



JARUS guidelines on SORA

Annex I

Glossary of Terms

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INTRODUCTION

This glossary is intended to assist applicants in using the SORA guidelines for the purpose of gaining authorization from the competent authority to operate an Unmanned Aircraft System in national airspace. The definitions represent the meanings understood and shared by the majority of the JARUS WG6 team, but do not reflect authority consensus on meaning or definition.

ANNEX I – Glossary of Terms

Term	Acronym	Definition
Abnormal situation		One in which it is no longer possible to continue the flight using normal procedures but the safety of the aircraft or persons on board or on the ground is not in danger.
Acceptable risk		The level of risk that individuals or groups are willing to accept given the benefits gained. Each organization will have its own acceptable risk level, which is derived from its legal and regulatory compliance responsibilities, its threat profile, and its business/organizational drivers and impacts.
Accident		An unplanned event or series of events that results in death, injury, or damage to, or loss of, equipment or property.
Adequate		What is necessary, desirable or sufficient for a specific requirement.
Aircraft operating manual*		A manual, acceptable to the State of the Operator, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft. Note: The aircraft operating manual is part of the operations manual.
Aircraft*		Any machine that can derive support in the atmosphere from the reactions of the air other than the reaction of the air against the earth’s surface.
Airframe		The fuselage, booms, nacelles, cowlings, fairings, airfoil surfaces (including rotors but excluding propellers and rotating airfoils of engines), and landing gear of an aircraft and their accessories and controls.
Airport Environment		Airport environment is generally defined as; <ul style="list-style-type: none"> a) Class A, B, C, D, or E controlled airspaces which touch the surface with an airport and/or controlled airspaces which do not touch the surface, but in connection to an airport (normally depicted on aeronautical charts and sectionals); or b) Any Mode C Veil (US) or TMZ (Europe) in Class A, B, C, D, or E, controlled airspace; or c) 5 nautical miles from an airport having an operational control tower; or d) 3 nautical miles from an airport with a published instrument flight procedure, but not an operational tower; or e) 2 nautical miles from an airport without a published instrument flight procedure or an operational tower; or f) 2 nautical miles from a heliport with a published instrument flight procedure.

Airspace Encounter Categories	AEC	The AEC is a qualitative classification of the rate at which a UAS would encounter a manned aircraft in typical civil airspace found in the U.S. and Europe. The airspace encounter risk was grouped by operational altitude, airport environment, controlled airspace, uncontrolled Mode C veil/TMZ airspace, and in uncontrolled airspace over rural and/or urban populations, into 12 categorizations. The AEC is based on the assessment of the proximity (the more aircraft in the airspace, the higher the rate of proximity, the greater the risk of collision), geometry (an airspace structure which reduces the rate at which aircraft find themselves on collision courses), and dynamics (. in general, the faster the speed of the aircraft in the airspace, the greater the number of collision risks over a set time). Airspace where there is a higher density of manned aircraft, few airspace structural controls, and high aircraft closing speeds, will experience higher airspace encounter rates than in airspace where there is low density, high airspace structure and slow speeds.
Airspace Risk Class	ARC	The ARC is an initial assignment of generic collision risk of airspace, before mitigations are applied. ARC is assigned to AEC based on a qualitative assessment of collision risk of generic types of airspace.
Airworthiness		The condition of an item (aircraft, aircraft system, or part) in which that item operates in a safe manner to accomplish its intended function.
Airworthy (for the purpose of the SORA)		A UAS is airworthy if the aircraft and all of its associated elements are in condition for safe operation.
Analysis Applicant		An evaluation based on decomposition into simple elements. In the context of the SORA, an applicant refers to the individual or organization who desires to operate a UAS in a limited or restricted manner and submits the necessary technical, operational and human information related to the intended use of the UAS for the NAA to evaluate the risks associated with the operation for the purpose of authorizing the operation in an agreed upon manner according to established conditions and limitations of the operation.
Approved Assessment		Accepted by the certification authority as suitable for a particular purpose. An evaluation based upon engineering judgment.
Assurance		The planned and systematic actions necessary to provide adequate confidence that a product or process satisfies given requirements.
Atypical Airspace		Atypical Airspace is defined as; a) Restricted Airspace or Danger Areas; b) Airspace where normal manned aircraft cannot go (e.g. airspace within 100 ft. of buildings or structures); c) Airspace characterization where the encounter rate of manned aircraft (encounter is defined as proximity of 3000 ft. horizontally and ± 350 ft. vertically) can be shown to be less than 1E-6 per flight hour during the operation); d) Airspace not covered in Airspace Encounter Categories (AEC) 1 through 12
Authority		The organization or person responsible within the State (Country) concerned with the certification of compliance with applicable requirements.
Authorization		UAS operational approval granted to an applicant by a NAA.

