for high since high call for low and medium criteria and "manufacturing processes" already covered in details in low
39		2. OSO #III (OSO #17)	6	63	(a) For the purpose of this assessment, the expression "fit to operate" should be interpreted as physically and mentally fit to perform duties and discharge responsibilities safely. (b) Fatigue and stress are contributory factors to human error. Therefore, to ensure vigilance is maintained at a satisfactory level of safety, consideration may be given to the following: ● Remote Crew duty times; ● Regular breaks; ● Rest periods;	We suggest including the "Consideration of Crew's Workload" in the list (as a contributor to fatigue).	We suggest to insert "Remote Crew Workload".	Accepted	First bullet updated as follows: "Remote Crew workload and duty times;"
40		2. OSO #III (OSO #17)	6	63	(a) For the purpose of this assessment, the expression "fit to operate" should be interpreted as physically and mentally fit to perform duties and discharge responsibilities safely.	The requirements should become clearer: What about drugs (e.g. alcohol and alcohol level during the operation), vaccination (time after vaccination when a remote pilot should not fly), sleeping pills, narcotics, antidepressants, medication, medical treatment, deep-sea diving, blood donation, bone marrow donation, surgeries, minimum for visual acuity, wearing of binoculars (when needed). Do the remote pilots have to do a vision test in advance?		Partially Accepted	Requirements can be specific to each geographical, we added the following comment: "Criteria should take into account local legislation and may include drugs (including prescriptions) and alcohol consumption"
43		2. OSO #III (OSO #17) Assurance	6	74	● The remote crew fit-to operate declaration (before or during an operation) is based on a policy defined by the applicant.	This is inconsistent with the integrity requirement. Above the integrity was changed towards an "unfit" declaration, now here it says the "fit-to-operate" declaration.		Partially Accepted	We have updated the wording consistently for the integrity and assurance criteria, as follows: "The applicant has a policy defining the criteria and the means for the remote crew to declare declare themselves fit before starting their duty and report themselves unfit, if required, during their shift"
44		2. OSO #III (OSO #17) Assurance	6	74	● The remote crew fit-to operate declaration (before or during an operation) is based on a policy defined by the applicant.	Clarify the intent of "during the operation"and the "or" relationship in the brackets.	The remote crew fit-to operate declaration (before **and~~or~~** during an operation**, if required**) is based on a policy defined by the applicant.	Accepted	We have updated the wording consistently for the integrity and assurance criteria, as follows: "The applicant has a policy defining the criteria and the means for the remote crew to declare declare themselves fit before starting their duty and report themselves unfit, if required, during their shift"
46		2. OSO #III (OSO #17) Assurance	6	74	● The FRMS is validated by a competent third party and internally monitored by the Operator.	FRMS are only currently required for full airlines. If GA and smaller airlines don't have these, why should we? It is a huge amount that is not justified.	We suggest removing the reference to FRMS.	Rejected	The group felt there was not enough rationale to justify the deletion of this criterion based on the feedback of one company only

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41		2. OSO #III (OSO #17) Integrity	6	73	The applicant has a policy defining how the remote crew can declare themselves unfit to operate before or during any operation.	It is more appropriate that the crew can declare fit to operate due to the legal implications associated with the pilot and operator, as it was before in OSO#17	Replace unfit with fit in all the text of OSO#III	Partially Accepted	We have updated the wording consistently for the integrity and assurance criteria, as follows: "../... policy defining the criteria and the means for the remote crew to declare declare themselves fit before starting their duty and report themselves unfit, if required, during their shift"
42		2. OSO #III (OSO #17) Integrity	6	73	The applicant has a policy defining how the remote crew can declare themselves unfit to operate before or during any operation.	The fitness declaration was changed from "declare themselves fit" in SORA 2.0 to ""declare themselves UNfit". This changes the aspect and the requirements for an operator quite significantly. All operators needed a policy, how a crew member could declare themselves fit before duty in SORA 2.0. Is this requirement now lifted with SORA 2.5, and it is sufficient if the crew members "do nothing" in that sense before an operation? Could you please explain further?		Partially Accepted	We have updated the wording consistently for the integrity and assurance criteria, as follows: "../... policy defining the criteria and the means for the remote crew to declare declare themselves fit before starting their duty and report themselves unfit, if required, during their shift"
63		2. OSO #IV (OSO #08) Assurance	10	97	Alternative Criteria #1 and #2 taking credit for functional test-based methods	FTB design appraisal gained by a UAS designer are adequate tests to guarantee the design of the UAS but not to guarantee the adequacy of the Contingency and Emergency procedures of the UAS operator.	Delete Criteria #1 and #2 taking credit for functional test-based methods	Rejected	FTB tests can be taken credit of if the tests were conducted using the exact coordination procedures used by the operator
115		2. OSO #IX (OSO #16) Assurance	19	143		Do emergency situations have to be validated / simulated / tested to prove that they work?		Question	Yes, it is confirmed that emergency procedures should be validated
116		2. OSO #IX (OSO #16) Assurance	19	143	Alternative Criterion #1 taking credit for functional test-based methods	FTB design appraisal gained by a UAS designer are adequate tests to guarantee the design of the UAS but not to validate procedure(s) to ensure coordination between the crew members and that robust and effective communication channels is (are) available and at a minimum cover: ● assignment of tasks to the crew, and ● establishment of step-by-step communications	Delete alternative Criterion #1 taking credit for functional test-based methods	Rejected	FTB tests can be taken credit of if the tests were conducted using the exact coordination procedures used by the operator
112		2. OSO #IX (OSO #16) Integrity	18	142	2 This should include the establishment of a proper phraseology between the remote crew members involved in the aerial part of the operation.	Why is the statement concerning phraseology only a comment, when it is an essential requirement? This should be under integrity directly.		Accepted	The comment was intergated in the intergity requirements, as suggested
113		2. OSO #IX (OSO #16) Integrity	18	142	2 In the context of SORA, the term “Remote crew” refers to any person involved in the mission.	Does that mean all personal involved when the UAV flies or maintenance staff etc. also? Also, the numbering of the footnote is not correct.		Partially Accepted	We aligned Annex E with Annex I definition of a Remote Crew Member: "A member of the crew that performs duties essential to the safety of flight whose duties and responsibilities are described in the OM and has been assigned to these by the UAS operator. The Pilot in Command is part of the remote crew.". This definition covers maintenance personel. That said, OSO#16 focuses on personnel directly involved in the flight operation.
114		2. OSO #IX (OSO #16) Integrity	18	142	Same as Medium. In addition: communication devices are redundant4 and comply with standards considered adequate by the competent authority and/or in accordance with a means of compliance acceptable to that authority5. 4 This implies the provision of an extra device to cope with the failure case of the first device."	The criterion and comment are no longer relevant when meeting HIGH Level of Integrity and Assurance on Technical OSOs such as OSOs #XII, XII, XIV, XVI and XVII, since they already guarantee redundancy, etc. Having a second device as mentioned in the footnote #4 makes no real sense then.	"Same as Medium. In addition: communication devices are redundant4 and comply with standards considered adequate by the competent authority and/or in accordance with a means of compliance acceptable to that authority5. **When High Level of Integrity and Assurance are already met on OSOs #XII, XII, XIV, XVI and XVII Criterion #3 of this OSO is not applicable**"	Rejected	The redundancy would only be garanteed for catastrophic FC so the group recommended to keep the requirement as it is, even if it may be seen redundant with other part of the SORA
104		2. OSO #VII (OSO #23) Assurance	15	122	Alternative Criterion #2 taking credit for functional test-based methods	FTB design appraisal gained by a UAS designer are adequate tests to guarantee the design of the UAS but not to validate UAS operator procedures for evaluating environmental conditions before and during the mission (i.e. real-time evaluation)	Delete alternative Criterion #2 taking credit for functional test-based methods	Rejected	FTB tests can be taken credit of if the tests were conducted using the exact coordination procedures used by the operator
102		2. OSO #VII (OSO #23) Integrity	14	121	Environmental conditions for safe operations are defined and reflected in the flight manual or equivalent document.	SORA Main Body table 10 states that it is for the OEM to address, If so then Crit #1 seems redundant with OSO #XVII where the medium level of integrity states: “The UAS is designed to perform as intended in the environmental conditions defined and reflected in the flight manual”. If the intent of the requirement is for the Operator to ensure that he has properly captured environmental envelope/limits in the flight manual, then the assurance requirements are now confusing where they require evidence such as testing, analysis, etc. A review of the flight manual vs. OEM's recommendations should be sufficient.	If the integrity requirement is targeted at the Manufacturer: - Delete Criterion #1. If the integrity requirement is targeted at the Operator: - Leave the integrity requirement. - Change the medium assurance to this only: "The applicant has supporting evidence that the required level of integrity is achieved." In all cases: - Update the main body table as required.	Partially Accepted	We updated the medium level of assurance as follows: "The applicant has supporting evidence that the required level of integrity is achieved."
103		2. OSO #VII (OSO #23) Integrity	14	121	Procedures for evaluating environmental conditions before and during the mission (i.e. real-time evaluation) are available and include assessment of meteorological conditions (METAR, TAFOR, etc.) with a simple recording system.	How can you measure the conditions during the mission? Is a visual oberservation with the pilot's eyes sufficient?		Question	Yes possibly but dependent on the Conops and we should not be prescriptive
135		2. OSO #XI (OSO #19) Assurance	25	190	Alternative Criteria #1 and #3 taking credit for functional test-based methods	FTB design appraisal gained by a UAS designer are adequate tests to guarantee the design of the UAS but not to validate procedures and checklists that mitigate the risk of potential human errors from any person involved with the mission are defined and used. Procedures provide at a minimum: ● a clear distribution and assignment of tasks, ● an internal checklist to ensure staff are adequately performing assigned tasks.	Alternative Criterion #3 taking credit for functional test-based methods	Rejected	FTB tests can be taken credit of if the tests were conducted using the exact coordination procedures used by the operator

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213		3. Functional Test-Based (FTB) Approach	42	435	○ OSO#IV and OSO#VII (criterion #2): operational procedures; and	As justified in previous comments	Delete OSO#IV and OSO#VII (criterion #2): operational procedures; and	Rejected	FTB tests can be taken credit of if the tests were conducted using the exact coordination procedures used by the operator
214		3. Functional Test-Based (FTB) Approach	42	436	○ OSO#IX (criterion #1), OSO#XI (criterion #1 & #3), and OSO#XV: human errors.	As justified in previous comments	OSO#XI (criterion #3), and OSO#XV: human errors.	Rejected	FTB tests can be taken credit of if the tests were conducted using the exact coordination procedures used by the operator
50		2. OSO #IV (OSO #08)	8	84	(b) Contingency Procedures are designed to potentially prevent a significant future event (e.g. loss of control of the operation) that has an increased likelihood to occur due to the current abnormal state of the operation.These procedures should return the operation to a normal state and allow the return to using standard operating procedures, or allow the safe cessation of the flight.	The distinction between contingency and emergency procedures is not very clear In a certain extent and at high level, contingency and emergency procedures seem to have a high level of overlap. For simplicity, we suggest either to clarify with concrete examples what is considered a contingency procedure or an emergency procedure or to remove one of the two defintions since both could be understood to encompass the same cases (loss of structural integrity, loss of command and communication, loss of navigation etc..)	Clarify with concrete examples the difference between contingency and emergency procedures. For instance: Contingency Procedure: Loss of Command and Control procedure, Emergency Procedure: Exit of the Operational Volume or Flight Termination	Rejected	The difference between contingency and emergency procedures is defined through the semantic model in the Main Body
51		2. OSO #IV (OSO #08)	8	84	(b) Contingency Procedures are designed to potentially prevent a significant future event (e.g. loss of control of the operation) that has an increased likelihood to occur due to the current abnormal state of the operation.These procedures should return the operation to a normal state and allow the return to using standard operating procedures, or allow the safe cessation of the flight.	Use of "enable" instead of "allow" reflects the idea better.	(b) Contingency Procedures are designed to potentially prevent a significant future event (e.g. loss of control of the operation) that has an increased likelihood to occur due to the current abnormal state of the operation. These procedures should return the operation to a normal state and **enable** the return to using standard operating procedures, or **allow** the safe cessation of the flight.	Accepted	(b) Contingency Procedures are designed to potentially prevent a significant future event (e.g. loss of control of the operation) that has an increased likelihood to occur due to the current abnormal state of the operation. These procedures should return the operation to a normal state and **enable** the return to using standard operating procedures, or allow the safe cessation of the flight.
64		2. OSO #IV (OSO #08) Assurance	10	97	FUNCTIONAL TEST-BASED METHODS (for SAILs up to IV included): If a Functional Test-Based (FTB) design appraisal gained by a UAS designer meetsthe conditions described in section 3(c)(ii)2, the assurance that the operational procedures are adequate is fulfilled at the level corresponding to the SAIL being demonstrated by the functional test-based approach3.	We recommend that the FTB is explained before being mentioned in the OSOs. Otherwise, it is very hard to understand the significance and impact of FTB on non-technical OSOs like this one here.		Partially Accepted	The group felt it would not be ideal to bring the complete FTB explanation before the OSOs since FTB is only a sub-element of Annex E. That said, we agreed that adding a short explanation at the beginning of the document providing guidance to applicants would bring clarity. We added this guidance in section 1 "How to use Annex E".
65		2. OSO #IV (OSO #08) Assurance	10	97	FUNCTIONAL TEST-BASED METHODS (for SAILs up to IV included): If a Functional Test-Based (FTB) design appraisal gained by a UAS designer meetsthe conditions described in section 3(c)(ii)2, the assurance that the operational procedures are adequate is fulfilled at the level corresponding to the SAIL being demonstrated by the functional test-based approach3.	in this case the OSO # IV Crit #1&2 should also be allocated to manufcturer in table 10 on main body	Change in the table	Partially Accepted	sentence added in the integrity: "If available, operational procedures provided by the UAS designer should be utilised "
66		2. OSO #IV (OSO #08) Assurance	10	97	FUNCTIONAL TEST-BASED METHODS (for SAILs up to IV included): If a Functional Test-Based (FTB) design appraisal gained by a UAS designer meetsthe conditions described in section 3(c)(ii)2, the assurance that the operational procedures are adequate is fulfilled at the level corresponding to the SAIL being demonstrated by the functional test-based approach3.	This assumption is also true for abnormal and emergency procedures. Though this may be included in "operational procedures", it could be safer to make it explicit	If a Functional Test-Based (FTB) design appraisal gained by a UAS designer meets the conditions described in section 3(c)(ii)2, the assurance that the **normal, abnormal and emergency** procedures are adequate is fulfilled at the level corresponding to the SAIL being demonstrated by the functional test-based approach	Rejected	Operational procedures are defined in the same OSO#8 (integrity part) and cover more than normal, contingency and emergency procedures
67		2. OSO #IV (OSO #08) Assurance	10	97	2 In particular, the functional tests supporting the FTB design appraisal gained by the UAS designer have been executed: • within the full operational scope/envelope intended by the UAS Operator, • following the maintenance, operational procedures and the remote crew training referred to in the operational authorization.	How should that work? An operator wants to take credit from FTB approach. Now the UAS designer's tests should follow the operational procedures and remote crew training referred to in the operational authorization. Which authorization is meant? The operator cannot have an authorization as he needs the FTB to get an authorization in the first place? This is a hen and egg problem. This comment is included in multiple OSOs related to FTB. We comment on this only once here. Could you please explain how this might work using FTB?		Rejected	It is deemed that the problem described is not specific to the FTB approach (nor it is a SORA issue). It is a problem faced by authorities each time an operator or an OEM wants to take credit of flight tests. There are different ways authorities may approach it but these includes e.g. asking the applicant to fly with a tether and/or over controlled area and/or flying in segregated.
54		2. OSO #IV (OSO #08) Integrity	9	93	Criterion #3 'probable'		Consider including the defintion of probable sooner in the text, rather than at a later stage.	Partially Accepted	We replaced the term "probable" by "anticipated" to avoid confusion with the other cases where the term "probable" is used in Annex E related to qualitative sprobability requirements
55		2. OSO #IV (OSO #08) Integrity	9	94	• effectively mitigates all probable hazardous secondary effects after a loss of control of the operation;	Define "secondary effects" and explain what “very high effectiveness” means.	-	Partially Accepted	Text was updated as follows: "The ERP should be proportional to the potential secondary effects of a ground impact, i.e. those effects that may occur after the initial ground impact (e.g. fire, release of poisonous gas)."
57		2. OSO #IV (OSO #08) Integrity	9	93	• the training syllabus and a corresponding up to date record of trained Remote Crew members	Moving the ERP training syllabus Since there is an OSO dedicated to training and this one is more appropriate for procedures, we suggest moving this requirement in OSO #X for more simplicity	Move ERP Training to OSO #X	Accepted	The moved the ERP training syllabus from OSO8 to OSO9
59		2. OSO #IV (OSO #08) Integrity	9	93	6 […] Additional information regarding these exceptional cases can be found in Annex F section.	Which section of Annex F?		Partially Accepted	Reference to Annex F was deleted since there is no possibility anymore to reduce the GRC based on the ERP in SORA v2.5

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62		2. OSO #IV (OSO #08) Integrity	10	93 / 97	Level of Integrity, Criterion #3 Level of Assurance, Criterion #3	While it makes sense to keep the requirements flexible depending on the operation and the SAIL, operations within the same SAIL can be completely different in terms of the potential risks and escalating effects. Additionally, the current version of the ERP shows no distinction in the definition of low, medium and high level of robustness (both for the level of integrity and the level of assurance). This could lead to a significant level of subjectivity depending on the CAA. Therefore, it is suggested that the ERP stays out of the OSOs and becomes an independent requirement that depends on additional conditions (such as Containment requirements). The focus should be put on reaching a compromise between the SAIL and the potential consequences of an emergency. An alternative is proposed.	When an Organizational Operating Certificate (or equivalent) is not required, i.e. up to SAIL III, the requirements of the ERP should not be higher than SORA 2.0 Medium level. If the operation is shown to have a low enough risk and containment requirements are fulfilled, the requirements of the ERP should not be "High" (which is currently the case for SAIL III). For SAIL IV and above, an ERP with high level of robustness should be considered only when the nature of the operation and losing its control could be particularly dangerous. A non-exhaustive list of particularly dangerous operations that should be addressed by the applicant and the competent authority is proposed: - Transport of dangerous goods: a high level ERP is required only when, in the event of a loss of control and/or accident on the ground, due to the nature of the area overflown and the dangerous good, it is reasonable to expect a higher probability of lethality and/or more people affected, while staying within specific category of operations (e.g.: increased critical area of the impact of the UA or be propagation of the content to larger areas through gas or liquid leaks). For example: explosives powerful enough to significantly increase the critical impact area or affect infrastructures, particularly dangerous toxic and infectious substances (such as Category A Infectious Substances, defined in UN3373), gases that could by particularly hazardous in the area overflown (e.g.: flammable, poisonous or inhalation hazard), flammable liquids and solids when the risk of propagation is high, radioactive substances in populated environment or natural spaces and corrosive substances when there the risk to nature, people or infrastructures is high. - Operations in populated environments or over critical infrastructures when the impact of the UAS could damage the infrastructure of a building (e.g.: when the conditions for sheltering cannot be applied, UAS > 25 kg and/or 174 kts)	Partially Accepted	OSO#8 assurance Criterion #3 was deleted and combined with assurance requirements for Criteria #1 and #2; as well OSO#09 was slightly reworded to integrate the ERP
97		2. OSO #VI (OSO #07) Integrity	13	115	1 The periodicity should be defined in the UAS conformity check procedures	Conformity check procedures are not mandatory in OSO IV. If they should be, they would need to be part of integrity and not only a comment in OSO #VI.		Accepted	Intergity requirement updated to take into account the comment which was then deleted: "The Operator periodically ensures that the UAS is in a condition for safe operation and conforms to the approved concept of operation, taking into account the life-cycle of the aircraft and the UAS designer conformity check procedures."
203		3. Functional Test-Based (FTB) Approach	41	392	• The functional tests supporting the FTB design appraisal gained by a UAS designer have been executed within the full operational scope/envelope intended by the UAS Operator; this means that the test cycles are fully representative of the operators' intended operations with test points to verify safe operation at the operational limits and corners of the vehicle envelope.	We suppot this paragraph, but have doubts how it should should work in practice. If the operator and the manufacturer are very closely related, they can discuss which tests the manufacturer will do in order to support the authorization of the operator. However, this will be a marginally small portion of cases. Often manufacturers and operators are not closely related. The paragraph should more clearly highlight that the manufacturer will likely choose the flight envelope based on the UAS and the design, choose test cycles based on the most likely use cases and then perform the FTB. Operators indeed will need to comply with these aspects set by the manufacturer, when planning their operation. This does not work vice versa.		Rejected	Problem is acknowledged; but although it may not be many cases where this option could work, we wanted to give the option to applicants.
61		2. OSO #IV (OSO #08) Integrity	9	93	N/A	Consistent with proposals made : In SORA Main Body comment #21 about Page 34, line 793 In Annex B, comment #1 about Page 3, line 23 In Annex I, Comment #10 to add a new M3 mitigation "M3 - UAS Awareness Safety Training (for initially non-involved people at site of operations)" an additional criterion should be added.	**Criterion #4 - M3 - UAS Awareness Safety Training (for initially non-involved people at site of operations)** **A training to raise awareness of initially non-involved people at the site of operations, hence making them involved people thanks to the acquired knowledge about the deployed UAS (area of operations, height, type of UA, organisation in charge, behaviour of the UA in case of Emergency and behavior of people in case of such an Emergency, etc.)**	Rejected	Acknowledged; although it is good practice to make uninvoved people aware of UAS operations, if these people do not perform any action or follow procedure during an emergency event, these people are staying uninvolved people and no credit of their awareness training can be taken credit of in the operator SORA.
76		2. OSO #V (OSO #03) Integrity	11	101	The UAS Operator follows the UAS Operator maintenance requirements […] and the maintenance staff use the UAS maintenance instructions while performing maintenance.	There is no need for the requirement to specify who does what within the Operator's organisation; the key aspect here is that maintenance requirements and instructions shall be adhered to (i.e. not just defined).	Delete this requirement and insert the following in the requirement on the top: "**The UAS Operator maintenance instructions** […] **are defined and adhered to and, when applicable** […]"	Accepted	Requirements reworded taking into account the UK CAA comment
86		2. OSO #V (OSO #03) Integrity	11	101	N/A	Missing details: no reference to requirements from: - airworthiness directives - national requirements (NAA) - in service experience - manufactures recommendations (SB, SIL, etc.)	e.g. https://www.suasnews.com/2023/02/uk-caa-temporary-grounding-of-all-freefly-astro-aircraft/	Partially Accepted	We took the comment into account in OSO#01 by adding the following note: "Including monitoring any related airworthiness directives or recommendations issued by National Aviation Authorities and designer recommendations (Service Bulletin, Service Information Letter, etc.)" to clarify the requirement "The applicant is knowledgeable of the UAS"
87		2. OSO #V (OSO #03) Integrity	11	101	N/A	Missing details: no reference to requirements from: - airworthiness directives - national requirements (NAA) - in service experience - manufactures recommendations (SB, SIL, etc.)		Partially Accepted	Refer to adjudication of comment #86
88		2. OSO #V (OSO #03) Integrity	11	101	N/A	Missing details: no reference to requirements from: - airworthiness directives - national requirements (NAA) - in service experience - manufactures recommendations (SB, SIL, etc.)		Partially Accepted	Refer to adjudication of comment #86

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95		2. OSO #VI (OSO #07) Integrity	13	115	The Operator periodically1 ensures that the UAS is in a condition for safe operation and conforms to the approved concept of operation, taking into account the lifecycle of the aircraft.2		The Operator periodically ensures that the UAS is in a condition for safe operation and conforms **to UAS design data considered** for the approved concept of operation, taking into account the lifecycle of the aircraft.	Accepted	Integrity text of OSO#07 has been reworded as follows: "The Operator has UAS conformity check procedures ensuring that: * the UAS intended to be used for the operation is in a condition for safe operation, and * the UAS configuration conforms to the UAS design data considered under the approved concept of operation."
1		0. General	N/A	N/A		GENERAL The way Annex E is formatted and described is more complicated than the current 2.0 layout. The document is written rather complicated and confusing, and in our experience many operators had troubles understanding and using the OSOs from v2.0, which were rather simple compared to this new version. Safety and detailed requirements are needed, but a user-friendly way to present information is also a contributing (human) factor to their understanding.	Annex E layout needs to be more user-friendly. The tables could be seen slightly blown out of proportion and it is really difficult for "normal" operators, that are not aviation professionals, to find the right information that is applicable for them. All the cross references need to be minimized by other means, for example color coding and summarizing reduntant statements.	Partially Accepted	A landscape mode was implemented throughout the document for all tables to improve visibility
3		0. General	N/A	N/A		DEFINITION / EXPLANATION OF ASSURANCE Currently the Assurance requirements are not often understood correctly. A declarative Assurance still means that the applicant has fulfilled all the Integrity criteria. Assurance could be clarified with the following definition. "Assurance is the required level of Verification by National authorities prior to granting an approval. All the integrity requirements must still be fulfilled by the UAS Operator, but the Verification of the implementation can happen prior to approval or after in auditing."		Partially Accepted	A note was systematically added to clarify that supporting evidence for a declaration may still be requested by the competent authority.
9		0. General	N/A	N/A	life, "lifetime", "total lifetime", "operational life"	During the use of SORA 2.0, I often encountered people who considered "lifetime" to be how long the drone would be used. Thus, if it is only flown for 100 hours, or if it crashes early in it's "carreer", the lifetime was short.	1. Unify the use of these words (say, use "operational life"). 2. Add an explanatory note to explain the concept as the expected lifetime with proper maintenance etc. I am not sure exactly where that would go, though.	Accepted	"operational life" used throughout Annex E and definition added to Annex I
253		4. Containment requirements Assurance	46	492	Comments	If JARUS has already identified valid standards for the fulfillment of the different requirements, such as MoC-Light UAS 2511 from EASA, include them in comments as approrpriate for the different levels of robustness. This comment should be general for the different OSO and requirements (which is done already in some of them, such as OSO #XIII with ED-280).	3 EASA MOC Light-UAS.2511-01 “Means of Compliance with Light-UAS.2511 - Containment“ may be considered acceptable by the competent authority to support compliance with this criterion.	Partially Accepted	Since EASA published the 2511 MoC before the work on JARUS SORA v2.5 started, EASA will have to first check if this MoC needs to be updated or not
19		1. How to use SORA Annex E	3	50	#8 Security is addressed specifically in Annex E for Cyber	Several JARUS documents referred to Annex E for information on security and cybersecurity. In reviewing the articles in Annex E, it seems that little information is available relative to cybersecurity. At best, OSO #XVI mentions C2 and C3 data links, but it is very weak on any cybersecurity framework, security controls, standards, or best-practices for cybersecurity. The mainstay of the articles in these documents are related to manufacturing, test and evaluation, and proposed rulemaking for UAS operations. More references or cross-references to security should be made in this Annex. It is confusing to state that Security is addressed in Annex E when this annex is also labeled Annex E. Can the Annex E for Cyber be included along with this document if it is a part of Annex E? It might be useful to give the Annex E for Cyber a different title ("Cyber Appendix to Annex E") if it is part of Annex E.	One or more references to other security-related material in other JARUS SORA references are needed in this annex to explain how security risks are addressed or excluded from SORA work. In addition, the Cyber material should either be included as an appendix to Annex E with a new title or it should use a different letter to avoid confusion with Annex E.	Rejected	The first version of the Annex E for Cyber was published in 2022 and is available on the JARUS website: http://jarus-rpas.org/publications/ Additionally, an update to this Annex E for Cyber is planned to be published concurrently with the complete SORA v2.5 package
20		1. How to use SORA Annex E	3	50	#8 Security is addressed specifically in Annex E for Cyber	Where is addressed cybersecurity in Annex E ?		Rejected	The first version of the Annex E for Cyber was published in 2022 and is available on the JARUS website: http://jarus-rpas.org/publications/ Additionally, an update to this Annex E for Cyber is planned to be published concurrently with the complete SORA v2.5 package
123		2. OSO #X (OSO #09)	22	168	(c) If external services are used for which training is critical for the safety of the flight, the Service Provider has a responsibility to supply competency-based, theoretical, and/or practical training materials that are appropriate to support operations as defined within limits of the Service Level Agreement (SLA) and recommend any applicable proficiency requirements and training recurrences. Proposed criteria for the 3 Service Levels related to UAS safety services described in Annex H are provided in the tables below:	If Annex H has not been published, it should not be referenced. We also do not tacitly endorse any unpublished annex content without a thorough review.	We suggest removing references to Annex H.	Rejected	It is planned to publish Annex H concurrently with the complete SORA v2.5 package
229		4. Containment - Criterion #1 - Integrity	44	491	2 This may be achieved by a tether that prevents the drone from exiting the operational volume.	The footnote seems to not have a direct relationship to the "high" integrity. A tether may be an option, but why explicitly name it here as a direct footnote of "high"?		Accepted	In the case a tether is used to ensure containment of the operations, specific requirements have been added at the end of the document

