Categorization paper on UAS: Harmonised Military Safety Principles for Unmanned Aircraft Systems, in a risk-based approach

Edition Number	**1.0**
Edition Date	**13 November 2024**
Status	**Approved by MAWA**

The following documents, initially developed separately, must be considered together in a holistic approach for a UAS risk-based/performance-based regulation. They are now merged in this overview document:

- The Basic Military Safety Principles for all types of UAS operations (based on the TSAMA initial deliverable[1] for "large" UAS[2], merged with the MAWA Basic Framework Document[3] Edition 4 Annex C)
- Working Paper: Initial set of essential UAS-related Terms and Definitions (V1.0)[4]
- Working Paper: Details on the Categories of Military UAS Operations (V1.8/9)

[1] Endorsed by ESMAB Policy in January 2021
[2] When defining the Safety principles for the "BASIC MILITARY SAFETY PRINCIPLES FOR "LARGE/CERTIFIED" UNMANNED AIRCRAFT SYSTEMS" in the framework of the TSAMA Test Case, the TSAMA experts noticed that the principles included in the TSAMA document are valid for ALL UAS/UAS operations
[3] Endorsed by MAWA Forum in November 2021
[4] Endorsed by ESMAB Policy in July 2023

The content of this working paper is divided in two parts according to the following correspondence:

In this overview document	Civilian regulation correspondence for the content
Part A • Article 1: Objective and aim • Article 2: Essential requirements for UAS • Article 3: Compliance of UAS • Article 4: National rules **Annex to Part A: Safety and environmental principles for UAS operations**	**Basic Regulation (Regulation (EU) 2018/1139)** • Article 1: subject matter and objectives • (Article 3: Definitions) • Article 55: Essential requirements for unmanned aircraft • Article 56: Compliance of unmanned aircraft **Annex IX: Essential requirements for unmanned aircraft** Note: considering also Article 2 bullet 3: scope ("*This Regulation shall not apply to…")*
Part B • Article 1: Objective/subject matter • Article 2: Definitions • Article 3: Categories of UAS operations • Article 4: MIL-UAS-OPEN category of operations • Article 5: MIL-UAS-SPECIFIC category of operations • Article 6: MIL-UAS-SPECIFIC category of operations • Article 7: Rules and procedures for the operation of UAS • Article 8: Rules and procedures for the competency of remote pilots • Article 10: Rules and procedures for the airworthiness of UAS • Article 11: Rules for conducting an operational risk assessment • Article 12: Authorising operations in the 'specific' category • Article 17: Designation of the competent authority • Article 18: Tasks of the competent authority • Article 19: Tasks of the competent authority	**Implementing act (Regulation (EU) 2019/947** and its amendments). • Article 1: Subject matter • Article 2: Definitions • Article 3: Categories of UAS operations • Article 4: 'Open' category of UAS operations • Article 5: 'Specific' category of UAS operations • Article 6: 'Certified' category of UAS operations • Article 7: Rules and procedures for the operation of UAS • Article 8: Rules and procedures for the competency of remote pilots • Article 10: Rules and procedures for the airworthiness of UAS • Article 11: Rules for conducting an operational risk assessment • Article 12: Authorising operations in the 'specific' category • Article 17: Designation of the competent authority • Article 18: Tasks of the competent authority • Article 19: Safety information **Delegated act (Regulation (EU) 2019/945)** and its amendments. • Article 40: Requirements for UAS operated in the 'certified' and 'specific' categories except when conducted under a declaration

In addition, military specificities agreed in ESMAB and/or MAWA are added in the text.

PART A

BASIC MILITARY AVIATION SAFETY PRINCIPLES FOR UNMANNED AIRCRAFT SYSTEMS

This PART A includes the basic Military Aviation Safety Principles[5], developed in line with the basic Civil Essential Requirements (EASA), yet adapted to military specificities, and in accordance with Article 2.3 of the Regulation (EU) 2018/1139.

Article 1: Objective and aim

1. The principal objective of the basic Military Safety Principles for UAS is to contribute to establishing and maintaining a high uniform level of Military Aviation Safety while improving Military mission effectiveness and responsiveness.

2. The basic Military Safety Principles for UAS further aim to:

    a. support pMS' Military Aviation Authorities, when issuing regulations for their Military UAS, that they will have due regard for the safety of navigation of civil aircraft;

    b. reduce investment and support costs of Military UAS programmes by promoting, in the fields covered by the Safety Principles for UAS, technical and operational interoperability and the sharing of best practices;

    c. facilitate, in the fields covered by the Safety Principles for UAS, the unmanned aircraft cross border operations, by establishing appropriate cooperation between Military aviation authorities;

    d. promote, EU wide, the views of the Military regarding Military aviation standards and Military aviation rules, by establishing appropriate cooperation with relevant EU, NATO and international civil organisations.

Article 2: Essential requirements for UAS[6]

1. The design, production, maintenance and operation of unmanned aircraft, and their engines, propellers, parts, non-installed equipment and equipment to control them remotely, as well as the personnel, including remote pilots, and organisations involved in those activities, shall take into consideration the Safety Principles set out in the Annex to this PART A.