Automatic (function)		The execution of predefined processes or events that do not require direct UAS crew initiation and/or intervention.
Autonomous Aircraft*		An unmanned aircraft that does not allow pilot intervention in the management of the flight.
Autonomous operation*		An operation during which a remotely-piloted aircraft is operating without pilot intervention in the management of the flight.
Barrier		A material object or set of objects that separates, demarcates, or services as a barricade; or something immaterial that impedes or separates. <u>Both physical and non-physical barriers are utilized and applied in hazard control; i.e. anything used to control, prevent or impede unwanted adverse energy flow and / or anything used to control, prevent or impede unwanted event flow.</u>
Beyond Visual Line-of-Sight	BVLOS	For the purposes of this assessment, BVLOS is a means of flying the UAS without the direct, unaided visual supervision of the aircraft by the person manipulating the flight controls.
Bow-Tie representation		In the context of the SORA, a means chosen to illustrate the proposed risk model; it is not intended to support an application for authorization.
CAA	CAA	Civil Aviation Authority
Catastrophic Cause		Failure conditions that could result in one or more fatalities. Something that brings about an event; a person or thing that is the occasion of an action or state; a reason for an action or condition.
Certification		The legal recognition that a product, service, organization, or person complies with the applicable requirements. Such certification comprises the activity of technically checking the product, service, organization or person, and the formal recognition of compliance with the applicable requirements by issue of a certificate, license, approval, or other documents as required by national laws and procedures.
Chase aircraft		A manned aircraft flying in close proximity to UA (RPA) that carries a qualified observer and/or UA (RPA) pilot for the purpose of seeing and avoiding other aircraft and obstacles.
Civil aircraft		Aircraft other than public/state aircraft
Civil Aviation Authority	CAA	The government regulatory agency that governs aircraft, airmen, and operations. In the United States this is the Federal Aviation Administration (FAA).
Collision avoidance		Averting physical contact between an aircraft and any other object or terrain.
Controlled Airspace		For the purposes of this assessment, Controlled Airspace is defined as Class A, B, C, D, and E airspace. Controlled airspace does not imply separation services are provided at all times.
Command and control link*		The data link between the remotely-piloted aircraft and the remote pilot station for the purposes of managing the flight.
Commercial-Off-The-Shelf	COTS	Components designed to be implemented into existing systems without extensive customization and for which design data are not always available to the customer.
Complexity		An attribute of systems or items which makes their operation difficult to comprehend. Increased system complexity is often caused by such items as sophisticated components and multiple interrelationships.

Compliance		Successful performance of all mandatory activities; agreement between the expected or specified result and the actual result.
Component		Any self-contained part, combination of parts, subassemblies or units, which perform a distinct function necessary to the operation of the system.
Concept of Operations	ConOps	A user-oriented document that describes systems characteristics for a proposed system from a user's perspective. A CONOPS also describes the user organization, mission, and objectives from an integrated systems point of view and is used to communicate overall quantitative and qualitative system characteristics to stakeholders.
Configuration		The requirements, design and implementation that define a particular version of a system or system component.
Configuration control/management		The process of evaluating, approving or disapproving, and coordinating changes to configuration items after formal establishment of their configuration identification.
Consensus standard		Consensus 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).
Contingency procedures		Planned course of action designed to help an organization respond effectively to a significant future event or situation that may or may not happen.
Control (safety risk)		A means to reduce or eliminate the effects of hazards.
Control Station	CS	The equipment used to maintain control, communicate, guide, or otherwise pilot an unmanned aircraft.
Controlled airspace*		Airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification. Note: Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E as described in Annex 11, 2.6.
Cooperative aircraft		Aircraft that have an electronic means of identification (i.e., a transponder) aboard and operating.
Critical (function)		A function whose loss would prevent the continued safe flight and landing of the unmanned aircraft (UA).
Critical infrastructure		Means systems and assets vital to national defense, national security, economic security, public health or safety including both regional and national infrastructure.
Critical systems		Systems needed to perform one or more safety functions, in which failure would cause a significant increase in the safety risk for the third parties and/or environment involved.
Criticality		The degree of impact that a malfunction has on the operation of a system.
Danger area*		A danger area is an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.
Datalink		A term referring to all interconnections to, from and within the remotely piloted aircraft system. It includes control, flight status, communication, and payload links.
Demonstration		A method of proof of performance by observation.