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
235		4. Containment - Criterion #3 - Integrity	44	491	The Ground Risk Buffer must at least adhere to the 1:1 principle. A smaller ground risk buffer value may be proven by the applicant for a rotary wing UA using a ballistic methodology approach acceptable to the competent authority. Ground risk buffer must consider the following points below: Improbable single malfunctions or failures (including the projection of high energy parts such as rotors and propellers) which would lead to an operation outside of the operational volume, Meteorological conditions (e.g. wind), UAS latencies (e.g. latencies that affect the timely maneuverability of the UA),UA behaviour when activating a technical containment measure, UA performance.	This criterion corresponds to the old M1 mititgation criterion#1 Again, some clarifications are needed for this criterion#3 since the definition of the ground risk buffer has already been done in the STEP#2 of the SORA methodology. It might be difficult/confusing for the applicant to provide/demonstrate "compliance" twice for the same requirements. Why should the methodology used to dimension the ground risk buffer be a requirement for the containment? What about the methodology used to dimension the adjacent area?		Accepted	The definition of the Ground Risk Buffer in Step #02 has been simplified as follows: "An appropriate initial ground risk buffer could be defined: - with a 1-to-1 principle; or, - a different ground risk buffer value may be proposed by the applicant using the same principles outlined in Annex E, Section 4, Criteria 3." which solves the issue of the duplication of requirements
237		4. Containment - Criterion #3 - Integrity	44	491	Comment section to Criterion #3 - Definition of the Ground Risk Buffer.	Following a previous comment, add comment regarding 'tethered operation' concerning definition of GRC buffer.	In the case of tethered operation, the applicant may define a ground risk buffer based an estimate of the critical area calculated using the methods defined in Annex F.	Partially Accepted	In the case of tether, the 1:1 rule defined in Main Body Step #02 is sufficient
240		4. Containment - Criterion #3 - Integrity	44	491	The Ground Risk Buffer must at least adhere to the 1:1 principle4. A smaller ground risk buffer value may beproven by the applicant for a rotary wing UA using a ballistic methodology approach acceptable to the competent authority. 4 The 1:1 principle refers to applying a ground risk buffer that is as wide as the maximum height of the operational volume	Why is this explicitly stated here as a requirement for low robustness containment. This is already defined in the main body as a general requirement for computing the GRB. Footnote numbering incorrect.		Accepted	The definition of the Ground Risk Buffer in Step #02 has been simplified as follows: "An appropriate initial ground risk buffer could be defined: - with a 1-to-1 principle; or, - a different ground risk buffer value may be proposed by the applicant using the same principles outlined in Annex E, Section 4, Criteria 3." which solves the issue of the duplication of requirements
98		2. OSO #VII (OSO #23)	14	118	OSO#VII "Environmental conditions for safe operations are defined, measurable and adhered to"	Similar to what is stated for OSO#18 within the SORA 2.0 and kept in OSO#XIV of SORA 2.5 "(b) Automatic protection of the flight envelope is intended to prevent the remote pilot from operating the UA outside its flight envelope. If the applicant demonstrates that the remote-pilot is not in the loop, this OSO is not applicable.", the same should be retained in the context of OSO#VII	add the statement "**Identifying critical environmental conditions is intended to prevent the remote pilot from operating the UA in adverse conditions. If the applicant demonstrates that the remote-pilot is not in the loop, this OSO is not applicable**"	Partially Accepted	This OSO is not becoming N/A when a pilot is not in the loop. That said, criterion #02 (procedures) was redundant with OSO#08 so we have deleted it; same for Criteria ä#3 which was redundant with OSO#09.
105		2. OSO #VII (OSO #23) Assurance	15	122	5 Functional test-based method is not considered feasible for operations with a SAIL V or VI.	OSO#VII - LOA - High - Why is FTB not allowable for High? Typo (method / are).	How does this align with the FAA D&R approach (i.e. FAA allowing <100,000 people operations) which implies a SAIL VI type Also what IS the pathway if not FTB?	Rejected	It is considered by the JARUS SRM group that FTB testing is not feasible for operations with a SAIL V or VI since it would request respectefully 300,000FH or 3,000,000 FHs. That said, FTB is only an alternative approach to demonstrate the integrity criterion expressed in criterion 2. Alternatively, Criterion#2 applies. Additionally the FAA TC approach is US specific and under review by the FAA.
106		2. OSO #VIII (OSO #13)	16	126	For the purpose of the SORA and this specific OSO, the term "External services supporting UAS operations" encompasses any interaction with an external Service Provider critical for the safety of the flight.	What is considered a critical service? If redundant services are used, is considered non critical an this OSO does not apply?		Accepted	Footnote was added to clarify the term "critical service": "service whose loss would directly lead to a loss of control of the operation as identified per OSO#10 assessment "
107		2. OSO #VIII (OSO #13)	16	131	• Externally provided electrical power (e.g. in the case where no emergency backup generator is available and the safety of the flight is dependent on continuous power delivery).	What does externally provided power mean in this context? Does that only concern UAS that are continously powered via a cable attached to a tether? Or does this also concern the ground control station? Does this mean that a backup generator is always mandatory when the safety of the flight depends on the power supply of the ground control station (which it most likely does to some extent)?		Rejected	The intro text provides example of possible external services; the integrity text although only refers to critical services
108		2. OSO #VIII (OSO #13)	16	133	The interface between the UAS Operator and the external services may take the form of a Service Level Agreement (SLA).	it is applicable for power supply subscription to power supplier (e.g. engie, gazprom, ….. ?) for Control Station or C2Link equipemnt items?		Question	Footnote was added to clarify the term "critical service": "service whose loss would directly lead to a loss of control of the operation as identified per OSO#10 assessment "
109		2. OSO #VIII (OSO #13) Assurance	16	137	N/A	It is proposed that properly redunded externally provided services required for safety do not need an SLA or similar.	When there is an adequate redundancy of the externally provided services required for the safety of the flight, a Service-Level Agreement is not required and the applicant can declare the requested level of performance. An adequate level of safety should still be assessed (OSOs XIII and XVIII), based on the required level of robustness.	Partially Accepted	Agreed for independent and dissimilar services and that is the reason why the integrity requirement only refers to critical services for which we added a definition.
118		2. OSO #X (OSO #09)	22	162		Do remote pilots need an authorisation by the operator? Somone who checks if they fulfill the defined requirements and signs that on an authorisation list?		Question	There is no need for operators to issue authorisation by the remote pilots; CAAs still have the possibility to add requirements for their area of responsibility
120		2. OSO #X (OSO #09)	22	173	(c) If external services are used for which training is critical for the safety of the flight, the Service Provider has a responsibility to supply competency-based, theoretical, and/or practical training materials that are appropriate to support operations as defined within limits of the Service Level Agreement (SLA) and recommend any applicable proficiency requirements and training recurrences. Proposed criteria for the 3 Service Levels related to UAS safety services described in Annex H are provided in the tables below: 1 Typically, this criterion is not expected to be applicable to GNSS service providers	This note should be included in the OSO #VIII too		Accepted	The JARUS SORA Annex E SG reviewed comments #120, #121, #122, #124 and #125 and agreed that there was no specific reasons to split the training requirements between services called by Annex H and the rets of the SORA. For this reason, we have deleted section c) and integrated the relevant information previously detailed in section c) in OSO#09 all together. We have as well reduced the length of the name of the OSO#09 and moved the details in the introduction text and the integriyt requirements.

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121		2. OSO #X (OSO #09)	22	164	(c) If external services are used for which training is critical for the safety of the flight, the Service Provider has a responsibility to supply competency-based, theoretical, and/or practical training materials that are appropriate to support operations as defined within limits of the Service Level Agreement (SLA) and recommend any applicable proficiency requirements and training recurrences. Proposed criteria for the 3 Service Levels related to UAS safety services described in Annex H are provided in the tables below:	When is considered training is critical for the safety of the flight?		Accepted	Refer to adjudication of comment #120
122		2. OSO #X (OSO #09)	22	164	(c) If external services are used for which training is critical for the safety of the flight, the Service Provider has a responsibility to supply competency-based, theoretical, and/or practical training materials that are appropriate to support operations as defined within limits of the Service Level Agreement (SLA) and recommend any applicable proficiency requirements and training recurrences. Proposed criteria for the 3 Service Levels related to UAS safety services described in Annex H are provided in the tables below:	In the OSO #VIII the evidences **may** take the form of a SLA but here seems to be necessary to have a SLA. How this should be addressed?		Accepted	Refer to adjudication of comment #120
119		2. OSO #X (OSO #09) Assurance	22	162	Training is self-declared (with evidence available).	It is very unclear what is meant by "with evidence available" for self-declared training. For the level of integrity there is a reference to the "JARUS RECOMMENDATION FOR REMOTE PILOT COMPETENCY (RPC) FOR UAS OPERATIONS IN CATEGORY A (OPEN) AND CATEGORY B (SPECIFIC)". Part B of this document states that: (a)The remote pilot should pass the theoretical knowledge examination provided by a competent authority, or by an RAE. (b) In addition to the theoretical knowledge examination and operation-specific module examinations, remote pilots should demonstrate practical skill via an assessment at a competent authority or an RAE as determined in SORA, when applicable. Is it generally accepted that for the Low Level of Assurance by "the evidence" we mean that remote pilot should still: (a)pass the theoretical knowledge examination provided by a competent authority, or by an RAE; (b)demonstrate practical skill via an assessment at a competent authority or an RAE; when verification of the remote crew competencies by a competent third party is required for High level of assurance? Either way the clarification would be needed.	[reference for the level of assurance to the JARUS recommendations for the RPC]	Rejected	It is JARUS SRM position that we should leave it up to the authority to impose a test at a RAE or not; if not, it is up to the operator to make sure the declaration is appropriate
124		2. OSO #X (OSO #09) Integrity	22	170	EXTERNAL SERVICE COMPETENCIES	External services competencies is written in the style of a completely new OSO, while it is the same number of the training OSO X. This is rather confusing. The External Service Competencies are also not listet as an OSO in the table of the Main body. Is that in fact a new OSO or does it belong to the training OSO? If it belongs to the training OSO, we recommend to not list this individually here, as it in fact looks like a new OSO. If it is a new OSO, it should get its own number and should be mentionend in the OSO table of the main body.		Accepted	Refer to adjudication of comment #120
125		2. OSO #X (OSO #09) Integrity	22	170	Service Level 1 (as described in Annex H) Service Level 2 (as described in Annex H) Service Level 3 (as described in Annex H)	difficulty to make the link with level of robstness (low, medium, high) from the SAIL .... or defined level 1 = low, level 2 = medium, level 3 = high		Accepted	Refer to adjudication of comment #120
137		2. OSO #XI (OSO #19) Assurance	25	190	FUNCTIONAL TEST-BASED METHODS (for SAILs up to IV included): If a Functional Test-Based (FTB) design appraisal gained by a UAS designer meets the conditions described in section 3(c)(ii)4, theOSO#XI Criteria #1 and #3 levels of assurance are fulfilled at the level corresponding to the SAIL being demonstrated by the functional test-based approach5.	If I can get credit for SAIL IV FTB testing for crit 1 and 3, and both SAIL IV and SAIL V require M robustness per Table 10 main body, why cannot the applicant get the same credit for a SAIL V application, since both require the same robustness? Is there a difference between SAIL IV robustness M and SAIL V robustness M?		Rejected	For those OSO where FTB is an option, FTB allows to validate the level of robustness of an UAS as a whole (i.e. SAIL II, III or IV), but not to validate OSO individually. The description of the FTB approach in section 3 and references to it in the OSOs have been generally reviewed to avoid confusions.
133		2. OSO #XI (OSO #19) Integrity	23	190	Systems detecting and/or recovering from human errors are developed to industry best practices	Please clarify what are the industry best practices regarding HE.	Using task analysis, UX Design.	Question	As far as this working group knows, there are no standards published yet. Therefore, until these are published, it is encouraged to propose/discuss with the local competent authority accepted standards.
138		2. OSO #XII (OSO #04)	26 30	192 - 212 213 - 221	N/A	It is not entirely clear how OSO#XII (OSO#04) and OSO#XIII (OSO#05) are different.	Clarify.	Accepted	We have added text a tthe beginning of OSO#04 to better explain the difference between OSO#04 and the other design-related OSO#s: "While OSO #04 aims at ensuring that the UAS as a whole is designed according to an ADS (for example, the design and construction, structure, and flight performance is part of the ADS, but not other OSOs), other design-related OSOs focus on particular systems/functionalities of the UAS and or technical disciplines (e.g. safety)".
140		2. OSO #XII (OSO #04)	26	200-201	(b) The list of Airworthiness Design Standard (ADS) to be complied with through OSO#XII are not intended to duplicate requirements already covered by other design-related OSOs:	not understood... if manufacturer has to comply with ADS, some requirements from ADS will adress same topics as covered by those OSOs ... (e.g. OSO#XIII covered by SC-LUAS.2510)		Rejected	If the ADS covers other OSOs (which is currently the case with EASA SC Light-UAS), the operator can take credit for those OSOs as well.

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151		2. OSO #XII (OSO #04) Assurance	27	211	Table LEVEL of ASSURANCE	The level of assurance table does not really make sense as it is right now. Practically, evidence will need to be delivered and verified for all levels, not only for high. The robustness is driven by the level of integrity here, rather than the level of assurance as opposed to other OSOs where the level of assurance determines the robustness...		Rejected	The Annex E SG agreed not to ask that the supporting evidence are systematically provided to the competent authority since this is still up to the competent authority to decide depending on the retained level of involvement, which is traditionally dependent on many factors, including if the applicant is new or not
152		2. OSO #XII (OSO #04) Assurance	27	211	The applicant has supporting evidence that the required level of integrity is achieved. This is typically done [...] operational experience.	There is no real distinction between the Low and Medium Level of Assurance under this Criterion. For Low, the note says the competent authority may still request supporting evidence. If the competent authority will always request supporting evidence under Medium, then there would be a difference. Otherwise, the two Levels of Assurance should be merged as one cell in this table.	2 The applicant **will provide the competent authority with a copy of the** supporting evidence **they used to justify that this** level of integrity is achieved. When simulation is used…	Rejected	The Annex E SG agreed not to ask that the supporting evidence are systematically provided to the competent authority since this is still up to the competent authority to decide depending on the retained level of involvement, which is traditionally dependent on many factors, including if the applicant is new or not
141		2. OSO #XII (OSO #04) Integrity	26	210		The inclusion of FTB / D&R methods in Annex E highlight even more the inconsistency of an ex-OSO#4 N/A at SAIL III. If the theory says that the required number of FHs to be flown to demonstrate a certain level of reliability is 3.000, then it should not be possible to say that this reliability level is so low that one could just do nothing.	It is suggested to bring ex OSO 4 to L for SAIL III and to not indicate 30.000 FHs for D&R / FTB for SAIL IV as the method is not adequate to cater for that risk level.	Rejected	The SRM group confirms the 30,000 FH requirement for a SAIL IV operation considering a 10-4/FH safety objective and a 95% confidence objective.
142		2. OSO #XII (OSO #04) Integrity	26	210		FTB / D&R has wider application than shown by Annex E. For example ex OSO#5 with regard to "howing hazards are minimized"typically should be considered addressed with the FTB. Not to say that an FHA should not be provided, but as a complement. FTB would also prove that automatic protection of the flight envelope is captured (with sufficient maneuver) and it is also applicable for OSO16 C3 link, as implemented with EASA published FTB MoC and as shown by ASTM standard on D&R. etc. Additionally a FTB / D&R method should be applied more proportionally than the 10x of the SORA, it is better to link it with the original risk equation for ground risk. So it provides lot of coverage, but the SORA 2.5 applies it where it is not proportionate (SAIL IV, too many FH, not the right level of risk to apply an FTB, EASA has limited the FTB to SAIL III; it is EASA understanding that also the FAA does not apply the FTB with so many FHs). All this implies (also, as shown by another comment) that ex OSO#4 should be L for SAIL III (as in the EASA AMC) where the FTB method can still be applied. If 3.000 FHs are required (in principle) to prove that OSO, then it should be evident that that OSO should not be N/A for SAIL III.	Put ex OSO4 for SAIL III at L and apply FTB/D&R. Extend its application across more OSOs. Do not apply it for SAIL IV.	Rejected	As previously already discussed, JARUS's position is not to ask application of OSO#04 at SAIL III since at SAIL III, the following design-related OSOs already apply and are considered sufficient commensurate to the risk: OSOs 5/10/12 (System Safety Related) - Low for OSO 5, Medium for OSO 10/12 at SAIL III OSO 6 (C3) – Low at SAIL III OSO 7 (conformity check) - Medium at SAIL III OSO 13 (external systems) - Medium at SAIL III OSO 18 (automatic protection of envelope) - Low at SAIL III OSO 20 (HMI) - Low at SAIL III OSO 23/24 (adverse environment) - Medium at SAIL III This can be considered as a "partial ADS" At SAILs IV, V, VI there is the additional requirements to be complied with via OSO #4 for a complete ADS. As well, the JARUS SRM group confirms the 30,000 FH requirement for a SAIL IV operation considering a 10-4/FH safety objective and a 95% confidence objective. This is deemed achievable since not necessarily to be performed in flight test. As specified in section 3.d introducing the the concept of "reliability growth model", an FTB approach allows UAS Operators to take credit for safe and successful operations over time.
143		2. OSO #XII (OSO #04) Integrity	26	210	The UAS components essential to safe operations are designed to an Airworthiness Design Standard (ASD) [...]	Please provide clarification on what makes a component essential to safe operation.	The UAS components c**onstituting a single point of failure leading to loss of control** are designed to an Airworthiness Design Standard.	Partially Accepted	We added the following clarification in the introduction text of OSO#04: "UAS components essential to safe operations are those whose failure would significantly impair the capability of the operator to meet the requested target level of safety in terms of loss of control of the operation"
144		2. OSO #XII (OSO #04) Integrity	26	210	1 Example of Airworthiness Design Standards (ADS) are: ● the EASA Special Condition Light-UAS, or ● the JARUS Certification Specification for Light Unmanned Rotorcraft Systems (LURS), or ● the JARUS Certification Specification for Light Unmanned Aeroplane Systems (LUAS).	In the Footnotes: The examples given hereafter are not standards addressing the component level, but the UAS as overall system. This does not fit well with the requirement which explicitly addresses components. Please, leave standard specification open to guidance material or provide component level standards here.		Rejected	The JARUS SRM Annex E SG did a quick check of the examples provided and applicable in Europe due to the geographical location of the DLR; the group did not agree with the statement that the examples adresses the UAS as a whole
148		2. OSO #XII (OSO #04) Integrity	27	210	● 30,000 hours in order to achieve a 95% confidence (assuming a binomial/Poisson distribution for the operational level hazard rate and no failures during the test).	What is the definition of "failure" here? Minor malfunctions will likely occur during 30k hours, so that a thershold should be defined (e.g. no. of UAS used) Consider also, that all (a not defined number of) UAS will enter a Conceptual / Major maintenance event if not an overhaul. What is to be done once these (non TC UAS) are maintained based "on condition"?		Partially Accepted	We have reviewed the wording as follows: "The applicant has evidences of at least 30,000 FTB flight hours meeting one of the set of conditions described either in section 3(c) or section 3(d)." and we believe the reviewed sections 3(b) and 3(c) answer the questions raised in this comment.
149		2. OSO #XII (OSO #04) Integrity	27	210	● 30,000 hours in order to achieve a 95% confidence (assuming a binomial/Poisson distribution for the operational level hazard rate and no failures during the test).	Yes, the "rule of 3" says this is needed for 1x10^-4 for SAIL IV (SAIL V and VI not acceptable for FTB). But it sure seems like a lot. Not well aligned with the FAA D&R numbers. I would contend that operations supported by D&R are at SAIL IV or SAIL V at least. It is, after all, an actual path to a Part 21 TC. So, darn near the "Certified" (JARUS Cat C) Category.	Double check that you really want 30,000 hours!	Partially Accepted	The SRM group confirms the 30,000 FH requirement for a SAIL IV operation considering a 10-4/FH safety objective and a 95% confidence objective. That said, we have modified the criterion for operators to be able to take credit of the concept of "reliability growth model"; we added as well the possibility in section 3(d) for competent authority to accept accumulation of FTB hours between operators if the UAS configuration, operational procedures, training, etc. are demonstrated to be equivalent.
150		2. OSO #XII (OSO #04) Integrity	27	210	● 30,000 hours in order to achieve a 95% confidence (assuming a binomial/Poisson distribution for the operational level hazard rate and no failures during the test).	30,000 hours is disproportionate to the risk.	Consider amendment to better reflect the level of complexity and risk. This current requirement does not necessarily to reflect FAA D&R etc.	Partially Accepted	The SRM group confirms the 30,000 FH requirement for a SAIL IV operation considering a 10-4/FH safety objective and a 95% confidence objective. Additionally the FAA TC approach is US specific and under review by the FAA.

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159		2. OSO #XIII (OSO #05) Assurance	30	220	• Safety analyses are conducted in line with [...]	Shouldn't we define the analyses before to conduct them?	Safety **processes** ~~**analyses**~~ are **defined and** conducted	Rejected	The JARUS SRM Annex E SG did not agree to impose processes; the focus is on the safety assessment itself; we have replaced the term safety analysis by safety assessment in line with this re-assessment
160		2. OSO #XIII (OSO #05) Assurance	30	220	• Same as Medium. In addition, safety analyses and development assurance activities [...]	Shouldn't we define/validate the analyses before to conduct them?	safety ~~**analyses**~~ and development assurance **processes and** activities	Rejected	The JARUS SRM Annex E SG did not agree to impose processes; the focus is on the safety assessment itself; we have replaced the term safety analysis by safety assessment in line with this re-assessment
161		2. OSO #XIII (OSO #05) Assurance	30	220	1 Severity of failure conditions (No Safety Effect, Minor, Conceptual / Major, Hazardous and Catastrophic) should be determined according to the definitions provided in JARUS AMC RPAS.1309 Issue 2.	Using these definitions the difference between HAZ and CAT failure condition is primarily based on the probability to cause a fatality after the loss of control of the operation (i.e. crash). To assess this residual probability is outside of the control of the system, hence it should not be in the scope of system safety assessment. The focus of the system safety assessment should be on making sure that the failure conditions (e.g. loss of control) is within the defined safety objectives. Therefore it is not considered particularly useful to use the JARUS AMC RPAS.1309 definitions for the failure conditions, as they are not taking into account operational mitigations, as the SORA is doing.	for low and medium assurance, propose to limit the assessment to failure conditions that would lead to the loss of control of operation and deleting the comment 1	Rejected	The effect described "Using these definitions the difference between HAZ and CAT failure condition is primarily based on the probability to cause a fatality after the loss of control of the operation (i.e. crash)." is exactly the intent of JARUS -SRM.
158		2. OSO #XIII (OSO #05) Integrity	29	219	Same as Low. In addition, the strategy for detection, alerting and management of any malfunction, failure or combination thereof, which would lead to a hazard is available.	Current draft .2510 goes beyond the requirement for SAIL IV, asking, for DA, when there are functions, systems, equipment and item in which an error could directly result in the loss of control of the operation	Systems designed with Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) could directly lead to a loss of control of operation shall be developed to an industry standard or methodology recognized as adequate by the competent authority.	Rejected	The request for Development Assurance activities at system level starting at SAIL IV is not justified
155		2. OSO #XIII (OSO #05) Integrity	29	219		I disagree strongly that only software for UAS in SAIL requiring a high level of integrity needs to be developed to an industry standard. I would have expected all software whose development error(s) may cause or contribute to hazardous or catastrophic failure conditions to be developed to some minimum level of integrity. The authors of JARUS SORA seem to be under the misapprehension that you either satisfy all the objectives for RTCA DO-178C/EUROCAE ED-12C Level A or none at all. Rather, DO-178C/ED-12C defines five software levels ranging from Level A (the most rigorous) to Level E (no safety effect). I would have expected DO-178C/ED-12C Level D to be the minimum level of design assurance for any software whose development error(s) may cause or contribute to hazardous or catastrophic failure conditions. The new document being developed by RTCA SC-240/EUROCAE WG-117 on "Software Considerations in Low Risk Applications, Equipment Certifications and Approvals" would also be suitable for UAS requiring only a low or medium level of integrity.	Require that all all software whose development error(s) may cause or contribute to hazardous or catastrophic failure conditions be developed to an industry standard considered adequate by the competent authority. The difference between low, medium and high levels of integrity could be modulated through the appropriate assignment of software levels, e.g. DO-178C/ED-12C Level A for a catastrophic failure condition at SAIL VI, Level D for a catastrophic failure condition at SAIL I.	Rejected	The request seemed disproportionate, not only for DAL D for SAIL I, but DAL A for SAIL VI.
156		2. OSO #XIII (OSO #05) Integrity	29	219	Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) may cause or contribute to hazardous or catastrophic failure conditions are developed to an industry-standard or a methodology considered adequate by the competent authority and/or in accordance with means of compliance acceptable to that authority.	For consistency, DA should apply to system when also applies to SW/AEH.	**Systems designed with** Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) may cause or contribute to hazardous or catastrophic failure conditions are developed to an industry-standard or a methodology considered adequate by the competent authority and/or in accordance with means of compliance acceptable to that authority.	Rejected	The request for Development Assurance activities at system level starting at SAIL IV is not justified
157		2. OSO #XIII (OSO #05) Integrity	29	219	5 Development Assurance Levels (DALs) for SW/AEH may be derived from JARUS AMC RPAS.1309 Issue 2 Table 3 depending on the UAS class or an equivalent risk-based methodology acceptable to the competent authority.	For consistency , DA should apply to system when also applies to SW/AEH. This is consistent also with the previous comment.	"Development Assurance Levels (DALs) **for Systems, Software and SW/**AEH may be derived from JARUS AMC RPAS.1309 Issue 2 Table 3 depending on the UAS class or an equivalent risk-based methodology acceptable to the competent authority."	Rejected	The request for Development Assurance activities at system level starting at SAIL IV is not justified
162		2. OSO #XIV (OSO #18) Integrity	31	238	The UAS incorporates automatic protection [...] to prevent the remote pilot from making any single input [...] that would cause the UA to exceed its flight envelope or prevent it from recovering in a timely fashion The UAS incorporates automatic protection [...] to ensure the UA remains within the flight envelope or ensures a timely recovery [...] following remote pilot error(s).	1) Both low and medium/high requirements seem to say the same thing, but worded differently, which is confusing; a 'pilot input leading to a flight exceedance' can be seen as a pilot error. Likewise, 'preventing an input leading to an exceedance', or 'remaining within limits following a pilot error', can be the same thing, unless there is a specific context associated with it, which is not apparent here. The only difference between both requirements seems to be in the ability of the automatic protection to address a single pilot error vs. multiple pilot errors. Is this correct? 2) If the answer the above is 'no', then the difference between low and medium/high requirements is unclear.	1) If the answer to the question in the comment is 'yes', reword either the low or medium/high requirement so that they are the same sentence, except that one has the word 'single' whereas the other has the word 'multiple' (failures) in it.Also remove the parenthesis in "error(s)" for medium/high integrity. 2) No proposed text at present as the intents of the integrity requirements are unclear.		The difference between low and med/high as follows: Low = single error + normal operating condition med/high = multiple errors + any operating conditions (e.g. normal + emergency). If yes, then I think it needs to be a bit clearer.
164		2. OSO #XV (OSO #20) Assurance	33	247	The applicant conducts a human factors evaluation of the UAS to determine if the HMI is appropriate for the mission. The HMI evaluation is based on inspection or analyses.	While this is a technical requirement, no self-declaration is explicitly proposed, which has lead to inconsistencies in the criteria followed by different CAA, some accepting self-declarations while others have stricter requirements. It is proposed to explicitly mention if the self-declaration is possible (which is consistent with the Operators Manual template from German LBA for low risk operations) or not to avoid inconsistencies between different CAA.	The applicant conducts a human factors evaluation of the UAS to determine if the HMI is appropriate for the mission. The HMI evaluation is based on inspection or analyses. The adequacy of the HMI evaluation is declared. OR The applicant conducts a human factors evaluation of the UAS to determine if the HMI is appropriate for the mission. The HMI evaluation is based on inspection or analyses. Evidence of the HMI evaluation shall be available.	Accepted	The following text was added: "The adequacy of the result of the HMI evaluation is declared."

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165		2. OSO #XV (OSO #20) Assurance	33	247	FUNCTIONAL TEST-BASED METHODS (for SAILs up to IV included): If a Functional Test-Based (FTB) design appraisal gained by a UAS designer meets the conditions described in section 3(c)(ii)2, the assurance that the HMI evaluation is adequate is fulfilled at the level corresponding to the SAIL being demonstrated by the functional test-based approach3.	SAIL IV and SAIL V both are M robustness per Table 10 SORA main body. Why can FTB credit be given to SAIL IV M robustness but not to SAIL V M robustness? Same as with OSO #XI		Rejected	It is not related to the level of robustness but the SAIL only. It is considered by the JARUS SRM group that FTB testing is not feasible for operations with a SAIL V or VI since it would request respectifully 300,000FH and 3,000,000 FHs.
166		2. OSO #XV (OSO #20) Assurance	33	247	N/A4	SAIL IV and SAIL V both are H robustness per Table 10 SORA main body. Why can FTB credit be given to SAIL IV H robustness but not to SAIL V H robustness? Same as with OSO #XI		Rejected	It is not related to the level of robustness but the SAIL only. It is considered by the JARUS SRM group that FTB testing is not feasible for operations with a SAIL V or VI since it would request respectifully 300,000FH and 3,000,000 FHs.
168		2. OSO #XV (OSO #20) Assurance	33	247	4 Functional test-based method are not considered feasible for operations with SAIL VI.	Earlier similar notes for other alternative FTB criterion stated that FTB methods are not considered feasible for SAIL V or SAIL VI. For consistency, this note should be the same.	4 Functional test-based methods are not considered feasible for operations with **SAIL V or** VI.	Rejected	The reasons for the slightly different note is because it relates only to the high level of robustness of OSO#20 which applies at SAIL VI only
163		2. OSO #XV (OSO #20) Integrity	32	242	For a high level of integrity, the Human Factors evaluation is expected to cover: ● an appraisal to check that the remote crew workload remain acceptable in both normal and emergency situations; ● an appraisal of the efficiency of the emergency procedures (efficacy of the actions, expected potential latencies); ● analyses to check if prioritization of alarms and emergency procedures should be put in place to organize emergency procedures in such a way that they remain adapted to the criticality of the situation.	This is more than a comment, but clearly describes integrity aspects. Why not directly integrate it in integrity?			Comment transfered in High level of Integrity
169		2. OSO #XVI (OSO #06)	34	249	OSO #06	Additional consideration on areas (and there will be more in the future) protected via DAA platforms/solutions and c-UAS. Flying close to these areas, even if all the mitigation measures and SAIL are achieved, can be uncertain if there are interferences with the C2 or C3. This point should be considered seriously in the future versions of SORA and the specific annexes.		Rejected	The main body already has a statement that local requirements which could be additionally requested by CAAs should be considered by the operator: "The competent authority may request additional measures or requirements to what the SORA stipulates for UAS operations."
174		2. OSO #XVII (OSO #24)	36	307	whole OSO	OSO XVII is the only OSO without a low robustness. It is unclear why it directly starts with medium robustness for SAIL III and not with low. Should there not be a declarative option for SAIL III (low robustness) and the medium robustness would apply for SAIL IV?		Rejected	The proposed change would be considered as a major change and would request a new consultation; since the change is not justified except for consistencies with the other OSOs, the JARUS SRM Annex E SG proposed not to adress it in JARUS SORA v2.5.
177		2. OSO #XVIII (OSO #10)	38	326	N/A	Is OSO #XVIII pertinent? While OSO #XIII addresses safety assessment and requirements of the UAS, SAIL addresses if the operation is compatible with the TLOS. OSO #XVIII seems like a mix between both. Therefore, wouldn't it make sense to have OSO #XIII and #XVIII combined? Maybe with additional requirements based on the population density overflown (which should be anyway addressed through the ground risk mitigations). OSO #XVIII identifies requirements for probable and single points of failure when overflying, which is considered convenient. However, flying in populated environments in SAIL I and II (Low level OSO #XVIII) is only possible through adequate ground risk mitigations. When applying M2 mitigations, this requirement should already be met. When applying M1(A) mitigations, the number of people at risk has already been reduced.	N/A	Rejected	Proposal to merge OSO#5 and OSAO#10 is not retained for the following reasons: - OSO#10 provides a no single failure criterion applicable at SAIL I already when OSO#5 request a safety assessment to show that the hazards have been minimzed. - Additionally the level of robustness (low, medium, high) are not called at the same SAIL, which would basically make the merge very challening.
186		2. OSO #XVIII (OSO #10) Assurance	39	327	● particular risks relevant to the intended operation (e.g. electro-magnetic interference..) do not violate the independence claims, if any	That's not a level of assurance		Rejected	The design and installation appraisal is the assurance requirement
187		2. OSO #XVIII (OSO #10) Assurance	39	327	● [...] electro-magnetic interference…)	Intended Jamming or not ?		Question	We added "unintentional" before EMI to clarify the intent
179		2. OSO #XVIII (OSO #10) Integrity	38	326	When operating over population density above 2,500 ppl/km2, ● no probable1 failure2 of the UAS or any external system supporting the operation will lead to a fatality(ies).	With Annex F ground risk model the understanding of OSO requirements purpose has increased. The OSO XVIII is in conflict the entire risk model by breaking the logic with the link to population density after the Steps 2 & 3 of the SORA process. The risk equation in simple terms is: (critical area) X (probability of death) X (population density) X (Loss of control rate = SAIL) If the SAIL requirements include also population density assessment in them, then this is double counted. What if the M1 mitigation has been applied? Would the OSO XVIII then use the iGRC or the fGRC?	Conceptually it should be clarified what function OSO XVIII performs that is not already addressed by Step2 & Step3 or OSOs XII & XIII to reach a reliability target.	Accepted	The population density threshold was deleted from OSO#10

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183		2. OSO #XVIII (OSO #10) Integrity	38	326	When operating over population density above 2,500 ppl/km2, ● Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) may cause or contribute to hazardous or catastrophic failure conditions are developed to an industry-standard or a methodology considered adequate by the competent authority and/or in accordance with means of compliance acceptable to that authority.	Same comment as on OSO 8. For consistency, DA should apply to system when also applies to SW/AEH.	**Systems designed with** Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) may cause or contribute to hazardous or catastrophic failure conditions are developed to an industry-standard or a methodology considered adequate by the competent authority and/or in accordance with means of compliance acceptable to that authority.	Rejected	The request for Development Assurance activities at system level starting at SAIL IV is not justified
184		2. OSO #XVIII (OSO #10) Integrity	39	326	4 National Aviation Authorities (NAAs) may define the standards and/or the means of compliance they consider adequate. The SORA Annex E will be updated at a later point in time with a list of adequate standards based on the feedback provided by the NAAs.	Clarify which standards we are talking about.	National Aviation Authorities (NAAs) may define the **safety, system development assurance, software and AEH** standards and/or the means of compliance they consider adequate. The SORA Annex E will be updated at a later point in time with a list of adequate standards based on the feedback provided by the NAAs.	Rejected	These standards are unfortunately not yet available and still need to be developed by Eurocae WG-127
254		2. OSO #XVIII (OSO #10) Integrity	38	326	When operating over population density above 2,500 ppl/km2: - no single failure of the UAS or any external system supporting the operation will lead to a fatality(ies). - Software (SW) and Airborne Electronic Hardware (AEH) whose development error(s) could directly lead to a failure affecting the operation in such a way that it can be reasonably expected that a fatality will occur are developed to a standard considered adequate by the competent authority and/or in accordance with means of compliance acceptable to that authority.	The reference to 2,500 ppl/km2 seems inconsistent with the gradual approach which is the basis of SORA 2.5. We recommend differentiation between medium risk and high risk operations and harmonisation with the EASA SC for Light UAS that expresses the following requirement: **(1) for Medium Risk:** SC Light-UAS 2510 - (a) The equipment and systems identified in CS-Light UAS.2500, considered separately and in relation to other systems, must be designed and installed such that: (1) hazards are minimized in the event of a probable failure; (2) it can be reasonably expected that a catastrophic failure condition will not result from any single failure; and (3) if the SAIL is IV, a means for detection, alerting and management of any failure or combination thereof, which would lead to a hazard, is available. (b) Any hazard which may be caused by the operation of equipment and systems not covered by Light-UAS.2500 must be minimized.. **(2) for High Risk**: (a) The equipment and systems identified in Light-UAS.2500, considered separately and in relation to other systems, must be designed and installed such that: (1) Each catastrophic failure condition is extremely improbable and does not result from a single failure; (2) Each hazardous failure condition is extremely remote; and (3) Each major failure condition is remote. (b) The operation of equipment and systems not covered by Light-UAS.2505 and Light-UAS 2510 must not cause a hazard throughout the operating and environmental limits for which the UAS is certified. Note: MoC for Light UAS 2510 SAIL V and VI will be developed in coherence with safety objectives provided by AMC to Article 11 of Regulation (EU) 2019/947 in terms of probability of loss of control per flight hour.	**Under Medium Integrity:** The UAS or any external system supporting the operations, must be designed (and installed) such that: (1) hazards are minimized in the event of a probable failure; (2) it can be reasonably expected that a catastrophic failure condition will not result from any single failure; and (3) if the SAIL is IV, a means for detection, alerting and management of any failure or combination thereof, which would lead to a hazard, is available. **Under High Integrity:** (a) The UAS or any external system supporting the operation must be designed (and installed) such that: (1) Each catastrophic failure condition is extremely improbable and does not result from a single failure; (2) Each hazardous failure condition is extremely remote; and (3) Each major failure condition is remote.	Accepted	The 2500 ppl/km2 threshold has been removed
6		3. Functional Test-Based (FTB) Approach	Many	Many	95% confidence and 3x multiplier on values	LOWER REQUIRED CONFIDENCE LEVEL Lower the required confidence level from 95% to 85%. This still gives a high probability of the mean being over the required value while reducing the required hours from 3x to approximately 2x.	85% confidence and 2x multiplier on values	Rejected	The SRM group confirms the 30,000 FH requirement for a SAIL IV operation considering a 10-4/FH safety objective and a 95% confidence objective.
195		3. Functional Test-Based (FTB) Approach	40	347	i. [...] expose unacceptable infant mortality	why only infantile mortality?		Accepted	"infante mortality"replaced by "early failure" with the following footnote: "also referred to as Infant Mortality as per bathtub curve terminology (https://www.itl.nist.gov/div898/handbook/apr/section1/apr124.htm)"
196		3. Functional Test-Based (FTB) Approach	40	347	i. [...] expose unacceptable infant mortality	Use of irrelevant/weird terminology	Premature failure	Accepted	"infante mortality"replaced by "early failure" with the following footnote: "also referred to as Infant Mortality as per bathtub curve terminology (https://www.itl.nist.gov/div898/handbook/apr/section1/apr124.htm)"

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198		3. Functional Test-Based (FTB) Approach	41	371	• Any infringement or loss of control occurring during the test campaign will require a root cause analysis and may trigger design modifications, or extended testing, to meet the required reliability rates.	The EASA MoC "FTB"	Consider **adapting** elements from the EASA MoC on FTB : "Any failure experienced during the execution of the DTP needs to be recorded and analysed to determine whether it infringes the pass criteria defined in the DTP or any SC Light UAS specifications. In such cases the applicant needs to perform a root cause analysis and may define design, procedural modifications or limitations to address the failure condition. The root cause analysis and the proposed modifications / limitations should be discussed and agreed with the Agency. Modifications, especially when entailing design changes assessed as potentially impairing the validity of FHs performed before the application of the change, will require additional tests to ensure that the cumulated test hours before the change can still be considered valid. The DTP will only be restarted (i.e.: from the point at which it was interrupted before the application of the change) after such additional tests have been successful. In extreme cases, the additional tests would be equivalent to repeat the DTP from the start. The extent of the additional tests would depend on several factors, including, but not limited to, soundness of the root cause analysis and nature of the change / modification. Procedural modifications and limitations, depending on their nature, may have to be tested as well and, in addition, reflected in the DVR."	Accepted	Following test was added: "If following the investigation, design modifications are necessary, an analysis will need to be performed to assess whether the FTB flying hours performed before the application of the change can still be considered valid. In some cases, the tests may have to restart from the beginning."
199		3. Functional Test-Based (FTB) Approach	41	374		It is inconsistent to claim that software- or airborne electronic hardware-systems should use techniques such as multiple condition/decision coverage model checking, development assurance, design and analysis appropriate to the SAIL level, yet for OSO #XIII to require that only the software for UAS that require a high level of integrity be developed to industry standards. Industry standards such as RTCA DO-178C/EUROCAE ED-12C exist precisely to give guidance in the use of such techniques.	Update OSO #XIII to require that all all Software (SW) and Airbone Electronic Hardware (AEH) whose development error(s) may cause or contribute to hazardous or catastrophic failure conditions be developed to an industry standard considered adequate by the competent authority. The difference between low, medium and high levels of integrity could be modulated through the appropriate assignment of software levels and hardware design assurance levels, e.g. DO-178C/ED-12C Level A for a catastrophic failure condition at SAIL VI, Level D for a catastrophic failure condition at SAIL I.	Rejected	The request seemed disproportionate, not only for DAL D for SAIL I, but DAL A for SAIL VI.
200		3. Functional Test-Based (FTB) Approach	41	377		Modified condition/decision coverage (MC/DC) is only required by DO-178C/ED-12C at Level A. DO-178C/ED-12C requires decision coverage at Level B and statement coverage at Level C. Likewise, IEC 61508 highly recommends MC/DC at SIL 4, branch coverage at SIL 3 and statement coverage at SIL 2. Very few UAS in the specific category are likely to require software to be developed to DO-178C/ED-12C Level A or IEC 61508 SIL 4.	Replace "multiple/condition decision coverage" with "structural coverage analysis".	Rejected	The text refers to system-specific analyses, not SW activity; the proposal is thus not considered adequate since the term "structural coverage analysis" is SW specific.
201		3. Functional Test-Based (FTB) Approach	41	379	iv. The competent authority may grant a specific flight test authorisation to enable such functional and induced failure tests needed to complete an FTB method.	Without further clarification, this is not acceptable for us as a CAA. We are bound to the regulation and cannot just issue waivers for flight tests. An option would be to authorize SAIL II over controlled ground and in low risk airspace, so that operators could do their testing to reach the 3,000hrs necessary for SAIL III. This would be possible, because SAIL II does not require any FTB. The technical OSOs for SAIL II are either optional or declarative. It is indeed very questionable if FTB will ever be used for SAIL I or II. Why should manufacturers or operators perform this large amount of work? We have issued hundrets of operational authorizations in Europe using SAIL II with a variety of UAS. This was possible without FTB. FTB may indeed be valuable for SAIL III or IV but we need clear guidelines how the flight hours can be achieved. Just stating that we can issue special flight test authorizations does not do the job!		Rejected	We believe the text is flexible enough to allow an authority to do excatly what the LBA is proposing, i.e. authorize SAIL II over controlled ground and in low risk airspace, so that operators could do their testing to reach the 3,000hrs necessary for SAIL III.
204		3. Functional Test-Based (FTB) Approach	41	397	• The functional tests supporting the FTB design appraisal gained by a UAS designer have been executed following the operational procedures and the remote crew training referred to in the operational authorization (and meeting the integrity assurance of the associated OSOs).	This is not practical, and a hen-and-egg problem. The UAS designer would need to know details of the operational authorization of the operator. The UAS operator cannot get an authorization because he is lacking the assurance which he wants to provide to the CAA based on FTB. So the operator does not get an authorization in the first place. In practice, manufacurers will define the flight envelope of the UAS, perform an FTB with procedures they define based on the most likely use case of the UAS. Operators indeed need to comply to the procedures the manufacturer/designer used during FTB, not vice versa. The paragrahp concerning maintenance follows this approach and works in real life.		Rejected	We believe this is what is happening in practice; for instance, a DVR issued by EASA will refer to the key assumptions on flight envelope limitations and operational procedures which were considered during the review of the design
205		3. Functional Test-Based (FTB) Approach	41	404	• Any UAS configuration differences compared to the initial configuration used by the UAS designer to gain the FTB design appraisal are confirmed by the UAS designer not to impair the validity of the design appraisal.	This must be validated by the CAA, which is responsible for accepting the FTB. Please add.		Rejected	The level of assurance (e.g. third party validation) is driven by the level of robustness of the related OSO

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207		3. Functional Test-Based (FTB) Approach	41	409	● The minimum number of test cycles are proportionate to the risk of the operation, with at least: ○ 30 hours for SAIL I; ○ 300 hours for SAIL II; ○ 3,000 hours for SAIL III; and ○ 30,000 hours for SAIL IV in order to achieve a 95% confidence (assuming a binomial/Poisson distribution for the operational level hazard rate and no failures during the test)	The unit retained (i.e. Flight hours) fits more with fixed-wing aircraft rather than with rotorcraft which have very short time of flight due to batteries capacity. On the other hand, rotorcrafts perform rotations (Take-offs & Landings) at a higher pace making the number of flights a better unit of assessment. The proposal is then to distinguish the two or to add the possibility to either consider a target of number of flight hours (which can be barely attainable for rotorcraft with autonomy of less than 30mn) or a number of flights.	"30 hours **or 50 flights for rotorcraft** for SAIL I; 300 hours **or 500 flights for rotorcraft** for SAIL II; 3,000 hours **or 5,000 flights for rotorcraft** for SAIL III; and 30,000 hours **or 50,000 flights for rotorcraft** for SAIL IV"	Rejected	The hazard rate measurement is done per flying hours
208		3. Functional Test-Based (FTB) Approach	41	412	● The minimum number of test cycles are proportionate to the risk of the operation, with at least: ○ 30 hours for SAIL I; ○ 300 hours for SAIL II; ○ 3,000 hours for SAIL III; and ○ 30,000 hours for SAIL IV in order to achieve a 95% confidence (assuming a binomial/Poisson distribution for the operational level hazard rate and no failures during the test)	How realistic it is to perform 30,000FH of flight testing to FTB a SAIL IV operation? We see this as difficult to happen in reality, but rather a mix of FTB and simulation and analysis for SAIL IV and above.		Rejected	The SRM group confirms the 30,000 FH requirement for a SAIL IV operation considering a 10-4/FH safety objective and a 95% confidence objective. Additionally, it is not necessarily to acculunate these FH through flight tests. As specified in section 3.d introducing the the concept of "reliability growth model", an FTB approach allows UAS Operators to take credit for safe and successful operations over time
209		3. Functional Test-Based (FTB) Approach	41	412	● The minimum number of test cycles are proportionate to the risk of the operation, with at least: ○ 30 hours for SAIL I; ○ 300 hours for SAIL II; ○ 3,000 hours for SAIL III; and ○ 30,000 hours for SAIL IV in order to achieve a 95% confidence (assuming a binomial/Poisson distribution for the operational level hazard rate and no failures during the test)	30,000 hours is disproportionate to the risk.	Consider amendment to better reflect the level of complexity and risk. This current requirement does not necessarily to reflect FAA D&R etc.	Rejected	The SRM group confirms the 30,000 FH requirement for a SAIL IV operation considering a 10-4/FH safety objective and a 95% confidence objective. Additionally the FAA TC approach is US specific and under review by the FAA
210		3. Functional Test-Based (FTB) Approach	42	417	● The functional tests supporting the FTB design appraisal gained by a UAS designer have been executed by the UAS designer according to principles/standards considered adequate by the competent authority in charge of granting the Operational Authorization, including at a minimum the following principles:	is unclear on where/when/how expanded operating conditions would require testing, and under which analysis would be allowed. The designer would determine these abilities/robustness via the technical requirements within the DV/TC under the CS and not as part of SAIL which is under the operator and OA's	Delay the inclusion of the new Annex E until a proper review is conducted, explanatory notes are given and a workshop is conducted	Rejected	In practice, a design appraisal (e.g. a DVR issued by EASA) will refer to the key assumptions on flight envelope limitations and operational procedures which were considered during the review of the design
211		3. Functional Test-Based (FTB) Approach	42	417	● The functional tests supporting the FTB design appraisal gained by a UAS designer have been executed by the UAS designer according to principles/standards considered adequate by the competent authority in charge of granting the Operational Authorization, including at a minimum the following principles:	It is questionable if this works in practice. Again, for operators with very close relation to designers/manufacturers, this may be a viable option. However, it would be more meaningful if one would develop a system where a CAA can issue a certificate of completing an FTB, stating all requirements and limitations (e.g. test cycles, flight envelope limitatinos, procedures used etc.) to a manufacturer or designer. The designer could provide this document to an operator. The operator could use this to fulfill certain OSOs during the application process for an operational authorization. This process is what we believe is also intended for EASA's design verification process.		Rejected	We believe this is what is happening in practice; for instance, a DVR issued by EASA will refer to the key assumptions on flight envelope limitations and operational procedures which were considered during the review of the design
212		3. Functional Test-Based (FTB) Approach	42	429	iii. Under the conditions listed in the previous paragraph, FTB design appraisals gained by UAS designers may support the assurance claims for the OSOs listed below	this leads UAS Designer to record the test and the results on support to be provided to UAS operator... How has to be formalized?		Rejected	It is not the intent of JARUS to specify how a designer should make data or approvals available to the operator. In the worst case, in absence of data, an operator will not be able to take credit of it
215		3. Functional Test-Based (FTB) Approach	42	442	iv. Additionally, induced failure tests may help demonstrate compliance with the following OSOs and Step #08: ● OSO#XIII, #XVIII and Step #08: safety and reliability / safe design (e.g., induced failure tests with no loss of control or containment as pass-fail criteria); ● OSO#XVI: C3 link performance appropriate for the operation (e.g., if the distance from a C2 radio transmitter/receiver is a critical factor, then the demonstration of the maximum allowable range from the transmitter/receiver in the most likely worst-case conditions is needed); ● OSO#XIV: Automatic protection of the flight envelope from human errors; However, this kind of test is not addressed in this version of Annex E (v2.5) since competent authorities are still in the process of defining the modalities of test-based approaches. In the meantime, credit for induced failure testing may be proposed on a case-by-case basis by a UAS Operator depending on the scope of the FTB design appraisal gained by the UAS designer.	If this is not included in this version of Annex E (v.2.5), then we propose to delete the desicription under iv. CAAs are bound to the integrity and assurance parts of Annex E and cannot just issue case by case waivers for certain OSOs.		Rejected	It is not the sole case where some flexibility is left to regulators to adopt or not a provision of the JARUS SORA. The JARUS SRM would like to keep this option in this version of Annex E.