Detect and Avoid*	DAA	The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action to comply with the acceptable rules of flight.
Effect		The real or credible harmful outcome that has occurred or can be expected if the hazard occurs in the defined system state.
Emergency recovery capability	ERC	UAS safety feature that provides for the cessation UA flight in a manner that minimizes risk to persons on the ground, other airspace users and critical infrastructure.
Emergency procedures		Procedures that are executed by the UA pilot in command or by the aircraft to mitigate the effect of failures that cause or lead to an emergency condition.
Emergency Response Plan	ERP	Plan of actions to be conducted in a certain order or manner, in response to an emergency event.
Engineering judgment		Refers to the decision made by an engineer based on the available data to propose a design or a line of action.
Environment		(a) The aggregate of operational and ambient conditions to include the external procedures, conditions, and objects that affect the development, operation, and maintenance of a system. Operational conditions include traffic density, communication density, workload, etc. Ambient conditions include weather, EMI, vibration, acoustics, etc. (b) Everything external to a system which can affect or be affected by the system.
Equipment		A complete assembly—operating either independently or within a system/sub-system—that performs a specific function.
European Aviation Safety Agency	EASA	Agency of the European Union (EU) with regulatory and executive tasks in the field of civilian aviation safety.
Evaluate		A comprehensive review of an applicant’s UAS and all associated elements of the system. The applicant is expected to provide any and all information necessary to allow the NAA to objectively determine if the aircraft can be safely operated in accordance with the proposed ConOps.
Extended Visual Line of Sight	EVLOS	An Unmanned Aircraft System (UAS) operation whereby the Pilot in Command (PIC) maintains an uninterrupted situational awareness of the airspace in which the UAS operation is being conducted via visual airspace surveillance, possibly aided by technology means. The PIC has a direct control of the UAS at all time.
Failure		A loss of function or a malfunction of a system or a part thereof.
Failure mode		The way in which the failure of an item occurs.
Federal Aviation Administration	FAA	National aviation authority of the United States which has authority to regulate and oversee all aspects of American civil aviation.
Flight manual*		A manual, associated with the certificate of airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.
Flight termination (system)		Flight termination is a system, procedure or function which aims to immediately end the flight.
Frequency		The number of times that something happens during a particular period
Geo-fencing		An automatic limitation of the airspace a UA can enter.
Guidelines		Recommended procedures for complying with regulations.

Handover*		The act of passing piloting control from one remote pilot station to another.
Hardware		An object that has physical being. Generally refers to LRUs, circuit cards, power supplies, etc.
Harm		The term harm, for the purpose of this document, relates to undesired events defined as: a. Fatal injuries to third parties on the ground b. Fatal injuries to third parties in the air (Catastrophic MAC with a manned aircraft) c. Damage to critical infrastructure.
Harm identification		The identification of the harm for which the risk needs to be assessed. For the purposes of this document three categories of harm have been identified: a. Fatal injuries to third parties on the ground b. Fatal injuries to third parties in the air (Catastrophic MAC with a manned aircraft) c. Damage to critical infrastructure.
Harm likelihood estimation		The estimation (qualitative or quantitative) of the likelihood of the retained harm.
Hazard		A potentially unsafe condition resulting from failures, malfunctions, external events, errors, or a combination thereof.
Hazard identification		Identification of a potentially unsafe condition resulting from failures, malfunctions, external events, errors, or a combination thereof.
Holistic		Characterized by comprehension of the parts of something as intimately interconnected and explicable only by reference to the whole.
Holistic Risk Model	HRM	Provides a generic framework to identify the threats, hazards and controls applicable to any UAS operation.
Human error		Human action with unintended consequences.
Human Factors	HF	Human-machine interface issues with UAS control station displays, controls, functionality, automation, operator workload and system maintainability.
Human Factors principles*		Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.
Human performance*		Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.
Incident		An occurrence other than an accident that affects or could affect the safety of operations.
Inspection		An examination of an item against a specific standard.
Intrinsic		Belonging to a thing by its very nature
Integrated Airspace	IA	For the purposes of this assessment, Integrated Airspace is considered 500 ft. AGL up to VHL airspace (≈FL600) and any airspace where manned aircraft will operate below 500 ft. 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 equipment.
Integrity		Attribute of a system or an item indicating that it can be relied upon to work correctly on demand.
International Civil Aviation Organization	ICAO	A specialized agency of the United Nations that promotes the safe and orderly development of international civil aviation throughout the world.
Kinetic Energy	KE	Kinetic energy is energy of an object due to its motion. It is directly related to the mass or weight of the objective. Kinetic Energy = $\frac{1}{2}$ Mass x Velocity ²