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216		3. Functional Test-Based (FTB) Approach		471	iii. For example, a UAS Operator may start with a SAIL II operation with approval to fly over 100 people/km2 and, if they demonstrate the flight hours needed for a SAIL III operation (i.e. 3,000 hours with no loss of control), graduate to the next SAIL level and corresponding higher population band.	It should be clarified what the policy should be in case failures occur: * log each and every failure * analyse root cause and consequences * if the failure resulted or could have result in a Loss of Control, the FTB process is void (can only restart after design correction: the necessary reliability cannot be demonstrated)		Partially Accepted	This was partially covered in section 3(b): "Any infringement or loss of control occurring during the test campaign will require a root cause analysis and may trigger design modifications, or extended testing, to meet the required reliability rates." The following text was added to provide clarifications: "If following the investigation, design modifications are necessary, an analysis will need to be performed to assess whether the FTB flying hours performed before the application of the change can still be considered valid. In some cases, the tests may have to restart from the beginning."
217		3. Functional Test-Based (FTB) Approach	43	475	iv. To be relevant, the UAS Operator would need to show that: ● the next population band does not introduce new or unique hazards, and if so, they are properly mitigated through test or analysis;	Why is that directly linked to a population density band? A higher SAIL may have different origins, with an increase in population density of the overflown area only being one option. If the FTB shows that the UAS fulfills the technical requirements of SAIL III, then the population density should not matter.		Accepted	We have improved section 3(d) to explain the conditions under which an operator could take credit of accumulated flying hours. In particular we added this text: "This approach would only be valid under representative operating conditions, not requesting additional strategic or tactical mitigations.", which would exclude a change of ARC.
218		3. Functional Test-Based (FTB) Approach	43	476	iv. To be relevant, the UAS Operator would need to show that: ● the next population band does not introduce new or unique hazards, and if so, they are properly mitigated through test or analysis;	Clarity	the next population band does not introduce new or unique hazards, or if new or unique hazards are introduced, they are properly mitigated through test or analysis;	Accepted	Wording was improved as follows: "the next population band does not introduce new or unique hazards, or if so, these new or unique hazards are properly mitigated through test or analysis"
219		3. Functional Test-Based (FTB) Approach	43	481	● any UAS configuration differences compared to the initial configuration used by the UASdesigner to gain the FTB design appraisal are confirmed by the UAS designer not to impair the validity of the design appraisal.	This must be validated by the CAA, which is responsivle for accepting the FTB.		Rejected	Involvement of the CAA is out-of-scope of this document
NEW		OSO#08 Integrity			IC2 M: “operational procedures take human error into account”	OSO#19 IC1 seems to provide similar requirements of OSO#08+ IC2, including however additional guidance. OSO#19 IC1 asks to mitigate the risk of human error and, for that purpose, that procedures provide: -Clear distribution of tasks; -Internal checklists. PROPOSAL □ Would it be, as a minimum, enough for an operator to provide those two items to comply with the OSO#08+ requirement of keeping human error into account? If not, would it be possible to provide some additional guidance on what is expected? If yes, may the requirements of OSO#08 IC2 M and OSO#19 IC1 be considered equivalent?			OSO#19 criteria #1and #2 deleted since redundant with OSO#08 criteria #3
NEW		OSO#09 (+OSO #03 and OSO#07)				The assurance requirements of this OSOs mandate the operator to provide competency-based training to their staff. As this kind of training is defined by ICAO and not yet implemented even in manned aviation, it was underlined that this requirement may not be realistically implemented. PROPOSAL □ Would there be the possibility to leave competency-based as one of the possible, but not the only, approach to training? Conventional training should be sufficient and more suited also to operators with less resources.			It was decided to delete the notion of CBT from the document
NEW		OSO#16 Integriy Criterion #3				It is required to the operator to continuously monitor the performance of the communication devices. In some cases this may not be practical (e.g. with radio communication devices). PROPOSAL □ would it be possible to use a more generic wording that for example would allow to monitor these performances on intervals proposed and deemed appropriate by operators?		Accepted	We added: "at intervals deemed appropriate to ensure the performance continues to meet the operational requirements."

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NEW		OSO#07				We focused on the clarification of the objectives of this OSO, and the outcome of the discussion has been the following: 1.Ensuring that the UAS conforms with the configuration considered for the CONOPS is one of the purposes of this OSO (see Level of Integrity Criterion). Our interpretation is that the UAS conformity check should happen every time a change of the CONOPS for a specific UA happens (example: If a specific kit is installed on the UA for enhanced containment). When the UA is scheduled to perform a certain type of operations, with a certain CONOPS, for a (un)defined duration, a configuration conformity check should be performed before those operations start to ensure that the configuration conforms to the CONOPS and is safe for operation. However, even if the CONOPS does not change for a long period of time, configuration conformity checks should still be performed to ensure the UA still conforms to the CONOPS (to mitigate risk that the configuration was changed by mistake or inadvertence). There, the OPS manual needs to define what triggers such check (e.g. every 2 months). 2.We have a different view in what should be the second purpose of this OSO. Ensuring it is in condition for safe operations seems to be more the role of: - Pre-flight inspections; - Any other inspection as defined in the maintenance instructions and programme (normally more thorough).		Partially accepted	Refer to final OSO#7 wording which has been extensively reworded to bring clarification on the intent of the OSO
NEW		OSO#08 Integrity				In addition to the requirement of developing procedures, this OSO mandate also to assess the limitations of the external systems supporting the UAs operation □ why is this information required here and not in OSO#13?		Question	OSO#13 adressed the performances of the external services; OSO#08 asks that procedures adressed external systems (including services)
NEW		OSO#08 Integrity				In note (2) of the comments are mentioned some systems which are described as not already part of the UAS, however a catapult launcher or a system supporting the launch/take-off of the UA should be considered part of the UAS.		Rejected	The proposal is not aligned with how the SORA semantic model was built; this does not prevent a regulator to ask an applicant to consider these systems as part of the UAS
Ref. document: WG-SRM "SORA Annex F"									
1	Not connection between the Scoping Paper to AMC RPAS 1309 Issue 2, section 5 (f)	The SORA approach	13	122-126	These values were chosen to ensure that UAS operations would not pose more risk to third parties than crewed aviation which are seen as socially acceptable rates (as referred in the top level principles cited in Section 5(f) in the Scoping Paper to AMC RPAS 1309 Issue 2): i. For ground risk - less than one fatality per million hours (1E-6 fatalities per hour faced by 126 overflown populations) (See Annex F for more details)	Explanation for the reason of the ground risk value coming from the Section 5(f) in the Scoping Paper to AMC RPAS 1309 Issue 2.	[Explanation required, missing text]	Partially Accepted	Text has been updated to reflect the correct reference to JARUS Scoping Paper to AMC RPAS 1309 (section 5(g)(2).
2	Just for clarification, hours should be "flight hours"	The SORA approach	13	125	For ground risk - less than one fatality per million hours (1E-6 fatalities per hour faced by overflown populations) (See Annex F for more details)	"flight hour" missing	For ground risk - less than one fatality per million flight hours (1E-6 fatalities per flight hour faced by overflown populations) (See Annex F for more details)	Rejected	The metric for risk should be associated with the target of the risk (i.e. third parties on the ground). This means the correct metric is "per hour" not "per flight hour". Text has been updated to better reflect this.
Comments 3 to 18	These were comments pertaining to sections of Main Body and are not addressed here								These were comments pertaining to sections of Main Body and are not addressed here
19	Calculating iGRC	1.3	10	138	"..Ac is less then or…"	Just a typographical error - then should be than	"…Ac is less than or…"	Accepted	Fixed
20	iGRC Satisfaction	1.4	10	146	Text after "…to be in a given column."	It would be useful to indicate what is needed if both dimension and cruise speed cannot be met in a given column even though most readers can probably figure out what to do.	Add sentence after "…to be in a given column. If both are not met, use the first appropriate column to the right that meets or exceeds requirements for both of these inputs."	Accepted	Incorporated
21	Sheltering	4.2.2	49	1144	"…the applicant must: - uses a drone that is not… - it is reasonable to consider…"	There should be support for a claim that non-active participants will be located under a shelter rather than just an assumption. The first bullet should just be "use" rather than "uses".	"…the applicant must: - use a drone that is not… - be able to support the claim that most of the non-active participants will be located under a structure, providing evidence to the competent authority as necessary	Partially Accepted	The integrity criteria within Annex B has been updated require that the operator operates in areas where bnoth shelters exist, and it is expected that the majority of people are using the shelter. At a low robustness, a declaration is consistent with other SORA concepts and requirements. Annex F and Annex B have been updated to cater for both the assumption of non-penetration (for <25 kg aircraft, consistent with previous versions of Annex B) and the requirement to demonstrate non-penetration of buildings for >25 kg aircraft.
22	Tradeoffs	4.6.1	52	1263	"...and they deviance..."	Largely editorial to improve clarity	"…and their deviation…"	Accepted	Incorporated
23	Figure 20 Caption	A4.1	61	1513	"The target of 200 m^2 is shown in black"	The critical area 200 meter-squared iso curve is shown in green.	"The target of 200 m^2 is shown in green."	Accepted	Incorporated

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24		A.3.3 calculation	58	1429	In simple terms, smaller glide angles will have a relatively small reduction, while higher angles will have higher reductions.	Size of critical area has a safety coefficient of 6-10 which seems not based on valid data. It depends on the surfaces and varies a lot when considering e.g. crash on grass or tormac. JARUS shall ask manufacturer/designer for data and implement model on real data.	In simple terms, smaller glide angles will have a relatively small reduction, while higher angles will have higher reductions, always in ralation the the surfaces restitution. (compare water, grass, wood, roof tiles , concrete)	Rejected	The type of surface certainly influences the crash, both in terms of restitutation and in terms of disintegration of the aircraft. This is also recognized in the Annex. However, to strike a balance between completeness and simplocity, the complications of friction as well as restitution has been reduced to just one coefficient for each. And values for these two pamraters has been chosen for the Annex. Any operator can choose to use other values. This is all describe in some detail in the Annex.
25		Figure 4	17	307		Scenario does not comply with tests of manufacturer. Depending on surface, sliding, flipping and explosion cannot be observed, rather the UA digs into the ground.	Data from crashes should be given preference over calculated data.	Comment Acknowledged	This model was required to cater for the majority of potential crash scenarios. It is also a conservative baseline, from which mitigations can be applied to demonstrate a reduction in risk from this baseline. The applicant can always demonstrate that the iGRC crash model is not accurate for their specific case through Mitigation 2 to receive an iGRC reduction.
26	CASEx tool has a bug, wrong calculation	CASex, Table 18	58	1427	Text states: 0,8-0.3/81*(teta-10) while casex uses: 0.9 - 0.3/81*(teta – 9)	And the text in line 1427 describes the coefficient as being linearly varied between 0.8 and 0.6 even though the formula directly below it (Table 18) iterates it between 0.8 and 0.504.	Consistency use of correct values	Accepted	Casex has, as of ver 1.2.0, been updated to use the SORA 2.5 CoR values. The CoR descriptions and uses have been aligned and equation (18) updated. Tables 12 ans 13 using CoR have been updated.
27	CASEx tool has a bug, wrong calculation	CASex, Table 24	69	1696	At the beginning and end of the Glide Area and the Slide Area there is a half circle added.	The Casex tools adds them both to each of the slide/glide areas once. Meanwhile the SORA 2.5 document only adds one of the circles to the entire area.	Either there should be a factor of 2 in front of pi*r_D^2 or Casex should deduct one circle Area from the Total critical area.	Accepted	This is a bug in Casex. Fixed as of version 1.1.11.
28	Use of formulas to derive iGRC	Formula 14	22	410		This formula completely decouples the iGRC from vehicle parameters such as mass and size.	Please add more rationalefor the use of the formula. It is unclear if it given to derive iGRC table or other.	Rejected	Same comment as item 32.
29	Define height to use for impact angle iGRC	Figure 19	56	1362		Which height shall be used to calculate the balistic drop (iGRC). The impact angle varies between the lowest, to the average, and maximum height flight level during flight for UA that are unable to glide.	Please add more clarity.	Accepted	The altitudes chosen for ballistic descent does in fact not influence the critical areas in the iGRC table very much. The reasoning for this has been detailed in a separate subsection in Appendix A, next to the image of the descent scenarios.
30	Revision of M2 Mitigation related to critical impact area	4.4	50-51	1178-1179 and 1194-1204	M2 is meant to be a general category where an applicant can show a method of reducing the effects of an impact by reducing the critical impact area and/or limiting energy transfer dynamics.	The case of claiming a reduction only from critical impact area could be misused in a legal way. A huge increase in the impact velocity could be used to achieve a huge reduction in the critical impact areas, thus resulting in a very high kinetic energy which could shift from a damaging one into lethal. Also, this would push operators to remove the parachute from the UA when the wind is high (but withing the design limit) just to reduce the critical area which would be highly affected by wind when the parachute is deployed. Would this be considered acceptable within the boundaries of the SORA?	A limitation on the permitted margin/percentage of the increased kinetic energy is highly recommended.	Comment Acknowledged	Although the authors understand the intent of this comment, if the result is truly a reduced critical area (noting that there is an assumption inherent that any person that intersects with the critical area will cause a fatality), then although macabre, it would result in a reduced expected casualty rate. There is some theoretical potential that an aircraft travelling at sufficiently high velocity vertically could cause a splatter event that would increase the critical area compared to the equivalent JARUS model (at the 90 degree impact angle). However it needs to be noted that the JARUS model was deliberately chosen to capture these artifacts (splatter, bounce, cratering) through the conservative slide impact model
31		Figure 4	17	307		Scenario does not comply with tests of manufacturer. Depending on surface, sliding, flipping and explosion cannot be observed, rather the UA digs into the ground.	Data from crashes should be given preference over calculated data.	Comment Acknowledged	This model was required to cater for the majority of potential crash scenarios. It is also a conservative baseline, from which mitigations can be applied to demonstrate a reduction in risk from this baseline. The applicant can always demonstrate that the iGRC crash model is not accurate for their specific case through Mitigation 2 to receive an iGRC reduction.
32	Use of formulas to derive iGRC	Formular 14	22	410		This formular completely decouple the iGRC from vehicle parameters such as mass and size. Is this formula just given to explain how the iGRC table was derived or can it actually be used in the end? Define the use of the formular.		Rejected	This equation uses A_C, the critical areas, which depends on mass and velocity (and other parameters, too). It is showing the conversion from population density and critical area to iGRC value, nothing more, and can be used as such.
33	Define height to use for impact angle iGRC	Figure 19	56	1362		Which height shall be used to calculate the balistic drop (iGRC). The impact angle varies when using the lowest flight level, to the average, and maximum height during flight for UA that are unable to glide.		Accepted	The altitudes chosen for ballistic descent does in fact not influence the critical areas in the iGRC table very much. The reasoning for this has been detailed in a separate subsection in Appendix A, next to the image of the descent scenarios.
34	CASEx tool has a bug, wrong calculation	CASex, Table 18	58	1427		Text states: 0,8-0.3/81*(teta-10) while casex uses: 0.9 -0.3/81*(teta – 9) And the text in line 1427 describes the coefficient as being linearly varied between 0.8 and 0.6 even though the formula directly below it (Table 18) iterates it between 0.8 and 0.504.		Accepted	Casex has, as of ver 1.2.0, been updated to use the SORA 2.5 CoR values. The CoR descriptions and uses have been aligned and equation (18) updated. Tables 12 ans 13 using CoR have been updated.
35		A.3.3 calculation	58	1429	In simple terms, smaller glide angles will have a relatively small reduction, while higher angles will have higher reductions.	Size of critical area has a safety coefficient of 6-10 which seems not based on valid data. It depends on the surfaces and varies a lot when considering e.g. crash on grass. JARUS shall ask manufacturer for data and implement model on real data.	In simple terms, smaller glide angles will have a relatively small reduction, while higher angles will have higher reductions, always in ralation the the surfaces restitution. (compare water, grass, wood, roof tiles , concrete)	Rejected	The type of surface certainly influences the crash, both in terms of restitutation and in terms of disintegration of the aircraft. This is also recognized in the Annex. However, to strike a balance between completeness and simplocity, the complications of friction as well as restitution has been reduced to just one coefficient for each. And values for these two pamraters has been chosen for the Annex. Any operator can choose to use other values. This is all describe in some detail in the Annex.

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36	CASEx tool has a bug, wrong calculation	CASex, Table 24	69	1696		At the beginning and end of the Glide Area and the Slide Area there is a half circle added. The Casex tools adds them both to each of the slide/glide areas once. Meanwhile the SORA 2.5 document only adds one of the circles to the entire area. Either there should be a factor of 2 in front of pi*r_D^2 or Casex should deduct one circle Area from the Total critical area.		Accepted	This is a bug in Casex. Fixed as of version 1.1.11. In addition, the figure has been updated to show the half circles,
37	Equation is wrong		58	1428	Text plus (18)	The CoR is said to go from 0.8 to 0.6 for the angle range 10 to 90 deg. In that case the formula (18) is wrong.	It should be 0.2/80, not 0.3/81	Accepted	Same comment as item 26.
38	CoR is wrong		63	1565	CoR = 0.9	This is probably wrong.	CoR = 0.8 (which is also the value found in CasEx).	Accepted	Same comment as item 26.
39	Inconsistency between figure and equation		17 and 79		(35) on page 79 includes half disc at each end of the critical area. This is not shown on figure 4 on page 17.	The figure shows all the components for calculation of critical area, except the half disc at each end.	Consider adding the half disc to each end on the figure.	Accepted	The figure has been updated to better represent the model and phraseology in the documet.
40	Term confused	All the annex F			intrinsic ground risk class	To explain when to use intrinsic and initial for ground risk class, iaw definition of Annex I.	Replace intrinsic by initial in all the references.	Rejected	Rejected. We have stuck with using Intrinsic throughout Annex F
41	Max Cruise speed is a confuse wording.		10	147-148	Note that "Max cruise speed" is defined as vNO, see Section A.3.1. The actual values are explained in Appendix A	Max Cruise speed is a confuse wording.	Note that "cruise speed" is defined as vNO, see Section A.3.1. The actual values are explained in Appendix A	Rejected	The cruise speed for a given aircraft may well be a fixed value, and therefore "max" does not make sense. However, for the purpose of the iGRC table, the word "max" must be present for proper interpretation. The defintion has been adjusted to be Max Speed and outlined at beging of document
42	M1(A) and M1(B) mitigations are not related between eachother. It would make more sense to rename it as M1 and M2, and current M2 as M3. For example.		13	197-200	M1(A): reducing the number of people at risk on the ground M1(B): limiting the operation to VLOS and implementing basic safety measures M2: reducing the effect of the ground impact	As the structure of SORA is going to change deeply is better to change the way the mitigations are identified to avoid confusions between different SORA versions	M1, M2 and M3 or M(A), M(B) and M(C)	Rejected	M1 mitigations are now all related to reducing the number of people at risk, and hence the numbering makes sense from this perspective, to delineate the effect on the expected casualty model.
43	The calculus of the critical area is based mainly in fixed wing manned aviation and in spanish case, only the 15% of the UAS are fixed wing.		15	262	4	The calculus of the critical area is based mainly in fixed wing manned aviation and in spanish case, only the 15% of the UAS are fixed wing. Is for being conservative? Explain the rationale behind this due to the high quantity of multirotors vs fixed wing. Aditionally the section is very complex and include parameters as explosion, deflagration etc that finally are not used, so it shoud be cleared and deleted all the terms that are not important in the final calculus.	as per comment	Comment Acknowledged	Multirotors have aspects like blade throw that need to be considered in critical area and it is expected that the use of fixed wing critical area values is going to be a bit consservative for multirotors, but not enough to reduce the iGRC by 1. More work is needed to better understand the impact dynamics and are in development for future versions. Operators and authorities can use the critical area calculations to argue smaller values for their specific systems.
44	It have no sense a table in which the level of SAIL is highger than the highest leven of SAIL in SORA 2.5		20	390-391	Table 5	It has no sense to reflect in the table SAIL Values Higher than 6	Do not associate with the SAIL level but with an independent numbering if your intention is clasify the cells of the table secuentially. Also, if last row is "Not part of SORA", some cells of right columns should have the same text (every cell with number>7 to be coherent with the last row)	Rejected	As detailed in the table, these are representative SAILs only. As SAIL is defined mathematically Table 1, there can technically be SAILs higher than VI. however, under the specific category, the maximum SAIL is VI.
45	Following the comment 4 is difficult to understand how after all the mathematical deploy given in the previous steps, the result is SAIL+1		21	397-398	Table 6	Following the comment 4 is difficult to understand how after all the mathematical deploy given in the previous steps, the result is SAIL+1	Explain	Accepted	The document has had significant restructuring to address this concern. Section 1.7 provides guidance on the different ways the applicant might use Annex F, subject to whether they are willing to understand more complex math or use programming. If the question is more specifically, the linkage between SAIL and iGRC , Table 1 provides a linkage between SAIL and LOC. Section 2.1 highlight the relationship between TLOS and LOC, and the relationship between LOC and Population and Critical Area.
46	The point 3 is based in the premise that the operator Knows exactly the place where the opperation will be done: However the generic authorisation is not settled in a precise place, so this point don´t fit with that issue. Generic authorisations should not be forbidden		24	442-1064	There is no current text in which generic authorisation is explained	As per comment	In case of generic authorization the operator should choose the maximum population density in which he would opperate. During the planification, the operator should evaluate the precise place in wich intends to fly an evaluate if the population density affected by the flight fits with the approved in SORA.	Comment Acknowledged	How authorities choose to implement their authorisations is not for JARUS to dictate. An authority could require the applicant plan flights using the SORA process (including defining the areas discussed here) within an non-area specific approval. The concepts of SORA would still apply to these operations.
47	The Baseline population density map should be proposed by the authority and it should be the best choice taking into account the resolutions and the data accuracy. Further mitigations should improve the official information.		26	528-531	Approach 1: Use a baseline population density map for Step #2 to ascertain their iGRC, then based on new information provided by a new mapping product or technique (such as those discussed in Section 3.3), adjust the operational volume &/or risk buffer to reduce the overflown population at risk, and thereby claim credit under M1(A),	It sould be published a Official baseline population density layer by the authority that would be the reference, to avoid the picaresque of the operators of choosing a low resolution map and claim a reduction with a normal quality source. The map choosed to clain M1 should improve the official baseline population density layer.	Approach 1: Use the official baseline population density map for Step #2 to ascertain their iGRC, then based on new information provided by a new mapping product or technique (such as those discussed in Section 3.3), adjust the operational volume &/or risk buffer and/or time to reduce the overflown population at risk, and thereby claim credit under M1(A),	Comment Acknowledged	Section 3.2 of Annex F now indicates that the authority should be designating an appropriate map to undertake the iGRC assessment. However as this is a guidance document, the authority may always ask the applicant to propose such a baseline map.
48	The Baseline population density map should be proposed by the authority and it should be the best choice taking into account the resolutions and the data accuracy. Further mitigations should improve the official information.		43	972	Maps are generally produced to support a specific purpose (i.e. to accurately portray geography,to support allocation of funding, to delineate voting boundaries or to differentiate between urban and non-urban areas using DEGURBA [51]). This means that many of the available maps were not produced with the specific context of assessing safety for UAS operations or to align with the SORA, where the critical need is spatial, numerical and temporal accuracy. Accordingly, both applicants and competent authorities should consider the assumptions underlying the provided map to ensure they are consistent with the safety needs of the SORA process.	As per comment	Maps are generally produced to support a specific purpose (i.e. to accurately portray geography, to support allocation of funding, to delineate voting boundaries or to differentiate between urban and non-urban areas using DEGURBA [51]). This means that many of the available maps were not produced with the specific context of assessing safety for UAS operations or to align with the SORA, where the critical need is spatial, numerical and temporal accuracy. Accordingly, competent authorities should offer a population density map/ layer that comply with the minimum requirements explained and at the same time would be used as reference for the operators to improve in the step 3 the geographical and spatial resolution in order to apply M1 mitigations.	Accepted	Section 3.2 of Annex F is now clearer that the authority should be designating a baseline map for iGRC assessment. Section 3.7 of Annex F contains information on practical considerations that authorities should consider when designating a map. Sections 3.4, 3.5, 3.6 detail the methods that generate maps. Taking all these sections into consideration, the commenter should feel that their comment has been appropriately addressed.

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49	The higher resolution the best regardeless the height		44-45	1018-1041	Consider a situation where an operator goes from an original mapping product with 1km resolution to one with 250m grid squares, with the intent to ensure their operation stays contained in the lower density areas. The implications of Figure 17 are that as operating altitude increases, then a failure leading to a ballistic descent is increasingly likely to depart that 250m grid square. Figure 18 takes the distributions for the 200m altitude platforms and creates cumulative probability distributions. It can be seen that 95% (2 sigma) of the ballistic impacts will be less than 77 meters. As the altitude increases further, the confidence that you will land in the 250m grid square you are operating over diminishes, with the impact possibilities spreading first into the adjacent grid squares and ultimately into adjacent 1km grid squares. To calculate this probability requires a convolution between population density, impact point and critical area: a process which converges to using the average of the area under consideration	This is not accurate. The operational volume and the Risk buffer remain independently to the raster resolution of the population density layer. Taking this into account the difference is the number of samples that you will have in the same area that will be longer with higher resolutions and shorter with lower. Shorter number of samples always produce more deviation angainst the mean so even in higer altitudes is better choose the highest resolution density map. (I´m not taking into account the computer limitations to do the calculations with higher number of samples but I bet that you neither.)	Regardless the flight limit the operator should choose the higher resolution layer/map that can handle with the available means (computers).	Accepted	Annex F has been updated (see Section 3.9) to provide guidance on the appropriate mapping resolution. It needs to be noted that higher resolution is **not** always the most appropriate solution, as it will result in both underestimates, and overestimates of the true risk, due to the nature of the dispersion area.
50	VLOS mitigation just like is explained right now is more like a controlled area		49	1155	4.3 M1(B)-Visual Line of Sight (VLOS) Operations	This mitigation should be renamed. Current name seems that maintaining VLOS is enoguh, while it's only the first bullet of the integrity of the annex B.		Accepted	Mitigation renamed to "M1(C) Tactical mitigations - ground observation"
51	Keep only one value in the row High		51		- 2 or -3	To avoid different interpretations, specify one value is for high and the other is for high+	Add note specifiying when apply -2 or -3	Comment Acknowledged	The table has subsequently been reorganised with M1(A-Sheltering, M1(B) Op restrictions, M1(C) Ground Observation and M2 Effects of Ground Impact Reduced. In any case, the value for a High for Ground impact have been set to -2.
52	Not include different methods to get aditional mitigations		52	1244	The whole paragraph	Include aditional methods to mitigate makes the SORA process even more complicate for the operators but for the authorities. Is better to keep fewer mitigations well explained than more poorly explained.	Delete	Partially Accepted	Additional Section added regarding mitigation permutations
53	Test only have to be done once, whenever the SORA requirements are similar		53	1287	As detailed previously, the OSOs are a designed-based qualitative means for the operator to meet expected overall system reliability targets. To supplement the OSO's or as an alternative means of compliance, an operator may be able to provide representative system level testing to substantiate claims of reliability, such as a Durability and Reliability (D&R) testing framework. The test regime must reflect how the platform would be operated including the intended configuration(s), operator roles and environmental conditions in addition to the procedural elements associated with operating and maintaining the system, and where operators and maintainers have epresentative qualifications and training. Only the operational limits demonstrated through this testing or by appropriate OSO evidence will be acceptable. Specific to the environmental elements, testing must encompass the extremes of the operational limits and corners of the flight envelope, including a reasonable distribution across the different aircraft configurations (payloads, UAS weights, center of gravity, etc), mission profiles/complexity (lengths, altitudes, airspeeds, turning radiuses, etc), and operating conditions (density altitudes, temperatures, winds, precipitation, weather, etc). Specific demand based systems that are not necessary for normal operations (i.e. parachute on system failure) should be tested separately to demonstrate a reasonable level of confidence that the system will successfully deploy when required.	It sould be avoided wording make out the operator think that for each SORA flight tests should be performed. Flights tests should be performed only if some essential issue with SORA changes (new UAS, Parachutes, etc)	As detailed previously, the OSOs are a designed-based qualitative means for the operator to meet expected overall system reliability targets. To supplement the OSO's or as an alternative means of compliance, an operator may be able to provide representative system level testing to substantiate claims of reliability, such as a Durability and Reliability (D&R) testing framework. Tests will only be carried out once if the conditions of the operations are similar and that these tests can be used to justify the OSOSs in different Con Ops The test regime must reflect how the platform would be operated including the intended configuration(s), operator roles and environmental conditions in addition to the procedural elements associated with operating and maintaining the system, and where operators and maintainers have representative qualifications and training. Only the operational limits demonstrated through this testing or by appropriate OSO evidence will be acceptable. Specific to the environmental elements, testing must encompass the extremes of the operationallimits and corners of the flight envelope, including a reasonable distribution across the differentaircraft configurations (payloads, UAS weights, center of gravity, etc), mission profiles/complexity(lengths, altitudes, airspeeds, turning radiuses, etc), and operating conditions (density altitudes, temperatures, winds, precipitation, weather, etc). Specific demand based systems that are not necessary for normal operations (i.e. parachute on system failure) should be tested separately to demonstrate a reasonable level of confidence that the system will successfully deploy when required.	Rejected	Annex F is intended to provide the rationale for the models. This comment is related to an authorities mechanism for accepting previously accepted testing/approvals. Whilst we agree with the sentiment, Annex F is not the mechanism for ensuring appropriate revalidation of already demonstrated systems.
54	Cruise speed is not usually given by the manufacturer		54	1334	Cruise speed is commonly provided by drone manufacturers	Manufacturers usually gives the maximum speed not the Cruise speed, at least for the majority of comertial UAS	Cruise speed can be calculated by the operator taking into count the operational requirements.	Comment Acknowledged	This has now been modified with the term maximum speed, conservatively defined as the maximum possible commanded airspeed of the UA, as defined by the designer
55	Obstacles stopping the aircraft		63	1573	The whole paragraph	This shoudn´t be took into account because it complicates the metodology that in essence is only a simplification of the reality	Remove the whole paragraph and only take into account the sheltering factor.	Rejected	Obstacles is a key factor in achieving an appropriate ground risk class. While the math behind the reduction is relatively complicated, the resulting implementation is quite simple and adds only very little complexity to the methodology.

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56			53	1272-1281		The DLR is currently building a HALE aircraft very similar to what is described in this section. It features a 27 m wingspan and maximum cruise speed of 11 m/s. The reasoning and given numbers in this section are not comprehensible. How was the critical area of 500 m² calculated? Which assumptions were used? In general, the methodology seems excessive. The proposed reduction of -2 via an M2 mitigation corresponds to high robustness definition. For M2 high robustness, no MoC exists at this time and it can be expected, based on the new MoC for medium robustness, that considerable effort would be required. In our opinion, for intrinsic risk classification, a simple calculation is sufficient. This is because the design and flight speeds of such a HAP aircraft can be reliably determined by calculation. It seems logical to assume a low impact energy due do the design and not via a specific test or even flight test. Remark: Such systems are very rare and during development often just one system exists. Therefore, it would be impossible to conduct the testing, especially flight-testing, that would be required for an M2 mitigation of medium robustness, let alone high robustness.		Comment Acknowledged	A number of updates have been made providing readers with a variety of ways that the can reduce their iGRC, either by avoiding population within their critical area, having lower lethality, or shrinking their critical area. This is as relevant for HALE as it is for any other platform. The specific HALE section has been removed.
57			56-57		The computations in Annex F are primarily for fixed and rotary wing aircraft, and does not specifically address lighter-than-air (LTA) aircraft. Such aircraft may in some circumstances behave differently from traditional aircraft during descent and crash. The formulas for critical area and iGRC values are still applicable in the sense that they will often be rather conservative because LTA may be coming down slower and at a steeper angle than especially fixed-wing aircraft. When using the iGRC table the wingspan value for an LTA is the diameter of the hull. When using the JARUS model, the glide angle can be assumed to be similar to a ballistic descent, that is, around 60 degrees. The frontal area has to be estimated conservatively (i.e., an inflated hull) and the drag coefficient should be that of a sphere (i.e., 0.5). The ballistic descent is described in more detail in Section A.3.6.	For aircraft LTA (Lighter than Air) three descent scenarion should be taken into account (see Proposed Text)	Descent Scenarios 1. In case of a rudder/elevator- jam or -run-away during take-off or landing at cruise speed, the approach as presented under A.2.3 seems applickable. Please note aircraft LTA in equilibrium do not pick up speed in descent. 2. Balloon mode: In case of an all engines out incident, or of a loss of vital systems, except ballast-system and lifting-gas valves, the aircraft can still be operated as a balloon. I.e. it can stay aloft, control altitude, and be landed intentionally where the ground risk is acceptable. This is good practice in the certification of manned airships (CS-30). 3. Major loss of lifting gas: This can happen either intentionally by the use of a flight termination system (ripcord), or by a major leak, such as a failing seam in case of a pressure airship (blimp) or balloon. The failed envelope (hull) workes like a parachute/flare tape. The terminal velocity can be estimated as it is done for weather balloons.	Comment Acknowledged	Consideration was given to having a separate table for platforms likely to have a ballistic trajectory. However, there were a number of challenges, that expanded out critical area, including blade throw. Additionally, the reduction in critical area for a ballistic trajectory was often not enough to warrant a full integer reduction in iGRC. Consequently, this has been deferred until future updates. In the interim, applicants are free to use the mathematical formulas and tools to calculate their real critical area, and present that evidence to the competent authority
58	EASA referred that it is not expected for the UAS operator to read/use Annex F, only if the operator desires to provide an advanced calculation. What is the advantage of using Annex F as a method to show assurance to the NAA, instead of the defined tables/values, (e.g., *Table 3 – Quantitative Population Values to Qualitative Descriptions* present in the *JARUS guidelines on Specific Operations Risk Assessment (SORA)* ? The NAA may accept only Table 3 to be used for determining the population densities.)		N/A	N/A	N/A			Accepted	We note there have been several comments indicating the reader didn't quite understand that the models and calculations in Annex F could be used to calculate the iGRC, if they didn't agree with the default conservative allocations. Accordingly, we have included extra sections to make this very clear. For example, Section 1.7
59		Figure 1	8	93	"Reduced by M1 and M2 Critical Area"	Might lead to misunderstanding in its current format.	Reduced by M1 mitigaton reducing exposed population or M2 reducing UA's critical area	Accepted	Updated image to include the comment suggested wording.
60		Figure 1	8	93	Primarily reduced by M2 (Lethality)	Might lead to misunderstanding in its current format.	Primarily reduced by M2 mitigaton reducing impact lethality	Accepted	Updated image to include the comment suggested wording.
61		1.2.4	9	112	With no further action, the iGRC becomes the final Ground Risk Class (GRC) and would be assigned a SAIL, which maps the loss of control rate to operational, organisational, personnel, and technical threat barriers that, when implemented correctly at the SAIL level required, provides the requisite assurance that the maximum probability of loss of control for an operation will be below the loss of control rate required to meet the TLOS.	The text is quite hard to read/understand. It should be revised.	With no further action, the iGRC becomes the final Ground Risk Class (GRC) that along the Air Risk Class (ARC) would determine the SAIL which links the loss of control rate to operational, organisational, personnel and UAS technical requirements. When implemented correctly, these measures ensure that the probability of loosing control of the operation is such to meet the TLOS.	Accepted	Incorporated
62		1.4	11	155	However operators can claim a -1 for VLOS operations in most instances.	Further clarification should be given to the rationale behind the reduction. Without, this is left to speculation. Maybe refer to M1 mitigation? See also coment on Annex B: do we assume that in VLOS, the pilot must avoid to overfly people?	However operators can claim a -1 for VLOS operations when applying mitigation M1(B) (See Annex B)	Accepted	Expanded work has been done on this issue, and the VLOS mitigation has now been changed to M1(C) Tactical mitigation -Ground Observation. More detail on how this can be claimed is provided in Section 4.5 as well as Annex B
63		2.2	15	243	The table should be able to be used by applicants and authorities and use data and information that is easy to find for most systems. This ethos was immediately challenged by the requirement to determine accurate values for AC.	The understanding is that the table should be the preferred method to assess iGRC and equation (5) should be limited to corner cases.		Comment Acknowledged	Its hard to decipher what they respondent wants here. However, its not just for corner cases. The applicant should be able to, if he chooses, work through the math and provide evidence. Whether that constitutes being a corner case is uncertain
64	Lethal kinetic energy value set to zero		55	1347	and lethal kinetic energy is conservatively set to zero (which means any contact is considered lethal)	It is not clear how having a lethal kinetic energy set to 0 is then reflected in the critical area calculations in the following chapters. This assumption would mean that V_nonlethal should be automatically set to 0 in the JARUS model. Please add further clarification in this regard.	Better clarify if the assumption is still valid in Appendix A's calculations.	Partially Accepted	The lethal kinetic energy is now explained in a separate section in Appendix A. It is correct that when letkal KE = 0, then V_nonlethal is 0. The actual use of V_nonlethal has not been changed as a result of this comment.

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65	Table 12- Descent scenario parameters	Descent scenario	57	1392	Impact angle Impact speed Height of person Radius of a person	Units are missing	Impact angle (in degrees) Impact speed (m/s) Height of person (m) Radius of a person (m)	Partially Accepted	Units have been added to impact angle and impact speed. Units for height and radius of person is already in the table.
66	Table 12- Descent scenario parameters	Height of person (m) Radius of a person (m)	57	1392	1.8 m 0.3 m	Units to be speficied in the description of the variable and not inside to table	1.8 0.3	Accepted	Updated.
67	Coefficient of restitution range		58	1427	The horizontal CoR in the calculations in Section A.4 varies the CoR linearly from 0.8 to 0.6, as the impact angle □varies from 10 to 90 degrees	The Formula here expressed for the CoR is not applied to the descent scenario 2 in table 12. Please clarify the reasons	Add explanatory material regarding how the CoR is set in the full Appendix A.	Partially Accepted	The CoR is directly listed in Table 12 for all three scenarios. The CoR for scenario 2 is wrong, though, and this can been corrected. There is a full subsection explaining the CoR, and as stated in the beginning of section A.2, the CoR is used throughout Appendix A.
68	Correction of interval	Coefficient of restitution	58	1427	e=0.8-0.3/81(θ-10)	the current formula (18) does not make CoR vary between [0.8 ; 0.6] inverval for θ = 10 and 90. Need to correct the variation from 0.8 and 0.5 (See also comment 5 with additional changes)	The orizontal CoR in the calculations in Section A.4 varies the CoR from 0.8 and 0.5 as the impact angle θ varies from 10 to 90 degrees.	Accepted	The formula for CoR has been aligned with the textual description.
69	Formula (18) redefinition	formula (18)	58	1428	e=0.8-0.3/81(θ-10)	it is undestood that the smallert the θ, the highter teh coefficient of restitution. For θ= 10 => e= 0.8 However, the coefficient "0.3/81" of "e" is not appropriate. For θ=10 and θ =90 angles we need a coefficient of "0.3/80" instead of "0.3/81" in the formula "e". So that for θ= 90, "90-10=80" and can be simplified with the denominator "80". See comment 4 as well.	e=0.8-0.3/80 (θ-10)	Accepted	The formula for CoR has been aligned with the textual description.
70	Ballistic descent calculations	formula (20)	59	1456	1/2ϱ Cd v² A	The current specification of NOT a formula	F= 1/2ϱ Cd v² A	Accepted	Equation has been updated
71	Ballistic descent calculations		59	1457	The drag coefficient Cd is 0.8 as described in Section A.3.5.	The intervalle is not set up is A.3.5	The drag coefficient Cd is 0.8, a conservative value situated near the middle of the [0.2;1.2]	Accepted	An explanatory note for the choice of drag coefficient has been added to the section of drag coefficient.
72	definition of a doublet	ballistic descent calculations	59	1467	one for each (Wingpan/Velocity doublet), have been computed and..	the variables are wingpan and velocity. Proper definition of doublet needed	one for each (Wingspan,Velocity) doublet, have been computed and..	Accepted	Text has been changed for clarity.
73	Critical area model for ballistic descent		59	1453	Ballistic Descent Calculations	Explanation of ballistic crash critical area model	Consider to add among the critical area models shown in Annex B one descrbing how to model the critical area resulting from a crash after a ballistic descent. Several examples in the literature suggests for this kind of impacts a critical area which is the area occupied by UAS on the terrain multiplied by a safety factor. The safety factor may be proportionate to the height from which the UA is operating.	Rejected	There are several available models for crashes. Some of the have been reviewed in Appendix B, including models for more ballistic-like impact (debris from rockets exhibits this behaviour). We have also reviewed a model that uses a safety factor. However, such an approach deviates somewhat from first principle modelling, and can be harder to justift without actual data. The operator is free to use any model instead of the JARUS model to compute the critical area. It should be noted that in our experience in modelling, most models produce areas which are not significantly different from the JARUS model. For the sake of simplicity, it was decided to use the JARUS model for all types of impacts, regardless of decent type. Since the commenter has not provided any reference to models, it is difficult to provide a better reply. Improvements and augmentations for the JARUS model, as well as inclusion of other models is under consideration for SORA v 3.0.
74	Table 13 Ballistic descent	several lines	60	table 13	Characteristic Dimension Frontal area [m2] Mass [kg] Drag coefficient Air density [kg/m3] Gravity [kg m/s2]	- The variable names are missing - "Gravity" should be replaced by "Gravity acceleration" (g) - "Gravity acceleration" (g) is in [m/s2] (and not in kg)	Characteristic Dimension (wingspan) Frontal area (A) [m2] Mass (m) [kg] Drag coefficient (Cd) Air density ϱ[kg/m3] Gravity accelation (g)[m/s2]	Partially Accepted	I am not sure the gravity acceleration expansion is needed. Gravity as a variable is generally accepted. However, have updated anyway
75	Table 13 Ballistic descent	line "gravity"	60	table 13	9.82	Gravity acceleration in MKS system of units is 9.81 (and not 9.82)	9.81	Accepted	The table has been updated to 9.81 and the Casex toolbox has also been updated to use this value.
76	iGRC Cruise Speed Limit Calculations	definition of a doublet	62	1523	The velocity limits for Critical Area/Winpans doublets embedded in ..	correct definition of doublet	The velocity limits for (Critical Area,Winpan) doublets inbedded in..	Accepted	Not sure what reader wants corrected. Extra comment added reinforcing that wingspans greater than 20m do not have an obstacle reduction.
77	iGRC Cruise Speed Limit Calculations	velocity limits addition	62	before 1526	non existing	an additional line corresponding to the wingspan dimension < 1m, an link its explainations to section A.5.1 where the iGRC for UAS wingpan dimension <1 is explained. Purpose is to present a full view of the possible cases	**Ac m² (< 1m) : see section A.5.1** **200 m ² (3m)** **2000 m² (8m) …**	Accepted	Adopted. Extra line added and link to next section provided.
78	mising word	n/a	64	1602	Since the area has a number of obstacles added, the effective area where people can be is reduced by the joint area of the obstacles,..		Since the area has a number of obstacles added, the effective area where people can be **hit** is reduced by the joint area of the obstacles,..	Accepted	Fixed
79	reformulation	n/a	66	1651	The reduced CA is still the same as in row two, so the average number of people impacted is thus further reduced (by a factor F exp).	reformulation	The reduced CA is still the same as in row two, **but** the average number of people impacted is ~~thus~~ further reduced (by a factor F exp).	Accepted	Updated text as per comment.

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80	reformulation and equation(s)	Acreating the final iGRC table	68	1684	Sections 1 and 2 described the development process for iGRC Table, outlining how the variable in Equations (2) and (3) unerpin an idealised iGRC table.	It is necessary to make reference to the Sections 1 and 2 of Annex F to avoid confusion with Section 1 and 2 of Appendix A since we are in this Appendix. Also, the equation for the iGRC calculation is the (5) and not equations (2) and (3) (see page 21).	Sections 1 and 2 **of Annex F** described the development process for iGRC Table, outlining how the variable in Equations ~~(2) and (3)~~ **(5)** underpin an idealised iGRC table.	Accepted	Updated to the correct equation reference.
81	A.6.1	Creating the final iGRC Table	68	1690	This section outlines how the critical aeas and population bands in Table 15 are derived	A.6.1 does not outline how Table 15 is derived. A.6.2 and A.6.3 are dedicated to explain it.	This section provides an overview of the Idealised iGRC and Raw iGRC. Table 15 has been built following the process explained herafter in A.6.2	Accepted	An adjustment to this section has been made.
82	Critical area calculations table - values		70	1723	Table 16/17: Critical Area Calculations	Table 16: for >20m wingspan, a 40% reduction from the raw critical area value is applied even though in pg. 69 it is stated that such reduction should not be applied according to rows 1717-18-19 Table 17: for <1m and >20m, a 40% reduction from the raw critical area value is applied even though in pg. 69 it is stated that such reduction should not be applied according to rows 1717-18-19	The calculations for the rows mentioned in the comments should be corrected.	Accepted	Table 16 and 17 has been replaced by a single table, where the 40% reduction has been applied in correspondance with the text. As such, the 40% is not applied to the first and last column.
83	Coefficient of restitution value		69	1711	The coefficient of Restitution (e) set to 0.8	Consider substituting 0.8 with the formula provided in the section A.3.3	The coefficient of Restitution (e) is calculated using equation (18).	Accepted	This paraghraph has been rewritten and all cmputations included in the table. Here, the values for all cases are computed and a reference to the equation is also provided.
84	A.6.2	editorial	69	1699	… value in Equation 24, for both the glide and cruise scenarios are provided in Table 16 and 17	reference to equation andand table miss paranthesis	… value in Equation **(24),** for both the glide and cruise scenarios are provided in Table 16 and 17	Accepted	The paragraph has been rewritten and this sentence is no longer present.
85	Variable definition	Table 16	70	Table 16	Maximum UAS Characteristic Dimension (m)	variable nomination is missing	Maximum UAS Characteristic Dimension **wingspan (w)** (m)	Accepted	Column added for Variables
86	Remove raw from Table	Table 16	70	row 6	Width of Aircraft in metres + Buffer (m)	The critical area formula (24) does not include the Buffer from Table 16. Row 6 should be removed.	~~Width of Aircraft in metres + Buffer (m)~~	Rejected	equation 26 shows that both the half-width of the aircraft maximum characteristic equation, and the radius of a person is used for the purposes of critical area calculation.
87	Table renumbering	Table 16	70	row 7 until row 14	Row No. 6 7 8 9 10 11 12 13 14	Following the deletion of row 6 (see commment 20) , the numbering of Table 16 needs to be reviewed. As of raw 7 until the last row in teh table.	Row No. ~~6~~ ~~7~~ **replace by 6** ~~8~~ **replace by 7** **9 replace by 8** **10 replace by 9** **11 replace by 10** **12 replace by 11** **13 replace by 12** **14 replace by 13**	Rejected	equation 26 shows that both the half-width of the aircraft maximum characteristic equation, and the radius of a person is used for the purposes of critical area calculation.
88	Re numbering of equation row	dslide,rduced	69	1708	Row 11: dslide,reduced =	the row should be renumbered following the changes in Table 16 (deletion of row 6), see comment 20	**Row 10: dslide,reduced =**	Rejected	equation 26 shows that both the half-width of the aircraft maximum characteristic equation, and the radius of a person is used for the purposes of critical area calculation.
89	Formula missing in calculation of Ac	Calculation of Ac	69	1710	formula is missing n/a	tsafe function is expressed in terms of vnon-lethal. The formula of vnon-lethal need to be included before the formula of the coefficient of restitution €	=SQRT(2 Knon-lethal/m)	Accepted	The description of the derivation of the CA values for the three descent scenarios has been redrafted and no longer include the equations.
90	Definition of K non-lethal	Calculation of Ac	69	1713	…vnon-lethal based on a non-lethal kinetic energy of 290 J	the figure for the non-lethal kinetic energy correspond to the lethal kinetic energy used for <1m UA: 290J. Since the formula was not defined it could be that the 290J corresponds to the numerator of the formula '=SQRT(2 Knon-lethal/m) => 2 Knon-lethal? In which case it could be accepted to have a non-lethal kinetic energy of 145 J. need to be verified. If this assumption is confirmed then the text should be reviewed as indicated in colunm I. The assumptions of the model states that the non-lethal kinetic energy is 0 J. It is to be clarified also in row 1713 if this assumption is still followed.	…vnon-lethal based on a non-lethal kinetic energy of ~~290 J~~ **145 J**	Rejected	The 290J is only applicable for UAS that impact the limbs of a person (See section A.5.1). This is only applied to <1m platforms as these are assumed to only be able to impact the lower limbs during the slide portion of a crash. All other non-lethal impacts in other scenarios are not considered in the JARUS model. It is assumed these are fatal.
91	Re numbering of equation row	tsafe	69	1710	… tsafe=… in Row 12 includes	the row should be renumbered following the changes in Table 16 (deletion of row 6), see comment 20	… tsafe=… in **Row 12** includes	Rejected	equation 26 shows that both the half-width of the aircraft maximum characteristic equation, and the radius of a person is used for the purposes of critical area calculation.
92	Re numbering of equation row		69	1712	The values for vhorizontal and vnon-lethal provided in Row 8 and 9	the row should be renumbered following the changes in Table 16 (deletion of row 6), see comment 20	The values for vhorizontal and vnon-lethal provided in Row ~~8~~ 7 and ~~9~~ 8	Rejected	equation 26 shows that both the half-width of the aircraft maximum characteristic equation, and the radius of a person is used for the purposes of critical area calculation.
93	Re numbering of equation row		69	1717	to the raw critical area in Row 13 to achieve the final value shown in Row 14	the rows should be renumbered following the changes in Table 16 (deletion of row 6), see comment 20	to the raw critical area in Row 13 to achieve the final value shown in Row 14	Rejected	equation 26 shows that both the half-width of the aircraft maximum characteristic equation, and the radius of a person is used for the purposes of critical area calculation.
94	Table 17		71	n/a	Table 17: Scenario 2 (Powered Impact) Critical area calculations	Title need to use the samz terminology of the scenarios	Table 17: Scenario 2 ~~(Powered Impact)~~ **Cruise** Critical area calculations	Accepted	A new table replaces tables 16 and 17. This table has v avariables names and units for all variables used.
95	Table 17		71	n/a	Row No. 6 7 8 9 10 11 12 13 14	Following the deletion of row 6 (see commment 20) , the numbering of Table 17 needs to be reviewed. As of raw 7 until the last row in the table.	Row No. ~~6~~ ~~7~~ **replace by 6** ~~8~~ **replace by 7** **9 replace by 8** **10 replace by 9** **11 replace by 10** **12 replace by 11** **13 replace by 12** **14 replace by 13**	Rejected	equation 26 shows that both the half-width of the aircraft maximum characteristic equation, and the radius of a person is used for the purposes of critical area calculation.

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96	Table 18		71		Table 18 final critical Area Values, for 40 m wingspan 35,138 43,331 43,331	the entire table needs to be reviewed. Table 18 should reflect the same values for "Glide" and "Cruise". All figures need to be reviewed for coorect rounding. For example, for "Glide" wingspan 40 m, it is not 35,138 but 32,365.23 instead as per table 16. For "Cruise 3 with wingspqn 40 m it is not 43,331 but 40,132.08 5see table 17). Same issue in others cells of the table need to be verified.	Table 18 final critical Area Values, for 40 m wingspan **32,365.23** **40,132.08** **40,132.08**	Accepted	Tables 16 and 17 have been joined into one table for better overview. All numbers have been recomputed and rounded appropriately. The table can now be reproduced with CasEx..
97	incorrect formulation		71	1729	Equation 14 was then used to calculate the raw iGRC scores which are provided in Table 18, given population bands tah increase in orders of magnitude from 2.5.	incorrect formulation	Equation 14 was then used to calculate the raw iGRC scores which are provided in Table ~~18~~**, given population bands where the upper threshold starts with 25 and is at each time increased by a multiple of 10 (expept for the last one).**	Partially Accepted	The number 2.5 is incorrect and should be 25. This has been corrected. An increase by a factor 10 and an increase by an order of magnitude is the same.
98	Table 18		71	1726	Table 18	The critical area values reported in Annex B (line 68) does not reflect the ones reported in Table 18	Clarify which of the tables has to be used as a reference for the critical area values and, if Annex B's table, explain the assumptions that led to the refinement of the critical area values for UA > 1m	Accepted	Expanded information has been included to explain this
99	incorrect formulation		76	1859	… and states taht tipically rperson =1 ft and the glide distance is tipically based on hperson = 6ft.	The RCC model needs to be expressed in MCS metrics	… and states taht tipically rperson **=0.3 m** and the glide distance is tipically based on hperson = **1.8 m**	Rejected	The RCC model is taken from the Range Commanders Council document referred to in the Annex (citation no. 3), and this document uses imperial units. Therefore, it would be incorrect to use rounded metric units when describing this model.
100	review of formula (40)		84	(before) 2052	E[Ac] = … 1 - P(x) dx	parenthesis is missing in the integral	E[Ac] = … **(**1-P(x)**)** dx	Rejected	The integrand is well defined in an integral expression, since the integral sign at the front and 'dx' at the end uniquely captures what constitutes the integrand.
101			36	824	Whole paragraph	Drei Austria acknowledge the SORA 2.5 for taking industry development into account. As a telecommunication provider we have the strong believe that we can support and improve the automation of ground risk assessment by accurately assessing where people actually are at any given time of the day rather than just providing the density of registered residencies in a given area – which, in essence, is what census data can provide. Thereby, we can contribute to a significantly more realistic ground risk assessment that factors in people's mobility, e.g. commuters whose work and therefore daytime location differs from their registered home address or anomalies resulting from temporary special points of interest such as demonstrations, music festivals, or sports events.	Traditional data on population density, i.e. census data, shows significant shortcomings in terms of temporal accuracy and often does not reflect the actual amount of people in a given area at a given time – a major factor in the evaluation of ground risk for drone flights. Commuters, visitors, tourists, or unregistered people are more often than not in areas different from what official data suggests or are simply not accounted for. Furthermore, anomalies in population density resulting from temporary special points of interest such as demonstrations, music festivals, or sports events are not accounted for at all whiles potentially causing huge changes in temporary population. Additionally, the recent changes in working culture caused by the pandemic make a robust assessment of temporally accurate population density solely based on census date nearly impossible. All the aforementioned shortcomings of static census data substantiate the need for additional data to ensure an accurate representation of population density and, consequently, ground risk evaluation at a given time. Research has shown that mobile network data can provide valuable and valid insights to overcome these above-mentioned deficiencies of more traditional data. Its validity has been tested and confirmed in several studies by comparing the night-time population reported by mobile network data analysis with official population registers. [1][2][3][4] Another study has used mobile network data to examine tourist behavior in the Alpine regions of Bavaria, Germany and Salzburg, Austria – validating it against numerous other tourism related people counting systems, such as tickets for mobility services and attractions. [5] One of the most cited shortcomings of mobile network data for population density assessment is incomplete coverage – often particularly in rural areas. However, the United Nations agency for information and communications technology, the International Telecommunications Union, ITU estimates that 99% of the population	Comment Acknowledged	Similar content is presented (sometimes verbatim) from multiple organisations. Some suggestions have been incorproated. However, caution was exercised, as how the population estimates from telcos should be validated, including models and data, is still in its formative stage.