Likelihood		Estimation of the degree of confidence one may have in the occurrence of an event.
Likelihood estimation		The estimation (qualitative or quantitative) of the likelihood of the retained undesired event's harm.
Operation out of control (UAS)		An operation being conducted, outside of the approved operations.
Lost link* (loss of datalink)		The loss of command and control link contact with the remotely-piloted aircraft such that the remote pilot can no longer manage the aircraft's flight.
Maintenance		Inspection, overhaul, repair, preservation, and the replacement of parts.
Malfunction		The occurrence of a condition whereby the operation is outside specified limits.
Methodology		A set of methods and principles used to perform a particular activity.
Mid Air Collision	MAC	An accident where two aircraft come into contact with each other while both are in flight.
Minimum Aviation System Performance Standards	MASPS	A MASPS specifies characteristics that should be useful to designers, installers, manufacturers, service providers and users of systems intended for operational use within a defined airspace. Where the systems are global in nature, the system may have international applications that are taken in to consideration. The MASPS describes the system (subsystems / functions) and provides information needed to understand the rationale for system characteristics, operational goals, requirements and typical applications. Definitions and assumptions essential to proper understanding of the MASPS are provided as well as minimum system test procedures to verify system performance compliance (e.g., end-to-end performance verification).
Mitigation		A means to reduce the risk of a hazard.
Minimum Operational Performance Specification	MOPS	A MOPS provides standards for specific equipment(s) useful to designers, manufacturers, installers and users of the equipment. The word "equipment" used in a MOPS includes all components and units necessary for the system to properly perform its intended function(s). The MOPS provides the information needed to understand the rationale for equipment characteristics and requirements stated. The MOPS describes typical equipment applications and operational goals and establishes the basis for required performance under the standard. Definitions and assumptions essential to proper understanding are provided as well as installed equipment tests and operational performance characteristics for equipment installations.
National Authorities	Aviation NAA	A government statutory authority in each country that oversees the approval and regulation of civil aviation.
Night*		The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise, as may be prescribed by the appropriate authority. Note: Civil twilight degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon.
Operations manual		A manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.
Operator*		A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Parachute		A device used or intended to be used to retard the fall of a body or object through the air.
Participant (Active)		Active participants are those persons directly involved with the operation of the UAS or fully aware that the UAS operation is being conducted near them. Active participants are fully aware of the risks involved with the UAS operation and have accepted these risks. Active participants are informed on and able to follow relevant effective emergency procedures and/or contingency plans.
Participant (Non-Active)		Non-Active participants are those persons who are located near a UAS operation and may or may not be aware that a UAS operation is being conducted. Passive participants may or may not be aware of the risks associated with the operation and have not accepted these risks.
Pilot (In Command)*	PIC	The pilot responsible for the operation and safety of an aircraft during flight time.
Population density		The number of people living per unit of an area (e.g. per square mile); the number of people relative to the space occupied by them.
Practice		Recommended methods, rules, and designs for voluntary compliance.
Probability		The measure of the likelihood that an event will occur.
Procedure		Standard, detailed steps that prescribe how to perform specific tasks.
Process		Set of inter-related resources and activities, which transform inputs into outputs.
Qualification		Process through which a State/approval authority/applicant ensures that a specific implementation satisfies applicable requirements with a level of confidence.
Qualified Entities	QE	Qualified entities are organizations which possess the necessary expertise and technical experience to verify on behalf of the National Aviation Authority the compliance of common requirements.
Quantification		The act of assigning a numerical value to or measuring the probability that a specific event will occur.
Reliability		The probability that an item will perform a required function under specified conditions, without failure, for a specified period of time.
Remote crew member*		A licensed crew member charged with duties essential to the operation of a remotely piloted aircraft, during flight time.
Risk		The frequency (probability) of occurrence and the associated level of hazard.
Risk analysis		The development of qualitative and / or quantitative estimate of risk based on evaluation and mathematical techniques.
Risk Assessment	RA	The process by which the results of risk analysis are used to make decisions.
Risk estimation		The combination of the consequences and likelihood of the harm.
Risk Ratio	RR	The risk ratio is the ratio between a conditional probability with a mitigating system, divided by a conditional probability without a mitigating system. The conditional probability is, given an encounter, an NMAC occurs. An encounter is defined as proximity of 3000 ft. horizontally and ± 350 ft. vertically. An NMAC is defined as proximity of 500 ft. horizontally and ±100 ft. vertically.
Robustness		Strong and effective in all or most situations and conditions
Rotorcraft		A heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors.