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102	General remark: From the discussions within JARUS/EASA we learned that the main principle for releasing Annex F is that operators should have the opportunity of calculating their GRC based on the mathematical model, if they feel that the values of the final GRC table are too conservative for their UAS. We support this general approach. However, the actual formulas that applicants need to use to manually calculate their GRC are merely a fraction of Annex F. In fact, Annex F provides the complete background information concerning justification, model development, adjustments, development of the GRC table, test cases, and so forth on 94 pages. It reads more like a long scientific article developing a new model (and this is not criticism!) than being part of a regulation system. The overall documentation of all background information is very important, and we clearly support the release of a document that contains all this. However, we would like to propose a discussion, if an Annex to the SORA main body is actually the right format to do this. The current Annexes A-E describe what an operator needs to do	All	All	All				Accepted	A new section has been written providing readers with a recipe of options on what they can do regarding the use of the table versus going back to first principles (See Section 1.7)
103	For <25,000 ppl/km² and UAS<3m,we now have GRC=7. However in SORA 2.0 the same UAS class (<3m) for a populated area is a GRC=6 (BVLOS). Most larger cities show population densities above 2500ppl/km² but below 25,000ppl/km². So today with SORA 2.0 flying in these parts of the city is GRC6 --> unmitigated SAIL V. However, with the proposed change, the GRC is 7 and the operation would be SAIL VI. Irrespectively of any new mitigations (shelter etc.), this means that the iGRC, comparing SORA 2.5 and2.0 considers the same operation 10 times more dangerous than before. Why this significant increase (factor 10) in danger? Do we have actual data to support this risk increase?	Table 2	10	147	Final GRC table			Comment Acknowledged	he OLD SORA was not substantiated by any form of math, just logical estimates. The NEW SORA is, and that is what the math is showing. If the applicant feels their iGRC is inappropriate they are free to demonstrate why their Critical Area or Population is different.

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104	This is not entirely true. section 4.3 M1(B)-Visual Line of Sight (VLOS) Operations provides a significant amount of requirements an operator needs to fulfill to claim a VLOS mitigation. These requirements exceed the description of what a VLOS operation is in our understanding and how it was handled in the last two years in Europe (please see detailed comments in Annex B) Section 4.3 puts additional requirements on the operator: "The operator has clear sight of the flight area where the aircraft might crash in the event of a failure. 2. The operator has the ability to identify less populated areas and can command the aircraft to fly over these areas. 3. The operator has the ability alert or notify people near the aircraft to exit the area before the aircraft were to impact the area, conditioned on the ability of the pilot to to identify failure conditions because of the VLOS proximity. The operator has the ability to validate aircraft position and orientation, alongside the elements in Items 1-3, and thus has greater situational awareness to deploy	1.4	11	154-155	The iGRC table no longer includes rows associated with VLOS operations, however operators can claim a -1 for VLOS operations in most instances.			Rejected	The VLOS Mitigation has been removed. A new mitigation M1(C) : Tactical Mitigatio-Ground Observation has been inserted and expanded upon in Annex B.The commenters suggestions have been considered and many incorporated in the new text
105	This would mean an alternative means of compliance in Europe and would require a risk analysis. This risk analysis would need to show that the same safety level is reached as the JARUS Ac model. How should that work if it is argued here, that the JARUS model is the most appropriate one?	2.3.2	18	345-347	If an operator or regulator believes that a different approach is warranted, the appropriate literature and models should be applied to calculate AC. Note that there are models for deflagration an explosion available in the CasEx package.			Comment Acknowledged	This model was required to cater for the majority of potential crash scenarios. It is also a conservative baseline, from which mitigations can be applied to demonstrate a reduction in risk from this baseline. As with any model, it is limited by its assumptions. When the assumptions of the model become invalid, other models should be used (or the current one modified). This model is an acceptable compromise under the majority of crash scenarios. The Quantitative Methods group has provided additional tools to assist with other considerations (blade throw, deflagration, explosion etc.) **if they are required.**
106	The whole concept of comparing the GRC table between SORA 2.0 and 2.5 does not really belong into an Annex to a possible regulation/AMC. This whole argument is more a justification of a change in a regulation. Such a justification is fine, but usually published in a seperate document, and not in an Annex designed as Annex to a regulation/AMC.	2.4	18	349-352	In Section 1.5 it was highlighted that Annex F incorporates more iGRC cells compared to V2.0 of SORA, alongside replacing the qualitative population bands with quantitative variants. These changes necessitated a decision on where to situate the band thresholds for not just the old variables (population and wingspan), but also Critical Area and Velocity.			Comment Acknowledged	We acknowledge your observation but don't understand what you are asking for as an alternate. The Annex content have been acknowledged as both useful and necessary to support the simplifications in the main body
107	What is the reason behind keeping the same thesholds for wingspan? The difference in UAS size beween 3 and 8m is significant and this often prompted debate. Why not introduce smaller bands of wingspan, if we are also now using a quantitative approach with small population density bands?	2.4	18	354-355	In parallel, it was decided to maintain the legacy thresholds for wingspan.			Comment Acknowledged	Applicants are free to demostrate their actual critical area if they do not feel they have been allocated the correct iGRC. The choice to stay with the historical wingspan bands was an acknowledgement of previous industry effort around these thresholds
108	This is a justification and in this sense absolutely fine. However, this is nothing that should be published as an Annex to a regulation or AMC. It is rather confusing that the whole argumentation structure is based on different bands than the final table..Why?	2.4	19	366-370	We term these initially selected bands described in Item 1 as the Nominal Bands for AC and Dpop and maintain these values in Tables 3 through 6 to facilitate an easy explanation of the relationship between Equation (3), Table 1, SAIL, and LOC values. However, it is emphasised that this nominal choice differs from the ultimate values deployed in the final iGRC table (Table 2), for reasons to be explained. 2.5 Step by Step Progression in the Development			Comment Acknowledged	The purpose of this Annex is to provide the justification for the JARUS SORA Ground Risk Process. This document is required to fully understand the process. If competent authorities wish to include the SORA as AMC or Regulation, that is fantastic, and this documentation might seem out of place within that context, but within the JARUS SORA context, is fully justified in its discussion of how the ground risk model was developed. The iGRC table is one (of many) ways to discretise the iGRC equation (eqn.14). This is the unfortunate nature of attempting to discretize a continuous function. An applicant/competent authority may always use the iGRC equations to ensure the appropriate iGRC is applied, rather than using the table.

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109	This is clear from the main body. No need to repeat it here…	3.1.1	25	483-492	Conduct necessary flight planning to determine an appropriate flight geography between desired departure and destination points, taking into account relevant mission objectives. A key factor influencing this appropriateness will be the population density overflown by the preferred Flight Geography and the approval basis for the RPAS. This may necessitate flying over lower population density areas. Trigger contingency procedures upon entering the CV, with the intent to return to the Flight Geography (examples may include a return home mode or via manual control) or termination of the flight within the CV (including a safe contingency landing), Entering the Risk Buffer is considered a Loss of Control with an expectation to land within the bounds of the RB, which might be supported by use of a Flight Termination System.			Rejected	We disagree. Previous internal consutation asked for clarification on this broad spread of points
110	Modifying a route does not qualify as an M1(A) mitigation in our perspective. M1(A) is only concerned with the actual population density within the Ops Volume + GRB. If an applicant decides to use an alternative route over a less densily populated area, then this will automatically be credited in Step 2 by assigning another (lower) iGRC. This is also made clear two paragraphs below.	3.1.1	25	506-508	Modifying their route such that it avoids areas with higher population density, perhaps supported by more accurate mapping to that used in Step #2			Partially Accepted	Agree with comment for the most part. However, some CA's allow for the elements expanded upon in Section 4.3.
111	The paragraph itself is absolutely correct, but all this is stated in the main body and here somewhat repeated. Is this necessary?	3.1.1	26	514-520	It can be seen that the Population (Dpop) required in Step #2 requires knowledge of the OV, CV and RB, but these are not often finalised until Step #3 and Step #8 are completed. This is because applicants might subsequently choose to vary their route (and hence iGRC footprint) if their risk buffer intercepts a highly populated area, or if the corresponding containment expectations for the adjacent area are similarly unpalatable. The dependencies between information gleaned across Step #2, #3 and #9 during iGRC footprint and population determination necessitates a holistic and iterative approach from applicants and competent authorities, rather then sequential.			Comment Acknowledged	The Ground Risk Subgroup note that this appears duplicative, however this is an important note for anyone using the SORA and the duplication is not considered unnecessary.
112	Why is this description under chapter 3.1.1 determining the iGRC footprint? This is much more concerend with mitigations. We propose to shift it.	3.1.1	26	521-535	whole paragraph			Rejected	Previously in SORA v2.0, the iGRC footprint was heavily involved in Criterion 1 of Mitigation 1. This was an incorrect position for the determination of the iGRC footprint. Being able to determine the iGRC footprint is much more closely related to the calculation of the iGRC in Step #2. This is reflected in the SORA Main Body and within Annex F. The Mitigations are used to adjust the risk **within** the iGRC footprint.
113	This whole chapter is an explanation and justification of a chosen approach. The backgorund information is very valuable, but we do not see that this is appropriate as an Annex to an aviation regulation or to AMC.	3.1.2	26 ff		whole chapter			Comment Acknowledged	The purpose of this Annex is to provide the justification for the JARUS SORA Ground Risk Process. This document is required to fully understand the process. If competent authorities wish to include the SORA as AMC or Regulation, that is fantastic, and this documentation might seem out of place within that context, but within the JARUS SORA context, is fully justified in its discussion of how the ground risk model was developed.
114	The description of chapter 3.1.3 is not conclusive. The key take-away is that it is at the discretion of the CAA to accept that the TLOS will be above 10E-6, when small portions of the flight are allowed over higher population densities than originally accepted. This is not really an option (at least in Europe) as we are bound by law to guarantee a same level of safety as in manned aviation (10E-6). Of course, depending on the exposure time, the absolute risk increases. However, there are no indications on how significant these effects become and no further guidelines are presented how a CAA should handle such cases. We recommend to enhance the guidelines or delete this option.	3.1.3	28	574-896	whole chapter			Comment Acknowledged	Because section 3.1.3 exceeds the realms of the SORA methodology (i.e. bespoke, nation specific decisionmaking) the guidance here is high level, to ensure that competent authorities understand the additional risk that is accepted when these operations take place, but not to dictate how an authority makes authority specific decisions. A competent authority is completely at liberty to reject any application using an argument supported by 3.1.3. Ignoring this issue completely leaves all users unaware of such a risk.

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115	It is clear from above that the highest population density within OV and GRB counts. So what is the overall meaning of this paragraph and the take-away? Is this a paragraph from industry trying to argue for rare cases one may deviate from this? This is not acceptable for us as a CAA, as clear guidelines are necessary that would hold up in court. Arguing like this will not lead to standardization.	3.1.4	28	598-611	whole chapter			Comment Acknowledged	Within the operational volume, it is clear that any approval may allow significant overflight of any point within the operational volume, hence there is little flexibility to use time of exposure or weighted averages to reduce risk. With the ground-risk buffer, this is no longer the case, as it is only in the circumstance where the aircraft leaves the contingency volume and the flight is terminated that it impacts the ground within the ground-risk buffer. It is even less likely that circumstances will be such that the aircraft impacts the outer boundaries of the ground risk buffer, as this requires the worst case to occur at the point of termination. Consequently there is an opportunity to reduce the risk based on a reasonable assessment of the probability of impacting an area on the edge of the ground risk buffer. It is the competent authorities prerogative to accept or reject any argument of this nature if it is not amenable to their risk appetite.
116	The take-away of this paragraph is that MAUP effectively makes it rather impossible to have accurate population density values for overflown areas. This paragraph basically shows the significant problems of the whole quantitative iGRC approach in SORA V2.5. In the end, it comes down to the availability of accurate population density data. The authors of Annex F themselvers (!) argue that this is rather impossible to get (see MAUP). This basically kills the whole concept. How should we as a CAA issue operational authorizations based on quantitative population density information (that hold up in court), if an Annex to the regulation itself states that you can basically only make it wrong? The last paragraphs in blue (in the box) places an unacceptably high workload on CAAs. CAAs are required to consult with national census bodies to understand the impact of MAUP for a whole country?	3.2	29ff	612-670	whole chapter			Rejected	Section 3 has been reorganised to better present options for CAs and to explicitly identify what value each section has. A new section (3.9) has been written to deal with resolution requirements as a function of altitude
117	We of course understand, that chapter 3.3 is very important in the argumentation structure of the whole concept of using population density bands for iGRC. We do not want to challenge this! However, we do not see what chapter 3.3 has to do with a UAS (aviation) regulation itself. Methods used to create population density maps should not be part of a UAS regulation. Will CAAs (or EASA in Europe) publish in a UAS operations regulation an Annex, where parts describe how population density maps are being generated? What should operators think about this and what should CAAs do with this information?	3.3	32ff	671-800	whole chapter			Rejected	This portion of the Annexes is meant to provide guidance to support CAA's in the determination of population. They can chose not to use it. There is nothing that prevents a CAA from providing aeronautical data or issuing approvals to organisations to provide aeronautical data. And the means/methods to create that data should be available.

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118	We of course understand, that chapter 3.4 is very important in the argumentation structure of the whole concept of using population density bands for iGRC. We do not want to challenge this! However, we do not see what chapter 3.4 has to do with a UAS (aviation) regulation itself. Methods used to create population density maps should not be part of a UAS regulation. Will CAAs (or EASA in Europe) publish in a UAS operations regulation an Annex, where parts describe how population density maps are being generated? What should operators think about this and what should CAAs do with this information?	3.4	36ff	801-844	whole chapter			Rejected	This portion of the Annexes is meant to provide guidance to support CAA's in the determination of population. They can chose not to use it. There is nothing that prevents a CAA from providing aeronautical data or issuing approvals to organisations to provide aeronautical data. And the means/methods to create that data should be available.
119	We strongly recommend to NOT state this in an Annex to a regulation! This sentence renders the whole concept of using discrete population density bands with the accuracy proposed in the new GRC table, meaningless. If this goes into European AMC material, CAAs really have a significant legal problem! Operators may use this to challenge every decision of a CAA!	3.5.1	37	847	In the short term, many nations will be unable to measure population density with the degree of accuracy implied by the bands shown in Table 2.			Partially Accepted	The comment has been modified however, the reality is that some countries will not have maps with sufficient resolution and the question will be asked. What should we do. We have offered advice on using maps such as settlement maps, and aggregating bands.
120	What is the meaning of Table 7 in an aviation regulation? It says above that most methods are not appropriate for detailed discrete population density bands. Why show methods here, that the authors do not consider as viable options? Do we not have a much more general problem here? The authors of Annex F argue that data is not really available to adequatly use the proposed approach. How should we use it then?	3.6 Table 7	42	961				Partially Accepted	The information provided is to help expand the knowledge base of CAs when considering map suitability proposed by applicants, or in choosing what maps to endorse. This knowledge has been acknowledged as useful by several CA's
121	This can not be part of an aviation regulation. What should a CAA or an operator do with this information? We need guidelines e.g. which is a really acceptable grid size!	3.6.4	44	1004-1017				Partially Accepted	The main body and Annex F have now included guidance on appropriate grid sizing. See Section 3.9 of Annex F for more detail.
122	We believe that this paragraph is not really relevant for operators. Operators usually do not develop their operational area in a way that it conincides with a certain grid cell or resolution of a map. They want to fly where the customer wants them to fly, and not care about the spatial resolution of maps.	3.6.5	44ff	1019-1041	whole chapter			Comment Acknowledged	Comment acknowledged but we disagree that its not warranted
123	To be honest, from practical experience: no - operators won't do that. We have seen 300 applications in Germany alone. No applicant had better data than the CAA.	3.6.6	46	1045-1048	This means applicants are likely to present with their own population density data sources, perhaps a combinationof highly reputable data sources like those detailed in Table 7, or one produced nationally, supplemented with higher resolution satellite imagery or other ancillary data, with the intent to lower the population density or demonstrate that the area is sheltered.			Comment Acknowledged	Thanks for your observation. We expect that to be true in many nations, but are allowing some latitude for bigger companies with more resources to put forward more agile methods
124	How can a CAA argue this in a legal dispute? A CAA knows that a 95% reduction is not 99% but grants an authorization anyways? We are bound to a commonly agreed target level of safety and cannot just issue an authorization when this target level of safety is knowingly not achieved. This is not tolerable for a CAA.	4.1	47	1089-1091	For example, a competent authority may recognize and give two orders of magnitude (-2) credit to an applicant given a demonstrated 95% reduction in risk. It is important though that the competent authority understand the potential risk accepted by treating a partial order of magnitude as a full order of magnitude change in risk.			Partially Accepted	This issue was tabled for discussion amongst many industry and CA representatives. The commentary in the document was modified but allowing regulators the discretion on whether to permit 95 vs 99 was voted as being important
125	These criteria are beyond of what is usually required to operate in VLOS given the current understanding (at least of Europe). Only a small fraction of operations currently possible in VLOS will actually fulfill these requirements. Please see Annex B comment on M1(B).	4.3	49	1156-1176	whole chapter			Partially Accepted	Th VLOS Section has been removed. See Section 4.3
126	This is not compliant to what Annex B states. In Annex B, the activation necessarily has to be automated.	4.4.1	50	1210-1211	This may alternatively be achieved by a detailed and explicit procedure for activation.			Accepted	Text has been updated to align with Annex B

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127	This is not compliant to what is stated in Annex B, please check for consistency.	4.4.1	51	1212-1216	If a parachute is used: – The parachute must be packed by the parachute recovery system manufacturer or appropriately trained crew with Quality Assurance checks. – The parachute system complies with either ASTM F3322-18 or another appropriate standard.			Accepted	Text has been removed.
128	The paragraph explicitly mentions a factor 100 reduction implying an M2 on high robustness. However,inadvertent activation is also covered by M2 on medium, not only high. Check Annex B.	4.4.1	51	1218-1224	Consideration of adverse consequences in case of malfunction of the mitigating mechanism (such as unintended deployment of parachute or unintended ballistic descent). The probably of any such malfunction must be appropriately included in the arguments for how to achieve a factor 100 reduction.			Comment Acknowledged	Although inadvertent deployment is mentioned in M2 high, the consideration of functional failures must be considered as part of any iGRC reduction. Text has been added to clarify this.
129	Structural disintegration of a fixed wing is merely a "system" or a "passive setup" which operators can claim. CAAs will most likely have significant doubts to accept a structural disintegration as a M2 mitigation. We recommend to delete.	4.4.1	51	1227	If the mitigation is based on a smaller critical area resulting from ballistic descent, the operator must clear argue how this descent condition is achieved (e.g., stopping the motor(s) on a rotorcraft or structural disintegration of a fixed-wing).			Comment Acknowledged	Passive effects are a completely legitimate mitigation. The level of robustness required to demonstrate the effectiveness of such solutions (i.e. frangibility) should be based on the level of mitigation reduction (i.e. a -1 should show with acceptable confidence that a 90% reduction is achieved). The term "structural disintegration" did not best explain the use of passive design elements (for example frangible weak points to collapse on impact with a person), so instead the term frangibility has replaced this term.
130	What does -2/-3 mean?, is high -2 or-3?	4.5	51	1243	Mitigation table high robustness -2/-3			Accepted	Text has been updated to explain how M2 at a high robustness can drive a -2 or -3 reduction in iGRC.
131	This paragraph is related to the test-based method to show compliance with OSOs. It does not specifically has anything to do with Annex F, which is about ground risk. Recommend to delete.	4.7	53	1282-1299	whole chapter			Accepted	Text has been deleted due to incorporation of the test based methods concept in Annex E.
132	In Annex B, values of 135,1350 etc are used, while below the final critical area values are 8,80,800 etc. What is correct?	A.6.2	71	1723	table 17 row 13/14			Comment Acknowledged	The iGRC table has been updated to use different population bands and different critical areas. This comment is no longer valid
133	B.1 and B2 are a literature review and very valuable for documentation of the models. But it does not belong into a regulation i.e. as AMC in European world.	B.1 and B.2	73ff	1739-1926	whole chapters			Comment Acknowledged	Thank you for your comment, however Annex F is also guidance material and we have opted to include it
134	Are operators required to understand this section? From our experience, most of them do not even know what an integral is... What should they take away if Annex F becomes AMC in Europe?	B.4.3	84ff	2020-2073	whole chapter			Comment Acknowledged	The main body is meant to be simple and clear for operator use. Annex F has the additional task of justifying the basis for the choices made. Whilst all efforts are made to keep the content as simple as possible, sometimes, the math to do so is complicated.
135	The link to the Scoping paper on the JARUS website is broken. One ends up with downloading the JARUS ToR instead of the paper.	References	91	2153	Reference [2]			Rejected	The link in Annex F is correct as of May 11, 2023 when this commen was received. However, the link on JARUS website is to a wrong PDF. This information has been forwarded to the web master.
136	high level	general	all		all	Could a statistical approach be also considered, instead of a white-box model-based approch?		Comment Acknowledged	Thanks for the suggestion, but to be considered in next version perhaps
137		Fexp	8	87	equivalent to (1 - sheltering factor).	Not totally clear in the reading flow, to what Fexp is equivalent	equivalent to 1 minus a sheltering factor (ref. to section 4.2.2. on sheltering)	Accepted	Comment adopted
138		Figure 1	8	93-95		Ideal position of Figure 1 would be after line 81, i.e. before Futhermore N_people...	Figure 1 after line 81	Partially Accepted	Suggestion incorporated
139			10	146	Note that both the characteristic dimension and cruise speed limitations must be satisfied for an operation to be in a given column	Isn't it a contradiction with Main Body, page 32, line 719, letter (l): "In case of a mismatch between the Max UAS characteristic dimension and the maximum cruise speed, the applicant should choose the left most column that meets both criteria or provide substantiation for the chosen column." + letters(m) and (o) (assessment of intrinsic critical area)	Suggestion to add a note: Note that both the characteristic dimension and cruise speed limitations must be satisfied for an operation to be in a given colum* * However, a generally conservative size of the critical area for most UAS has been taken into account for both the size and speed used in the iGRC determination. An applicant may decide to calculate the actual critical area applying a mathematical model defined in this document. If the calculated critical area (based on Appendix A) corresponds to the critical area identified in Annex F for a UA of a smaller size, then the applicant may use the corresponding iGRC.	Accepted	Text now aligns with the main body.
140		annex C		2078	This is a narrower definition than that of “UAS out of control” used in the main body of the SORA.	This is pretty misleading and also counter-intuitive: Could you please state a reason for this unintuitive definition? Why is CFIT included in LOC? Why come up with a different definition than the main body of SORA.	Use same definition as main body and adapt the document accordingly.	Accepted	Annex F used to refer to the term "Loss of Control" as a specific ground hazard subset of "UAS Operation out of Control". This was explained within Appendix C of the external consultation version to Annex F. Unfortunately this term has too many connotations associated with conventional aviation. Annex F has been updated to better explain the hazards being dealth with in the JARUS ground risk model. The term "loss of control" has been replaced with "Ground Impact". Appendix C has been substantially rewritten to align with terminology in SORA and aviation in general.