Rural Population		For the purposes of this assessment, Rural Population is defined as all areas not defined as Urban population and not within an airport environment.
Safety*		Safety is 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.
Safety objective		A measurable goal or desirable outcome related to safety.
Safety risk		The composite of predicted severity and likelihood of the potential effect of a hazard.
SDAF Loop	SDAF	See, Decide, Action, and Feedback Loop. This is a very simplified structure of a Tactical Conflict Mitigation scheme. See Tactical Mitigation
See and Avoid	S&A	The requirement of the pilot of an aircraft to “see” and “avoid” a collision, and to remain well clear of other aircraft in accordance with, 14 CFR 91.113, SERA 3201, and ICAO Annex 2 section 3.2.
Segregated airspace*		Airspace of specified dimensions allocated for exclusive use to a specific user(s).
Sense and Avoid	SAA	See Detect and Avoid
Ground Based Sense and Avoid	GBSAA	Ground-based means of detecting airborne traffic and providing the necessary intelligence to the Unmanned Aircraft System (UAS) to mitigate the inability for a UAS pilot to directly see and avoid other aircraft or to provide an alternate means of compliance to “See and Avoid” regulations.
Airborne Sense and Avoid	ABSAA	Capability onboard the unmanned aircraft to perform both separation and collision avoidance functions to mitigate the inability for a UAS pilot to directly see and avoid other aircraft or to provide an alternate means of compliance to “See and Avoid” regulations.
Separation*		Maintaining a specific minimum distance between an aircraft and another aircraft or terrain to avoid collisions, normally by requiring aircraft to fly at set levels or level bands, on set routes or in certain directions, or by controlling an aircraft's speed.
Sequence diagram		An interaction diagram that shows how processes operate with one another and what is their order.
Severity		The consequence or impact of a hazard’s effect or outcome in terms of degree of loss or harm.
Software		Computer programs, procedures, rules, and any associated documentation pertaining to the operation of a computer system.
Specific Category		Category of RPAS where a proportionate approach to the assessment of the risk will be taken by requiring the RPA operator to present a Specific Operation Risk Assessment of the RPA operation before operational approval will be granted by the appropriate aviation “authority”.
Specific Operational Risk Assessment	SORA	A means by which an aircraft operator is granted approval by certifying authorities to operate an unmanned aircraft system within the limitations set forth by the authorities in the Specific Category.
Standard		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.