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
141	nitpicking	equation 1	7	50.5	TLOS = lambda_GA_Accident * N_fatality|GA_Accident	The names for variables could be interpreted.	Suggestion to use typical notation for conditional probabilities, such as: TLOS = P(fatality and GA_Accident) = P(fatality|GA_Accident) * P(GA_Accident)	Partially Accepted	Modified version of suggestion incorporated
142	nitpicking	equation 3	8	83.5	formula	Spliting the formula in two would make it easier to understand.	Suggestion to list N_people separately as a formula	Comment Acknowledged	Comment acknowledged but not adopted
143		annex D	88	2108	abbreviations & variables	What is the intent of having a separate abbreviation & variables section? Some parts are covered already by annex I (e.g. SAIL/VLOS/etc).	Suggestion to move obvious parts to annex I for consistency.	Rejected	Acknowedge the point that there are also definitions in Annex I. And agree that they need to be aligned. But having them here, specific to the Annex F is ok and easier to access rather then have to go searching for Annex I
144	nitpicking	equation4	9	109.5	formula	E_C has not been formally introduced. Furthermore, the letter E seems rather unsuited because it normally represents energy.	Suggestion to introduce E_C properly and replace it with N_C	Rejected	The E in this context refers to an expected value. E_c is the expected number of casualties per hour of operation.
145			43	968	grid size resolution & shape		please give the NAAs more guidance for the grid size choice	Accepted	The main body and Annex F have now included guidance on appropriate grid sizing. See Section 3.9 of Annex F for more detail.
146		figure 2	12			rounding seems counterintuitive: how are the quanta derived based on the iso-lines?		Comment Acknowledged	Rounding is done in the log space.
147		equation 9				WS, Vel are untypical names for these variables	Suggestion to use b or s instead of WS, and v_no stead of Vel	Comment Acknowledged	Whilst we acknowldge your comments, we wont be adopting at this stage as choices on variable names are subjective and the use of b or s for Wingspan is not particularly common or intuitive
148	Used final assumptions for GRC table					The final used assumptions for the final GRC table should be shown in a clear table. Following values would be proposed for the used assumptions: For Coefficient Of Restitution the value could be conservatively 0.5 based on two studies. -COR for gravel A Measuring Method of Gravel's Coefficient of Restitution and Discussion. https://www.matec-conferences.org/articles/matecconf/pdf/2018/01/matecconf_icmae2017_02012.pdf -COR for a car impact with a barrier at different angles Analysis of normal and tangential restitution coefficients in car collisions based on finite element. https://www.tandfonline.com/doi/pdf/10.1080/13588265.2021.1926825#:~:text=Many%20studies%20have%20shown%20that,velocity%20exceeds%2040%20km%2Fh. For the slide lethality reduction using a higher kinetic energy value such as 175J would be much better than the now used 80J. This is because the impact is to lower limbs at fairly slow speeds and not to the head. Some other value could be picked for example based on JANSER studies.		Partially Accepted	Table 30 of Annex F contains all assumptions used in the final iGRC table.
149	ERP High						There should be added the requested ERP mitigation case for a -1	Comment Acknowledged	ERP is no longer a mitigation
150		1.2.1	7	46	.10-6	In assessing the acceptability of a design, the FAA recognized the need to establish rational probability values. Historically, failures in GA airplanes that might result in catastrophic failure conditions are predominately associated with the primary flight instruments in IMC. Historical evidence indicates that the probability of a fatal accident in restricted visibility due to operational and airframe-related causes is approximately one per ten thousand flight hours or 1 x 10-4 per flight hour for single-engine airplanes under 6,000 pounds. Furthermore, from accident databases, it appears that about 10 percent of the total was attributed to failure conditions caused by the airplane's systems. It is reasonable to expect that the probability of a fatal accident from all such failure conditions would not be greater than one per one hundred thousand flight hours or 1 x 10-5 per flight hour for a newly designed airplane. From past service history, it is also assumed that about ten potential failure conditions in an airplane could be catastrophic. The allowable target average probability per flight hour of 1 x 10-5 was thus apportioned equally among these failure conditions, allocating 1 x 10-6 to each. The upper limit for the average probability per flight hour for catastrophic failure conditions would be 1 x 10-6, establishing an approximate probability value for the term "extremely improbable." Failure conditions having less severe effects could be relatively more likely to occur. Similarly, airplanes over 6,000 pounds have a lower fatal accident rate and probability value for catastrophic failure conditions. UAS can follow the same rationale. However, it should consider higher system complexity, and the number of critical failures would be higher than a simple GA aircraft in 1970 did not have the same interdependencies as in UAS.	The TLOS should be at least 10-7	Rejected	The Target Level of Safety stated in the SORA is not equivalent to the quantitative probability requirements found in conventional aviation system safety analyses. These focus on single event probabilities of systems (i.e. a single catastrophic event), based off assumptions of system complexity (i.e. number of failure conditions) which together generate an overall "event failure rate". The TLOS used here is instead an allowable expected casualty rate for third parties on the ground. The SAIL which drives the overall operational reliability contains as part of its failure rate of systems. The devolution of acceptable individual failure rates for systems/equipment is contained within the requirements of the SAIL, not within the ground risk model.

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151			8	75	□LOC is the expected number of times that the UAS operation enters into a loss of control state per flight hour. This parameter takes into account both aircraft's technical as well as operational failures. In the context of this Annex, "loss of control" includes controlled flight into terrain; see Appendix C for more information.	SAIL is not an operational failure; it is considered an operational construct. Lambda LOC should be related to MTBF instead of SAIL. The SAIL produces	Change SAIL for MTBF	Partially Accepted	The SAIL by definition is the operational hazard rate, it refers to rate the operation enters the "loss of control of the operation state", please see Table 1 of Annex F. Annex F used to refer to the term "Loss of Control" as a specific ground hazard subset of "UAS Operation out of Control". This was explained within Appendix C of the external consultation version to Annex F. Unfortunately this term has too many connotations associated with conventional aviation. Annex F has been updated to better explain the hazards being dealth with in the JARUS ground risk model. The term "loss of control" has been replaced with "Ground Impact". Appendix C has been substantially rewritten to align with terminology in SORA and aviation in general. MTBF refers to both the reliability and availability of a system. The commenter may be referring to "Mean Time To Failure" (MTTF).
152			8	86	Dpop is the maximum assumed population density within the ground risk footprint.	It is ok to consider the maximum as a base of calculation. However, the operations should consider the weighted average. The example provided in the appendix does not consider the possibility. Also, it refers to an outlier, an observation numerically distant from the rest of the data. Then, it could be removed	Use Maximum POD but allow for operations with the weighted average; the weighted average could consider distance or time. What is important is the exposure time that bystanders are exposed to harm; a city is a dynamic environment in which a large number of the population is sheltered	Rejected	Please see Section 3.1.2, which details the rationale behind the use of maximum population density. The use of exposure arguments or weighted averages can lead to situations where high density populations can be exposed to a risk higher than the TLOS, becuase the averaging over lower population densities causes the overall TLOS to be met. Using any weighted average metric is a competent authority decision. We have provided some information on how a comptetent authority may allow this to occur in Section 3.1.3.
153			9	112	Relation to SAIL With no further action, the iGRC becomes the final Ground Risk Class (GRC) and would be assigned a SAIL, which maps the loss of control rate to operational, organizational, personnel, and technical threat barriers that, when implemented correctly at the SAIL level required, provide the requisite assurance that the maximum probability of loss of control for an operation will be below the loss of control rate required to meet the TLOS. Since it may be impractical for many operations to determine the actual loss of control rate LOC with system-level testing or operational data, the qualitative SAIL system has been developed by JARUS to superimpose increasingly more rigorous OSOs commensurate with increasing risk as a means of ensuring levels of design, maintenance, and operational procedures are appropriate for the risk posed by the operation	The TLOS is already considering the operational failures and adding system failures. Thus, linking SAIL to loss of control seems to be a conservative approach. The proposed discretization and binning in integers, considering a factor of 10 for POD and SAIL, create a lack of proportionality in the approach. Variations in aircraft dimensions, speed, or both can make an aircraft in SAIL II be in SAIL III. Furthermore, the use of a conservative critical area. Then, by applying the rule of three, the applicant passed from 300 to 3000 hours. Instead of considering integers, the binning proposed should consider rational numbers, so the final factor is not 10. Also, it should be considered that under specific conditions, the factor could be 100 due to small changes in POD by using the maximum population and changes in speed.		Rejected	Please see line 193 to 195 which highlights that Figure 2 can be used where applicants can apply directly to their NAA to use rational number for wingspan, velocity etc if they choose. Of course they have to provide the evidence to support their claims
154			10	140 / 1934	For all other circumstances, the iGRC can be derived using the third term in Equation 5, where the left and right half brackets mean rounding up to the nearest integer and where RdConst is a rounding constant currently set to 0.3. Further details on iGRC rounding is provided in Section 2.5.6. In addition, the RTI model uses the coefficient of restitution to account for energy dissipated to the environment and aircraft deformation	Using integers as binning produces the issue that the .3 does not account for using a conservative critical area. Also, the paper explains the critical area parameters in appendix B. Appendix B states. The former omit the length of the aircraft from the modeling but largely maintains the modeling effect of this length by using a circular start and end of the glide/slide area, which adds further conservatism to the calculation.	Using a fixed-wing instead of a rotorcraft when there are many rotorcraft flying at this moment makes the CA equation conservative for rotorcraft but also fixed-wing. The fact of considering only the Pi*Rd^2. Why not to use the NAWCAD model. Considering the RTI model for many of these aircrafts does not seem applicable	Comment Acknowledged	This model was required to cater for the majority of potential crash scenarios. It is also a conservative baseline, from which mitigations can be applied to demonstrate a reduction in risk from this baseline. The Quantitative Methods group is looking into options to ensure that reasonable and proper guidance is given to rotorcraft/multicopter platforms. This guidance will be available in SORA v3.0 The applicant can always demonstrate that the model is not accurate for their specific case through Mitigation 2.
155		Figure 4	17	307		Scenario does not comply with tests of manufacturer. Depending on surface, sliding, flipping and explosion cannot be observed, rather the UA digs into the ground.	Data from crashes should be given preference over calculated data.	Comment Acknowledged	This model was required to cater for the majority of potential crash scenarios. It is also a conservative baseline, from which mitigations can be applied to demonstrate a reduction in risk from this baseline. The applicant can always demonstrate that the iGRC crash model is not accurate for their specific case through Mitigation 2 to receive an iGRC reduction.
156	Use of formulas to derive iGRC	Formular 14	22	410		This formular completely decouple the iGRC from vehicle parameters such as mass and size. Is this formula just given to explain how the iGRC table was derived or can it actually be used in the end? Define the use of the formular.		Rejected	Same comment as item 32.
157	Define height to use for impact angle iGRC	Figure 19	56	1362		Which height shall be used to calculate the balistic drop (iGRC). The impact angle varies when using the lowest flight level, to the average, and maximum height during flight for UA that are unable to glide.		Accepted	Same comment as item 29.

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158	CASEx tool has a bug, wrong calculation	CASex, Table 18	58	1427		Text states: 0,8-0.3/81*(teta-10) while casex uses: 0.9 -0.3/81*(teta – 9) And the text in line 1427 describes the coefficient as being linearly varied between 0.8 and 0.6 even though the formula directly below it (Table 18) iterates it between 0.8 and 0.504.		Accepted	Same comment as item 26.
159		A.3.3 calculation	58	1429	In simple terms, smaller glide angles will have a relatively small reduction, while higher angles will have higher reductions.	Size of critical area has a safety coefficient of 6-10 which seems not based on valid data. It depends on the surfaces and varies a lot when considering e.g. crash on grass. JARUS shall ask manufacturer for data and implement model on real data.	In simple terms, smaller glide angles will have a relatively small reduction, while higher angles will have higher reductions, always in ralation the the surfaces restitution. (compare water, grass, wood, roof tiles , concrete)	Comment Acknowledged	Comment acknowledged but not incorporated
160	CASEx tool has a bug, wrong calculation	CASex, Table 24	69	1696		At the beginning and end of the Glide Area and the Slide Area there is a half circle added. The Casex tools adds them both to each of the slide/glide areas once. Meanwhile the SORA 2.5 document only adds one of the circles to the entire area. Either there should be a factor of 2 in front of pi*r_D^2 or Casex should deduct one circle Area from the Total critical area.		Accepted	Same comment as item 36.
161		3.6	41	954	"Higher resolution maps are preferred to minimize the homogeneous assumption effects."	What are "homogeneous assumption effects"? It's not explained in the text and that term isn't mentioned again. I think I know what you mean, but why leave it to chance?	Add the definition of homogenous assumption effects.	Accepted	This term has been removed. Section 3 has been substantially rewritten to increase the clarity of population density measurement. Section 3.9 provides detail on what an appropriate grid resolution should be.
162	Regarding higher and higher resolution, something has been bugging me, but at what granularity do you stop? Let's suppose I could get down to the level of the space a single human takes up when standing. Let's say a box with half meter sides, or 2.5x10^-7 km^2. This puts the density off the charts - for that one grid cell in which that person is standing. But, what if they are the only one in the immediate vicinity? The density heat map would be zeros with an incredibly sharp, extremely bright spike where the person was standing. Look at it another way. Let's say there are 10 people in a square kilometer. That density seems pretty small. But if I use an extremely small grid and let's say all the people are grouped together, then my Max population density is huge. My point is that the "maximum" density for a given area may depend very heavily on how "granular" my population map is. If I have the containment capability to avoid those densely populated cells, then great. But let's say I don't and I have a largish ground risk buffer; I could "game the system" by using a less good density map and have the higher density cells average out with the lower density cells in the larger, less granular, sized cell. If I used a							Accepted	Two new sections have been written to address concerns. First, an introductory section to highlight to readers the relevence of each subsection in population section. Second a new subsection to deal with population density as a function of altitude. Other commentary around the resolution of the starting map with Step 2 also addded
163	The assumption of 1 impact = 1 lethality for drones <1m					The level of granulrity of of the current ground risk model is not well suited for small drones especially the ones between 0 and 1 m. For instance the Mavic 3 Ent and the Matrice 300 end up having the same intrinsic GRC while the operational risks of such drones is usually completely different. Introduce a column for small UAS or add additional ways to characterize the risk of drones below 1 m.	We suggest introducing an additional GRC column for drones <0.5m or having with a lower GRC commensurate with their risks during operations since the assumption of 100% lethality may be rather conservative in this context.	Comment Acknowledged	Whilst your comment was considered, it was decided that more work needs to be done before including this in the iGRC table
164	Translate rounding policy of the GRC into trade-offs of population density, maximum cruise speed and maximum characteristic dimension of the UA.	2.5.6	22	426	As iGRC scores are measured in the log space, this factor of 2 equates to a factor of 0.3 given by log10(2) = 0.30...	It is suggested that this policy is used as a basis for additional strategic mitigations or trade-offs easily understandable by every operator in the main body of the SORA and Annex B. For example: explicitly show possible trade-offs, include strict limitations of elements that are now with an approximative sign (such as the size of gatherings of people), etc.	N/A	Partially Accepted	We thank you for your suggestion but given time constraints and the additional complexity associated with this suggestion have decided not to include in this version
165	Short Exposure Flight Over Higher Population Segments	3.1.3	28	574	N/A	While artificially increasing the operational volume to include areas with low population density could be tried by certain applicants as a strategeme to unfaithfully reduce the ground risk (especially in manual operations), operations that are automatic, especially those that are repeated multiple times (such as A to B inter-city delivery operations, where maximum GRC are identified only near take-off and landing), the total time spent over the most populated areas should be proportionate to the time spent over those areas per mission. It is understood that, for simplicity, the maximum GRC should be identified in step 2, but it is requested that in step 3, it is possible to mitigate the ground risk in a similar way to step 5 mitigations for the air risk (restriction by boundaray, chronology and time of exposure). A position paper is enclosed as an annex to justify this position.	Adapt the text to allow this approach.	Rejected	Whether by many short overflights, or by a single flight that exceeds the allowable TLOS for a population at risk, the population is still experiencing an unacceptable risk under the SORA methodology. Any decision to violate the TLOS is a competent authority decision, and we have provided guidance for a regulator to do this in Section 3.1.3.

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166		3.4.2	36	824	1672 (i.e. according to a uniform distribution) in the area the aircraft is flying over as point masses tall	DIAS supports comments made by other organisations in regards to the re-write of this paragraph to highlight the important role that mobile network data can have in support of a SORA assessment	The shortcoming in temporal accuracy has seen the emergence of many studies using mobile phone data to produce better representations of human movement [25], [26], [27]. Traditional methods for population maps, such as census and register data neglect the temporary nature of mobility of humans, commuters, tourists and visitors and unregistered people. Mobile phone data has therefore been considered for the last decade to produce better representation of human movement [25], [26], [27]. More recent studies [1], [2] [3] have demonstrated the usability of mobile phone data to accurately forecast the population density. The night-time distribution derived from mobile phone data is very strongly correlated with the official population register data confirming a range of previous studies that have been mentioned in the above publications. Furthermore, governmental studies such as [4] confirm the good and accurate representation of the population density by mobile phone data, compared with census data. Similarly, studies by the European Commission [5] on the quality of mobile phone data as a source of statistics have show a very high correlation (correlation factors >85%) with census data at night, demonstrating the accuracy and reliability of mobile phone data. It has also been analyzed that the aggregation of data from different mobile network operators adds significant value [6]. The results show that merging mobile network activities of several operators increases the representativeness considerably. The results show that merging the mobile network activities of all mobile operators reflects the present population distribution in an almost perfect manner.	Comment Acknowledged	Similar content is presented (sometimes verbatim) from multiple organisations. Some suggestions have been incorproated. However, caution was exercised, as how the population estimates from telcos should be validated, including models and data, is still in its formative stage.
167	The current mitigation model for M1(A) and M2 does not grant the flexibility to claim a reduction of the risk of 70% by M1(A) and another 60% by M2 which would be qualitatively equivalent to a 90% reduction and so a -1 in GRC. It would be great to add a section explaining that those combined mitigation is a possibility	4.1	50	1178		Add the flexibility to combine M1 and M2 in order to reach a -1 or -2 risk mitigation if necessary	Depending on the operational and technical context, M1 and M2 may be combined in order to reach a 90% or 99% risk reduction. For instance a technical mitigation may bring a 70% risk diminution while sheltering may be applied to reduce the amount of people at risk by 60% which would equal a 88% risk reduction and could be considered as a valid mitigation combination. Note that in this context, the level of integrity and assurance of the respective mitigations should be proportionate to the risk and that a full low, medium or high robustness level integrity or assurance may not be fully proportionate. The authority should adapt the level of integrity and assurance to the claimed level of mitigation.	Comment Acknowledged	Updates to the mitigation permutations section have been made. Section 1.7 also gives readers options on what they should do, based on their level of comfort with math and programming languages if they dont like their iGRC
168	Optional JARUS Model Trade-offs, Table 10, proposes a trade-off between the different parameters used to evaluate the ground risk. However, the equation to which it relates does not provide an explicit way to propose alternative trade-offs (i.e. with different numbers).	4.6.1.	52	1252	Applicants are free to apply the basic elements of Equation (9)...	Provide an additional simple equation within 4.6.1. to keep risk a constant GRC even with modifying parameters from Table 2, as well as an explanation on how to use it. Within the column "Proposed Text", an equation is proposed in LaTeX format.	\left(\frac{V_0 \pm \Delta V}{V_0} \right) ^ 2 \times \frac{WS_0 \pm \Delta WS}{WS_0} \times \frac{D_{POP_0} \pm \Delta D_{POP}}{D_{POP_0}} = 1	Partially Accepted	A section has been written to allow readers to gauge which approaches to use, and the mitigation permutation section adjusted
169	Clarify the assumptions and the model used for obstacles and the reduction that is associated and further clarify how this reduction impacts the crash areas and whether this could be used a mitigation in some specific contexts as for small drones or areas with a lot of obstacles	B4	80	1948		The assumptions for the obstacle model seem quite approximative and it would be very helpful to have more details on the used models and simulations in B4.2 and B4.3 in order to better understand the model and the simulations performed and to potential reduce the risk further during operations based on obstacle considerations.	Include more details on the simulation in B4.2 and the model in B4.3 and how assumptions may affect the simulation and model in B4.2 and B4.3.	Comment Acknowledged	The example given is more to illustrate the effects of obstacles and provide justification for the use of obstacles in reducing critical areas. Further work and model development is encouraged by others (standards bodies, regulators or operators) for more specific use cases using the concepts described in the section.

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170			36	824	Whole paragraph	At Dimetor we highly welcome the new SORA 2.5 proposal, as see the need for more automated and dynamic processing of the risk assessment. Working with BVLOS drone projects around the world, following SORA principles, we have however seen that there are some additional requirements coming up regularly, which can make the SORA 2.5 process even better. Use of Mobile Network data for dynamic ground risk assessment In many projects we have seen that data from mobile networks, e.g. about the people density on the ground beneath flight routes, is one of the most applicable data sources reflecting the dynamic nature of the ground risk. This is contrast to the currently used census data, which is: •Out of date by the time it is used •Static and does correctly display the dynamic nature of the ground risk •Incorrect by definition, as it provides information about where people are registered, not where they are •Does not include any temporary and seasonal changes, e.g. in touristic locations census data is just not reflecting any people from abroad •Having a bad geographic resolution •Not reflecting any seasonality, e.g. cities are much more crowded outdoors in summer than in winter •Not giving any information about indorr or outdoor, in-car or on-train people •Etc. On the other hand, mobile networks are providing such data in a highly reliable, always on manner and the technology existing today allows for a much more accurate and predictable dynamic information about the ground risk, adding significantly to the safety	Mobile Phone Data for Use in Population Maps The shortcoming in temporal accuracy has seen the emergence of many studies using mobile phone data to produce better representations of human movement [25], [26], [27]. Traditional methods for population maps, such as census and register data neglect the temporary nature of mobility of humans, commuters, tourists and visitors and unregistered people. Mobile phone data has therefore been considered for the last decade to produce better representation of human movement [25], [26], [27]. With the wide deployment and evolution of mobile 4G and 5G networks, mobile network data has evolved to a highly available and creditable source for people density and ground risk considerations. Extensive studies have shown that such data is now reliable, accurate, trustworthy and a highly accurate representation of the dynamic nature of mobility and thus temporal people density. Examples are provided in [1], [2], [3], [4], [5], [6], [7], [8]. It was also demonstrated in [9] that the aggregation of data from multiple mobile network operators leads to an almost perfect representation of the people density. Countries in Europe have an almost 100% coverage of people, making the data representable [10], while even in so called developing countries mobile network data is highly representable for people density [5], [6]. Furthermore, technologies have been developed that allow the automated, safe and secure data exchange between mobile network operators and UAS infrastructure, complying with the GDPR rules, enabling data access and process automation [11] in a highly cost	Comment Acknowledged	Similar content is presented (sometimes verbatim) from multiple organisations. Some suggestions have been incorproated. However, caution was exercised, as how the population estimates from telcos should be validated, including models and data, is still in its formative stage.
171		Equation (14)	22	410	"raw" iGRC = 7 + $\log_{10}$ (D_{pop} * AC)	Specify that the Dpop in this formula should be expressed in ppl/m², and not ppl/km². Otherwise it is very confusing as the population density in all tables and figures is in ppl/km².	Add a caption to specify that Dpop is expressed in ppl/m²	Partially Accepted	The population is not required to be in ppl/m^2, it is required to be in the same units as the critical area. The text has been updated to make this clear (i.e. if using km^2 for the critical area, the population density should be in ppl/km^2. If the critical area is in m^2, the population density should be in ppl/m^2).
172		3.4.2	36	824 and following	Whole paragraph 3.4.2	There are mobile operators around the world that have been reporting person density for years. Our experience is that the density of persons measured with mobile phone data shows significant differences compared to the population density, which is issued by the governmental authorities based on the residence registrations: - big differences during the day - at night, a good match Good accuracy of person density during the day is more important. At night, people sleep under a roof and are well protected from possibly crashing drones. During the day, people are often outdoors and need protection from crashing drones. The data available from the cellular manufacturer for people density is historical data and at best live data with a few minutes delay. Normally, the data is a few hours old. However, a drone operator also needs to plan flights for subsequent days. Therefore, it needs a forecast of the situation. The prediction should be able to calculate daily, weekday and seasonal behavior e.g. like the densities of people in outdoor swimming pools (only summer) and also ski stations (only winter). In all three cases there are significant differences in the density of people, which are relevant for drone flights and risk calculation. In addition, the weather is to be included as a fourth factor. In the case of weather, the parameters to be taken into account are those that encourage people to spend time outdoors (or not): the leisure parameters. These are temperature, cloud coverage, precipitation, wind speed. Each provider should check which of the weather parameters have a significant influence on people's behavior and should therefore be included in the forecast calculation.	**Content and structure of the data** **All mobile operators have records of technical antenna signals in the form of messages, which mobile device and antenna exchange via a technical protocol. A part of the messages is suitable for the ongoing localization of SIM cards. This localization is assigned to a geographic square space unit and called tile. No geo-position information is to be read from the mobile and no software is to be installed on the mobile. This localization is to be based solely on the technical protocol, which must be supported by all mobile devices and can be implemented by all mobile operators worldwide and for all mobile devices regardless of the operating system, version and supported mobile standards.** **The data calculated for Ground Risk from antenna signals is the person density per tile of for example 100 by 100 meters and in hourly intervals.** **Calculation of the person density** **1.each operator has to find his way to calulate an estimate of the position of the SIM card out of antenna orientation and signal strength of the messages. The frequency of messages from a SIM card increases the accuracy of geographical assignment to a tile.** **2. sum of the duration of all SIM cards (in seconds) in a tile within an hour or day.** **3. person density must give a picture of the whole population. In particular, all mobile operators must be included, as well as the proportion of the population without mobile devices. There are variants in the inclusion of mobile operators:** **a. A portion of one or several mobile operators is included. This mobile operator(s) must extrapolate from its/their added market**	Comment Acknowledged	Similar content is presented (sometimes verbatim) from multiple organisations. Some suggestions have been incorproated. However, caution was exercised, as how the population estimates from telcos should be validated, including models and data, is still in its formative stage.