Standard Procedure	Operating SOP	A set of instructions covering those features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness.
Standard Scenario		A description of a type of UAS operation, for which a specific operations risk assessment (SORA) has been conducted and on the basis of which mitigations means have been proposed which are deemed acceptable by the competent authority.
Strategic Mitigation	Conflict	For the purposes of this assessment, Strategic Conflict mitigation consists of procedures aimed at reducing the UAS encounter rates prior to UAS take-off. Strategic mitigation is about controlling or mitigating risk by reducing local aircraft density or time of exposure of an individual UAS. These mitigations tend to take the form of operational restrictions of time or space. Strategic Mitigation does not fulfil the 14 CFR 91.113, SERA 3201, or ICAO Annex 2 section 3.2 to “See and Avoid.” (Examples of Strategic Mitigation; an operational restriction to fly between the hours of 10PM and 3 AM; operational restriction to stay below 500 feet AGL; operational restriction to stay within 1 mile of a geographic location; etc.). Strategic Mitigation traces to the strategic layer of ICAO’s Conflict Management concept.
System		A combination of inter-related items arranged to perform a specific function(s).
System safety		System safety is a specialty within system engineering that supports program risk management. It is the application of engineering and management principles, criteria and techniques to optimize safety. The goal of System Safety is to optimize safety by the identification of safety related risks, eliminating or controlling them by design and/or procedures, based on acceptable system safety precedence.
Tactical Conflict Mitigation		For the purposes of this assessment, Tactical Conflict Mitigation is the act of mitigating collision risk over a very short time horizon (minutes to seconds). Tactical Mitigations take the form of SDAF loop’s (See, Decide, Action, and Feedback Loop). Tactical Mitigation systems operate using a sensor to “see” the threat, “deciding” how to mitigate the risk, “acting” on the decision, and then having a system feedback in order to monitor the risk, and implement new corrections if needed. Tactical Mitigation may fulfil the 14 CFR 91.113, SERA 3201 and ICAO Annex 2 section 3.2 “See and Avoid” requirement. (Examples of Tactical Mitigation; TCAS, ATC, ACAS, MIDCAS, DAA, ABSAA, GBSAA, See and Avoid, etc.). Tactical Mitigation traces to the separation provision and collision avoidance layers of ICAO’s Conflict Management concept.
Testing		The process of operating a system under specified conditions, observing or recording the results, and making an evaluation of some aspect of the system.
Third Party		Deriving no economic benefit and no control over risk associated with the UAS operation.
Threat		In the context of the Holistic Risk Model, a threat is defined as an occurrence that in the absence of appropriate threat barriers can potentially result in the hazard.

UAS Traffic Management (UTM)

A System of Systems that will develop airspace integration requirements to enabling safe, efficient VLL operations. The system is in the very early stages of development and the full extent of its capabilities remains unknown.

Uncontrolled Airspace For the purposes of this assessment, Uncontrolled Airspace is defined as Class G airspace.

Unmanned Aircraft* UA An aircraft which is intended to operate with no pilot on board.

Unmanned Aircraft System* UAS An aircraft and its associated elements which are operated with no pilot on board.

Urban population For the purposes of this assessment, Urban Population is defined as ½ nm (3038 ft.) buffer around all Urbanized Areas / Urbanized Areas are defined as an area containing an average population of 500 people per square mile (1295 people per square kilometer).

Validated A term used to describe controls/safety requirements that are unambiguous, correct, complete, and verifiable.

Verified A term used to describe controls/safety requirements that are objectively determined to have been met by the design solution.

Very High Level airspace VHL For the purposes of this assessment, VHL airspace is considered FL600 and above. The altitude of FL600 is not hard value, but initial value used in this assessment as a starting point for discussion, and may be adjusted by the regulating authorities as needed. UAS operating in VHL airspace may have to comply with operating rules, procedures, and equipage not yet identified. VHL is airspace where manned aircraft operations are very infrequent.

Very Low Level airspace VLL For the purposes of this assessment, VLL airspace is considered 500 ft. AGL and below. The altitude of 500 ft. AGL is not hard value, but initial value used in this assessment as a starting point for discussion, and may be adjusted by the regulating authorities as needed. UAS operating in VLL airspace may have to comply with operating rules, procedures, and equipage not yet identified. VLL is airspace where manned aircraft operations are very infrequent. VLL airspace excludes Class A, B, C, D, E, and F airspaces, and airport environments.

Visual Observer VO A trained person acting as a flightcrew member who assists the UA remote pilot in command (PIC) and the person manipulating the controls to see and avoid other air traffic or objects aloft or on the ground.

Visual Line-of-Sight VLOS For the purposes of this assessment, VLOS is the pilot in command and the person manipulating the flight controls, keeping the UAS close enough to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses, and seeing and avoiding all threats and hazards.