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
173			36	824	Whole paragraph	TEOCO welcome the SORA 2.5 as it reflects the advances in the industry and the need for streamlined and more automated processes. In order to bring the risk assessment to the next level and to reflect the dynamic nature of the environment in which drones are operating we think that: 1.)Dynamic digital data sources are needed as opposed to static census maps 2.)Mobile Network Data is available and suitable to support the SORA. Mobile Network data: •tells "where people are" •provides fully dynamic data, on a 24/7 basis •It is always "up to date" – some mobile network operators provide such data almost live. Essentially all MNOs around the world have similar capabilities, just two public offerings as examples, Proximus, Swisscom •has good geographical granularity and accuracy (50m/50m or 100m/100m) Such data is available, applicable, representative and more accurate than any other data source. 3.)Standardised Interfaces exist and provide cost-effective access to MNO data To make mobile network data globally accessible and available in an automated and cost effective manner, GSMA (representing the mobile network operators globally), and GUTMA, the Global UTM Association, have formed ACJA – Aerial Connectivity Joint Activity in 2019. The objective was to specify, agree and standardize harmonized interfaces so that dynamic data from mobile network operators can be made available to the UTM ecosystem and risk	Mobile Phone Data for Use in Population Maps The shortcoming in temporal accuracy has seen the emergence of many studies using mobile phone data to produce better representations of human movement [25], [26], [27]. Traditional methods for population maps, such as census and register data neglect the temporary nature of mobility of humans, commuters, tourists and visitors and unregistered people. Mobile phone data has therefore been considered for the last decade to produce better representation of human movement [25], [26], [27]. More recent studies [1], [2] [3] have demonstrated the usability of mobile phone data to accurately forecast the population density. The night-time distribution derived from mobile phone data is very strongly correlated with the official population register data confirming a range of previous studies that have been mentioned in the above publications. Furthermore, governmental studies such as [4] confirm the good and accurate representation of the population density by mobile phone data, compared with census data. Similarly, studies by the European Commission [5] on the quality of mobile phone data as a source of statistics have show a very high correlation (correlation factors >85%) with census data at night, demonstrating the accuracy and reliability of mobile phone data. It has also been analyzed that the aggregation of data from different mobile network operators adds significant value [6]. The results show that merging mobile network activities of several operators increases the representativeness considerably. The results show that merging the mobile network activities of all mobile operators reflects the present population distribution in an almost perfect manner.	Comment Acknowledged	Similar content is presented (sometimes verbatim) from multiple organisations. Some suggestions have been incorproated. However, caution was exercised, as how the population estimates from telcos should be validated, including models and data, is still in its formative stage.
174			36	824	Whole paragraph	Vodafone is closely following the development of SORA 2.5 as we see that Vodafone can significantly contribute to the safety of BVLOS drone operations at scale, particularly as connectivity for the lower airspace becomes critical and dynamic data about people density are important inputs to scale the industry. Furthermore, at Vodafone we believe that process automation will be required to scale drone and the IoT business in the airspace. Drones, in simple terms, are able to deliver DATA by means of an automated process, which will add significant value to people, economies and the society as such – e.g. by means of public safety and first responder systems. That being said, we believe the DYNAMIC nature of the respective people density information needs to be addressed better. 1.)Current Status - Census Data •Census data is static and thus not reflecting the dynamic nature of people mobility •Census data is old by definition •Census data provides information about where people are registered, not where they are •Census data does NOT consider any visitors from other countries •Census data does not reflect any temporal assembly of people 2.)Mobile network data on the other hand is •Providing information about where people are •Providing reliable and continuous information on a 24hour basis •Providing timing granularity of 1hr … up to 15 min or even close to real time. By doing so it provides information about temporary assembly of people •Providing information about visitors, i.e. roaming customers •Provides a geographical granularity of 50x50 … to 150x150m, subject to area	Mobile Phone Data for Use in Population Maps The shortcoming in temporal accuracy has seen the emergence of many studies using mobile phone data to produce better representations of human movement [25], [26], [27]. Traditional methods for population maps, such as census and register data neglect the temporary nature of mobility of humans, commuters, tourists and visitors and unregistered people. Mobile phone data has therefore been considered for the last decade to produce better representation of human movement [25], [26], [27]. These shortcomings can be compensated with the use of mobile network data, representing actual people density distributions and mobility behaviors. Studies conducted lately, for example [1], [2] [3] have shown that mobile network solutions provide a highly reliable and accurate description of the people density. As a "ground truth" the census data during the night has been used, knowing that this is not necessarily correct eithers. Additional studies have also shown that the popularity of mobile phones globally led to the result that even in developing countries mobile network data can be used to accurately represent the population [4], [5]. This is certainly true in European Countries, where the mobile phone penetration is almost 100% [6]. While mobile network data shows a very highly correlation during the night hours with census data [7], demonstrating the accuracy of the method, studies conducted by governmental organizations confirm the applicability of the data for people density and locations [8]. Mobile Network Operators are used to comply with the highest level of GDPR rulemaking and have globally adopted all appropriate measures	Comment Acknowledged	Similar content is presented (sometimes verbatim) from multiple organisations. Some suggestions have been incorproated. However, caution was exercised, as how the population estimates from telcos should be validated, including models and data, is still in its formative stage.
175	Put a summary section at the beginning		Many	Many		There is a lot of great information in the Annex, but sometimes the information needed for the assessment is buried in sections describing the justification of that information. Thus a summary section should be added so a user can grab just the information they need without having the hunt in the entire document for it.		Accepted	Updated
176	Update iGRC development tables.		19-21, 68	N/A	Current tables have 5x values in pop density and 20x values in critical area	Use the final values in all the calculations and remove the concept of an "idealized" iGRC.	Update to 25x values in pop density and 8x values in critical area.	Accepted	a New iGRC table has been created to enable multiples of 5 in the population bands. These updates have been flowed through to other tables, and where nececessary, some tables removed
177	Update critical area values and assumptions in section A.4.2					Update values in section A.4.2		Accepted	Updated
178	Make examples clearer					Make it clear throughout the document that the examples are just examples to show the table works, not that the examples define the critical areas in the table.		Rejected	Although the authors can understand the potential misunderstanding, it is considered that due to the mathematical modelling, parameter description etc. that it is clear these are only examples.
179	40m wingspan critical area value		68		Value is 43,300	max critical area for 40m platform should be 80,000 m^2 as that's the maximum allowable using the principles set up in Annex F, the model produces a value less than this and that's ok, but the value should reflect what's acceptable vs. what the model states would happen in a conservative case (mostly used to justify the values not set them).	Update value to 80,000	Rejected	The numbers associated with 40m wingspan have been recalculated to allow population band changes

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180	Use of acronym RPAS			486 511 559		the acronym RPAS is used in a few occasions. However this acronym is not liste in Annex I. Furthermore the acronym most often used in SORA documents is UAS.	Replace occurrences of RPAS with UAS.	Accepted	RPAS, RPA, UAS and UA have been included in list of Acronyms
181	consideration of temporary / seasonal population densities increase			442	3 Determination of Population to Support iGRC	temporary / seasonal increase of pop A section could be added to address the topic of population density variation due to temporary events (typically cultural / sports events) or seasonal activities (typically tourism). Special consideration should be given to: * campsites, where the population can never be considered to be sheltered (due tot tents), * villages close in the region of touristic sites, where the population is alos likely to grow during school holydays * outdoor resorts which may get significantly crowded, depending on the actual activity and time		Accepted	Section has been added (see 3.5.2)
182	3.1.1 Determining the iGRC footprint			506-507	Modifying their route such that it avoids areas with higher population density, perhaps supported by more accurate mapping to that used in Step #2,	This consideration does not make sense: the definition of the operational volume should be frozen as part of Step #2 - doing otherwise will only result in confusion. As for population density mapping, this must be typically considered in Step #2. Anyway later in Annex F, it is clearly stated modification of the operational volume or more accurate mapping is outside the perimeter of M1. Annex B recalls the same.	DELETE this bullet. Alternatively, make it a note to highlight that such consideration must be addressed as part of Step #2 and are outside the scope of M1.	Partially Accepted	This text no longer exists in Annex F.
183	TYPO			1111	4.2.1 Reduction to the population assessment		4.2.1 Reduction of the population assessment	Partially Accepted	Section has been restructured and suggested grammar fix is no longer relevent
184	4.2.1 Reduction to the population assessment			1111 - 1121	Applicant conducts an appraisals/on-site inspections of the iGRC region and demonstrates that the assessed population is lower than that indicated in available population density maps. This might occur in residential areas during daytime (where the population migrates to work), or industrial areas at night (where the reverse occurs) The applicant makes use of dynamic density data (e.g. data made available by a UTM supplemental data service provider) relevant for the proposed area and restricts time of operation to substantiate a lower density of population at risk. This can incorporate real time or historical data or dasymmetric mapping techniques that are not part of standard maps used for Step #2.	It is a bit concerning that the reverse effect is not well presented in SORA: significant increase of the population density due to temporary events i.e. cultural events, sport events and seasonal events - typically significant population increase in otherwise close to deserted areas due to tourism. Special consideration should be given to: * campsites, where the population can never be considered to be sheltered (due tot tents), * villages close in the region of touristic sites, where the population is alos likely to grow during school holydays * outdoor resorts which may get significantly crowded, depending on the actual activity and time		Partially Accepted	Wording added to ensure both competent authorities don't restrict operations because there are special considerations, but also to highlight the validity that an increase in population density may be warranted due to these considerations.
185	TYPO			1145-1146	it is reasonable to consider that most of the non-active participants will be located under a structure		**demonstrate that it is reasonable to consider that most of the non-active participants will be located under a structure**	Rejected	This text is aligned with Annex B.
186	4.2.2 Sheltering			1145-1146	it is reasonable to consider that most of the non-active participants will be located under a structure	It could be complemented as proposed.	**demonstrate that it is reasonable to consider that most of the non-active participants will be located under a structure at the time of the overfly, with some time margin.**	Rejected	This text is aligned with Annex B.
						Ref. document: WG-SRM "SORA Annex I"			
12		Component Integrator	9		Entire definition	This new definition seems redundant with Component Manufacturer - could it be captured under it?	We suggest to remove it.	Partially accepted	Definitions of UAS component design and production organisation and UAS component installer added
2	Maximum characteristic dimension					Add the definition of maximum characteristic dimension of the UA		Accepted	New definition added
16		Integrated Airspace	12		Integrated Airspace is considered 500ft AGL up to VHL airspace (=FL600) and any airspace where manned aircraft will operate below 500ft. AGL for take-off and landing. It is airspace where UAS are expected to conform and comply with the existing manned aircraft operating rules, procedures and equipage.	The definition of "Integrated Airspace" may be overly complex, trigger some confusion for the reader (as there are already many airspace classes and categories), and contradict Competent Authorities' definitions. It should be up to Competent Authorities to define expectations and rules for operations in integrated and non-integrated airspace.	We suggest either removing it to avoid redundancies and confusion or amending the wording, e.g. "Integrated Airspace is considered as all airspace other than atypical air environments, that manned and unmanned aircraft are approved to operate in accordance with competent authorities' flight rules."	Accepted	defintion removed
20		Automation	8		"The execution of predefined processes or events that do not require direct UAS crew initiation and/or intervention."	The wording is confusing and not precise enough to distinguish it from "autonomous" aspect. It is even false when mentioning that it "do not require direct UAS crew initiation" since a crew may on the opposite trigger an automation. For e.g. FAA refers to "[...] Wiener's definition of cockpit automation, changed slightly to be appropriate for aviation maintenance. Automation means that "...some tasks or portions of tasks [normally] performed by the human [AMT] can be assigned to machinery" or computers. Thus, automation refers to any system in which the human worker is supported by mechanized or computerized components." (ref: https://www.faa.gov/about/initiatives/maintenance_hf/library/documents/media/human_factors_maintenance/human_factors_guide_for_aviation_maintenance_-_chapter.9.automation.pdf). There is also probably a need to define "Automated UA" as compared with "Autonomous UA", the latter being not authorized within the SPECIFIC Category (https://www.easa.europa.eu/en/faq/116449)	**Change "Automation" definition by the following:** **"Any system in which the UAS crew is supported by mechanized or computerized components executing predefined processes and may or may not require direct UAS crew initiation"** **and/or add "Automated UA" definition:** **"An UA that, depending on the level of implemented automation, requires low to almost no intervention of the pilot in the management of the flight."**	Accepted	Text updated

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38		safety	14	33	The state in which the risk of harm to persons or property is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management	To inline with current ICAO defination as stated in Annex 19 and Doc 9859	Safety is the state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.	Acknowledged	the current definition is more tailored to the risk associted with a drone operation
48		List of abbreviation		31	iGRC: intrinsic ground class	Modify in accordance with the definition 'initial ground risk class'	iGRC initial ground risk class	Accepted	Text updated
49	Source Citations	3	6	33	ALL of the definitions, but especially the newer ones in this change if you only want to address changed material.	In the introduction, it says "where possible, definitions have been based on those used within ICAO, and other NAA regulatory material." There should be references for each definition, especially the ones that come from ICAO or other NAA regulatory material. Use of references will help harmonize use of these definitions and add to the credibility of this work even when the definition is derived from more than one reference. It is okay to have some definitions created by JARUS, but those should be identified here as well.	Add a reference for each definition, especially the ones that are from ICAO or other NAA regulatory material.	Acknowledged	Even if the proposal has good value, it will require quite an amount of work not compatible with the current timeline. it may be conducted in futre versions of Sora
17		Rural Air Volume	14		In the context of the air risk, the volume not defined as urban environment and not within the aerodrome traffic zone (ATZ) of an airport.	Rural Air Volume definition is a qualitative definition - a quantitive definition would be clearer.	We suggest including a quantitative definition.	Rejected	The definition will be amended when the quantitative methodology for the air risk will be introduced with SORA 3.0
18		Urban Air Volume	16		In the context of the air risk, it is the volume above a town or a city, starting from ground, where there is a higher probability that air operations (with or without pilots on board) may take place for several purposes (e.g. aerial work, delivery, transport, emergency, ect.).	Urban Air Volume definition is a qualitative definition - a quantitive definition would be clearer.	We suggest including a quantitative definition.	Rejected	The definition will be amended when the quantitative methodology for the air risk will be introduced with SORA 3.0
21		Atypical Airspace	8		"Atypical air environment"	Keep the common wording used in other part of the document (i.e. Atypical Airspace)	**Atypical Airspace**	Rejected	The term airspace may create confusion with airspace classes, All the occurrences in mainbody has been amended
24		Geo-fencing	11		"An automatic function for preventing the UA from entering aa prescribed volume."	Same comment as above Comment #4	**"A function that helps the pilot or controls automatically the unmanned aircraft to prevent from entering into geographical zones which are declared restricted to this unmanned aircraft, for various reasons and not only safety"**	Rejected	The geofencing prevents the UA from enterin a zone. In EU it will be used to enter geographica zones. In other partof the world different approaches may be defined.
27		Unmanned aircraft	16		"An aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board."	Same comment as above Comment #1 above: "Autonomous UA"are not authorized within the SPECIFIC Category (https://www.easa.europa.eu/en/faq/116449)	"An aircraft operating or designed to operate ~~autonomously~~ **with various levels of automation** or to be piloted remotely without a pilot on board."	Rejected	Ar remote pilot is needed for drones having different level of automation, expept when we reach the highest level (autonomous)
28		Very low levelairspace	17		"The airspace from ground level to 500 ft AGL. The altitude of 500 ft AGL is not a hard value, but an initial value used in this assessment as a starting point for discussion […]"	The altitude should be 400ft AGL as used already in many countries as a basis for an upper limit. This leaves 100ft between the upper limit and the lower one in aviation (500Ft) to keep a safety buffer.	"The airspace from ground level to ~~500~~ **400 ft AGL**. ~~**The altitude of 500** **ft AGL is not a hard value, but an initial value used in this assessment as a starting point for discussion**~~ […]"	Rejected	The typical height of VLL is 500ft. The safety buffer proposed in the comment is taken into account by the height of the contingency volume
29		UAS Awareness Safety Training	N/A		N/A	Consistent with proposals made : In SORA Main Body comment #21 about Page 34, line 793 In Annex B, comment #1 about Page 3, line 23 A definition for the proposed M3 mitigation should be added.	**M3 - UAS Awareness Safety Training (for initially non-involved people at site of operations)** **A training to raise awareness of initially non-involved people at the site of operations, hence making them involved people thanks to the acquired knowledge about the deployed UAS (area of operations, height, type of UA, organisation in charge, behaviour of the UA in case of Emergency and behavior of people in case of such an Emergency, etc.)**	Rejected	this does not belong to Annex I, to be considered for Annex E
31			13		Not applicable	Add NMAC definition		Rejected	This term is not used in SORA 2.5
34			4	31		No Abbreviations on RPAS	To add RPAS abbreviation	Rejected	This term is not used in SORA 2.5
35			4	31	MCC - multi-crew cooperation	Inside OSO MCC also state for multi-crew coordination	multi-crew coordination	Accepted	Multi c rew cooperation never used in SORA
36			8	33	Atypical air environment	To syncronise with SORA main body	Atypical airspace	Accepted	main body updated
40	Missing acronym					Missing “UAO – UA Observer”	Add “UAO – UA Observer” to the list and add this definition in the definitions table (“UA Observer – a person, positioned alongside the remote pilot, who, by unaided visual observation of the unmanned aircraft, assist the remote pilot in keeping the unmanned aircraft in VLOS and safely conducting the flight”	Rejected	This term is not used in SORA 2.5
44	abbreviations	n/a	n/a	31	n/a	Please add to the list of abbreviations and add the definition to the definitions list :	"UAO - UA Observer" ("UA Observer - a person, positioned alongside the remote pilot, who, by unaided visual observation of the unmanned aircraft, assists the remote pilot in keeping the unmanned aircraft in VLOS and safely conducting the flight")	Rejected	This term is not used in SORA 2.5
47	abbreviations	n/a	n/a	31	n/a	Add new abbreviations as mentioned in the Excel feedback sheet for SORA main body (fGRC, iARC, rARC)	n/a	Rejected	These abbreviations are not used
42	Missing acronym					Missing “STS – Standard Scenario”	Add “STS – Standard Scenario” to the list and add the abbreviation in the definitions table (p. 15)	Rejected	Acronym not used in SORA
22		Controlled ground are	10		"Ground area where the UAS is operated and within which the UAS operator can ensure that only involved persons are present"	The definition should match was is mentioned within the SORA main body page 32, paragraph (j), lines 708 to 711 and precising that"(j) the assurance that there will be uninvolved persons in the area of operation is under full responsibility of the operator."	**"Ground area where the UAS is operated and within which the presence (if any) of involved persons is guaranteed by and under the full responsibility of the operator."**	Partially accepted	Definition slightly amended to consider the case where the remote pilot is able to see the operaional area and to avoid to fly directly over uninvolved people. ""Ground area where the UAS is operated and within which the UAS operator can ensure that only involved persons are overflown"""
1	ConOps					Clarify the semantics whether ConOps is used and in which context and its relation to Operations Manual		Acknowledged	The word 'CONOPS' has been removed from SORA 2.5

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5	VLOS		17	33		Type of UAS operation in which, the remote pilot is able to maintain continuous unaided visual contact with the UA, allowing the remote pilot to control the flight path of the UA in relation to other aircraft, people and obstacles for the purpose of avoiding collisions.	In most cases the Pilot controls the flight path using information from his ground control unit. The visual information gathered is usually not allowing the remote pilot to control its flight path further than a few 10 or 100m. Could you clarify whether that is meant by VLOS distance or is it the distance up to which the pilot is able to see the UAS?	Acknowledged	VLOS is the distance at which the remote pilot is able to see the drone and avoid that it endanger other aircarft /obstacles. The definiton is slightly modified as following: Type of UAS operation in which, the remote pilot is able to maintain continuous unaided visual contact with the UA. This allows the remote pilot to control the flight path of the UA from the air risk persective, in relation to other aircraft and obstacles for the purpose of avoiding collisions.
26		Remote pilot (in command)	14		"Remote pilot (in command)"	Consistent with comment #7 in SORA Main Body regarding the same definition page 24, line 492 "Remote pilot" is restrictive given the number of new assignments/jobs emerging with regards to increasing automation. In some case we cannot even speak anymore of a remote pilot per se (No drone handling, just clicks and basic actions). Furthermore definition in Annex I and SORA Main body should be the same	"(i) Remote Pilot / Operative in Command – The remote pilot /operative that is designated by the operator as being in command and charged with the safe conduct of the flight."	Acknowledged	"Comment noted, however we need to keep coherence with ICAO defintinons. Add a foot note: the remote pilot should include any type of activity (see alejandro proposal) Note added defining that a remote pilot is needed even in case of high level of automation UA, "
3	Multiple Simultaneous Operations (MSO)					Include MSO definition, as agreed by JARUS whithin its task force.		Accepted	New defintion proposed by AW WG : Operations with the purpose of operating UA independent of each other under common control, such as: -One remote crew (Consisting out of one or more people involved in the operation of the UAs) monitors multiple UAs in a e.g. delivery network with fixed routes - One remote crew (Consisting out of one or more people involved in the operation of the UAs) monitors multiple UAs in a e.g. delivery network with free routes - One remote crew (Consisting out of one or more people involved in the operation of the UAs) monitors multiple UAs with different individual missions and different demand on monitoring/controlling
4	Swarm					Include Swarm definition		Accepted	New defintion proposed by AW WG : Operations with the purpose of operating UA dependent on each other under common control, such as for: - displays (entertainment); - carrying e.g. a heavy load together; - for monitoring/observation purpose; - etcc.
6		Airspace Observer (AO)	7	2	scanning of the airspace in which the UA is operating to identifyany	blank missing	scanning of the airspace in which the UA is operating to identify any	Accepted	Text updated
7			8		The planned and systematic actions necessary to provide adequate confidence that a product or process satisfies given requirements.	Currently the Assurance requirements are not often understood correctly. A declarative Assurance still means that the applicant has fulfilled all the Integrity criteria. Could Assurance be clarified with the following definition.	"Assurance is the required level of Verification by National authorities prior to granting an approval. All the integrity requirements must still be fulfilled by the UAS Operator, but the Verification of the implementation can happen prior to approval or after in auditing."	Accepted	Text updated
8			8		Assembly of people	Quantitative definition would be good to add as in SORA 2.5 main body.	Area where persons are unable to move quickly away in case of apotential UAS crash due to the density of the people present. (An assembly of people is expected to be over 10,000 people, which is the minimum number of people needed to treat a grouping of people as an assembly of people).	Accepted	Text updated
9		Accident	6	N/A	Definition of the accident	The current definition seems to inherit from the ICAO definition of an accident. One may however anticipate that such a definition will lead to huge numbers of accidents though the consequences are often "limited" to the UA itself. The notion of accident, as per ICAO Annex 13, however infers quite dramatic consequences . Do we need to keep this definition for which we do not control potential consequences in terms of notifications and statistics?	Consider excluding hull losses from the definition. They could be defined as serious incidents. Or maybe create a category to account for "fatal accident"	Accepted	Text updated
10		Accident	6		b) the UA sustains damage or structural failure which: (1) adversely affects the structural strength, performance or flight characteristics of the UA, and (2) would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the UA skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or	An *accident* has regulatory and legal definitions in many jurisdictions, so it should be removed and left up to the individual CAA to decide. Otherwise, it should be made specific to UA and not follow traditional crewed aircraft definitions. For example, many UA are designed to be frangible or disposable. The loss of the aircraft or the requirement for "major repair" in a safe manner should not be considered serious or reportable. A hard landing may often require what is currently defined as a "major repair" when there was little to no risk to safety. In a small UA context, an accident should focus on the consequence for the general public.	We suggest deleting the entire definition and leaving up to each CAA, or removing this section and replacing it with an external property damage value amount, such as $25,000.	Accepted	Text updated
11		Atypical Air Environment	8		(e.g. at a height below 30m AGL or 15m above an obstacle);	This example does not consider, helicopters do operate below 30m AGL and within 15m of an object (EMS, inspection, agricultural work).	We suggest to remove it.	Accepted	Example made more generic as following Defined as: a) Restricted Airspace or segregated Areas; b) Airspace where normally manned aircraft should not go (e.g.at a height low enough or close to an obstacle).

#	General Comment (Optional)	Item	Page	Line	Current Text	Comment	Proposed Text (Required)	Acceptance status	Release Comment
13		Critical Area	10		The ground area where persons would be expected to be impacted by the UA in the event of a loss control or an unplanned landing.	Critical Area is being defined against two different event types, i.e. a loss of control or an unplanned landing. The impact area in both events would be quite different. Moreover, calculations in Annex F only assume a loss of control in the calculation of critical area and not an unplanned landing.	We suggest removing "unplanned landing" if not relevant.	Accepted	Text updated
14		Flight Geography Area	11		The projection of the flight geography on the surface of the earth.	We do not see the need to differentiate the "Flight geography area" from the "Flight Geography" as the latter should cover the first. Also, we could not find the reference to "Flight geography area" in any SORA document, or understand its relevance in the process.	We suggest to remove it.	Accepted	Definition not used in SORA 2.5
15		Geo Fencing	11		entering **aa** prescribed volume	Grammar/typo	entering **a** prescribed volume	Accepted	Text updated
19	Remove or ammend the definition of Accident	N/A	6	33	b) the UA sustains damage or structural failure which: (1) adversely affects the structural strength, performance or flight characteristics of the UA, and (2) would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the UA skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or	The term 'Accident' in most geographical areas is defined at the national level due to the legal implications of the term. Currently this term is being defined in the context of traditional aviation and not taking into account the reality of uncrewed aircraft. For example, many UA are designed to be frangible or disposable and the loss of the aircraft or the requirement for "major repair" is often a safety measure to avoid serious incidents and does not represent per se a risk to safety. In the small UA context, accident should focus on the consequence to the general public.	Delete the entire definition and leave up to each CAA, or remove this section and replace with an external property damage value amount, such as $25,000.	Accepted	Text updated
23		Geo-caging	11		"An automatic function for keeping the UA within a prescribed volume"	The definition is not distinct enough from the Geo-fencing one and adds confusion. To ensure a better understanding and avoid interpretations, one should use definitions laid down by EUROCAE ED-270 instead as proposed in the book "The law of Unmanned Aircraft Systems" by Benjamyn I. Scott published by Kluwer Law International. See also elements from: 1. SESAR definitions (https://www.sesarju.eu/news/u-space-project-successfully-demonstrated-geofencing-technologies#:~:text=Geofences%20prevent%20drones%20from%20entering,altitude%20airspace%20safe%20for%20all.) 2. Eurocontrol Paragraph 3.4, page 19 of the "UAS ATM Airspace Assessment" discussion document (https://www.eurocontrol.int/sites/default/files/publication/files/uas-atm-airspace-assessment-v1.2-release-20181127.pdf)	**"A function that helps the UAS operator to maintain the UAS within the defined overall volume (a 'cage') which is divided into several sub-volumes: Flight geography, Contingency volume, Buffer and additional safety margins"**	Accepted	Text updated
25		Industry Standard	12		"A published document established by consensus and approved by a recognized body that sets out specifications and procedures to ensure that a material, product, method or service meets its purpose and consistently performs to its intended use. Standards are industry developed standards that define minimum safety and performance requirements of an acceptable product or a means of compliance to specific requirements. Standards organizations include, but are not limited to, the Radio Technical Commission for Aeronautics (RTCA), SAE International (SAE), ASTM International (ASTM), and the European Organization for Civil Aviation Equipment (EUROCAE)."	To ensure appropriate fairness, no organization should be mentioned.	"A published document established by consensus and approved by a recognized body that sets out specifications and procedures to ensure that a material, product, method or service meets its purpose and consistently performs to its intended use. Standards are industry developed standards that define minimum safety and performance requirements of an acceptable product or a means of compliance to specific requirements. ~~**Standards organizations include, but are not limited to, the Radio Technical Commission for Aeronautics (RTCA), SAE International (SAE), ASTM International (ASTM), and the European Organization for Civil Aviation Equipment (EUROCAE)."**~~	Accepted	Text updated
30			11		preventing the UA from entering aa prescribed volume	**a prescribed volume**	**a prescribed volume**	Accepted	Text updated
32					NONE	Add maximum characteristic dimension definition		Accepted	see comment #2
33	The terms of "Functional test" and "FTB-functional test based" shall be defined in annex I.	3. Glossary of terms	11	N/A	N/A	Given the fact that FTB is introduced in SORA V2.5, and not every one are quite familiar with this concept and approach, better define the terms of "Functional test" and "FTB-functional test based" in annex I which could facilitate understanding in UAS context.	Add 2 more definitions for "FT" and "FTB" in section **3. Glossary of terms**	Accepted	Text updated
37			14	33	The likelihood (probability) of occurrence and the associated level of hazard	To syncronise with SORA main body	the combination of the frequency (probability) of an occurrence and its associated level of severity	Accepted	Text updated
39	Missing acronym					Missing "RPIC – Remote Pilot In Command"	Add "RPIC – Remote Pilot In Command" to the list	Accepted	Text updated
41	Missing acronym					Missing "CAA – Civil Aviation Authority"	Add "CAA – Civil Aviation Authority" to the list	Accepted	Text updated
43	abbreviations	n/a	n/a	31	n/a	Please add to the list of abbreviations:	"RPIC - Remote Pilot In Command"	Accepted	Text updated
45	abbreviations	n/a	n/a	31	n/a	Please add to the list of abbreviations:	"CAA - Civil Aviation Authority"	Accepted	Text updated
46	abbreviations	n/a	n/a	31	n/a	Please add to the list of abbreviations and add the abbreviation in the definitions list (p. 15):	"STS - Standard Scenario"	Accepted	Text updated
50	Geo-fencing		11		"…entering aa prescribed volume."	Typographical error	"…entering a prescribed volume."	Accepted	Text updated+H1834:J1846A1796H1829:JA1083:J1846