Article 3: Compliance of UAS[7]

1. Taking into account the objectives to having due regard for the safety of navigation of civil aircraft, to establish and maintain a high uniform level of Military aviation safety in the Union, and in particular the nature and risk of the activity concerned, the operational characteristics of

5 "Basic Military Aviation Safety Principles" are abbreviated "Safety Principles" in the rest of this overview document. The word "Requirements" from the civilian regulation is replaced by "principles" in this overview document.
6 Corresponds to Basic Regulation (EU) 2018/1139 Article 55
7 Corresponds to Basic Regulation (EU) 2018/1139 Article 56 bullets 1 to 4

the unmanned aircraft concerned and the characteristics of area of operation, a certificate may be required for the design, production, maintenance and operation of unmanned aircraft and their engines, propellers, parts, non-installed equipment and equipment to control them remotely, as well as for the personnel, including remote pilots, and organisations involved in those activities.

2. The certificate referred to in this PART A Article 3 bullet 1 shall be issued by the competent authority upon application, when the applicant has demonstrated that it complies with the Safety Principles set out in the Annex to this PART A.

3. The certificate referred to in this PART A Article 3 bullet 1 shall specify the safety-related limitations, operating conditions and privileges. The certificate may be amended by the competent authority to add or remove limitations, conditions and privileges in accordance with the Safety Principles set out in the Annex to this PART A.

4. The certificate referred to in this PART A Article 3 bullet 1 may be limited, suspended or revoked by the competent authority when the holder no longer complies with the conditions, rules and procedures for issuing or maintaining such certificate in accordance with the Safety Principles set out in the Annex to this PART A.

Article 4: National rules[8]

1. This PART A shall be without prejudice to the possibility for Member States to lay down national rules to make subject to certain conditions the operations of military unmanned aircraft systems for reasons falling outside the scope of the Safety Principles set out in this overview document, including national security and defence, public security or protection of privacy and personal data in accordance with the Union law.

Annex to PART A[9]
Safety and environmental principles for UAS operations

1. **SAFETY PRINCIPLES FOR THE DESIGN, PRODUCTION, MAINTENANCE AND OPERATION OF UNMANNED AIRCRAFT SYSTEMS**

The following Safety Principles are valid for **all UAS operations**.

1.1. The operator and the remote pilot of an unmanned aircraft system must be aware of the applicable rules relating to the intended operations, in particular with regard to safety, privacy, data protection, liability, insurance, security and environmental protection. The operator and the remote pilot must be able to ensure the safety of operation and safe separation of the unmanned aircraft from people on the ground and from other airspace users. This includes good knowledge of the operating instructions provided by the producer, of safe and environmentally-friendly use of unmanned aircraft in the airspace, and of all relevant

[8] This article 4 corresponds to EASA BR Article 56 bullet 8. The Regulation (EU) 2018/1139 Article 57 (Implementing Act) and 58 (Delegated powers) are not mirrored in this working paper.
[9] Corresponds to Annex IX of the Regulation (EU) 2018/1139 dedicated to UAS

functionalities of the unmanned aircraft and applicable rules of the air and ATM/ANS procedures.

1.2. An unmanned aircraft system must be designed and constructed so that it is fit for its intended function, and can be operated, adjusted and maintained without putting persons at risk.

1.3. If necessary to mitigate risks pertaining to safety, privacy, protection of personal data, security or the environment, arising from the operation, the unmanned aircraft shall be equipped with due regard to the corresponding and specific features and functionalities which take into account the principles of privacy and protection of personal data by design and by default. According to the needs, unless the objective of the Military mission prevails, those features and functionalities must ensure easy identification of the aircraft and of the nature and purpose of the operation; and must ensure that applicable limitations, prohibitions or conditions be complied with, in particular, with respect to the operation in particular geographical zones, beyond certain distances from the remote pilot station/control and monitoring unit or at certain altitudes.

1.4. The organisation responsible for the production or for the marketing of the unmanned aircraft system shall provide information to the operator of an unmanned aircraft and, where relevant, to the maintenance organisation on the kind of operations for which the unmanned aircraft is designed, together with the limitations and information necessary for its safe operation, including operational and environmental performance, airworthiness limitations and emergency procedures. This information shall be given in a clear, consistent and unambiguous manner.

2. ADDITIONAL SAFETY PRINCIPLES FOR THE DESIGN, PRODUCTION, MAINTENANCE AND OPERATION OF UNMANNED AIRCRAFT

The following Safety Principles are valid for UAS operations in **a reasonable proportion to the respective risk involved** (nature and level of risks).

2.1. Airworthiness

2.1.1. An UA/UAS must be designed and manufactured so that it is fit for its intended function, and can be operated, adjusted and maintained in a way that the safety of the person operating the UA or of third parties in the air or on the ground, including property, can be satisfactorily demonstrated.

2.1.2. An UA /UAS must provide product integrity that is proportionate to the risk in all anticipated flight conditions.

2.1.3. Following the manufacturer's instructions/manuals, an UA must be safely controllable and manoeuvrable, as necessary under all anticipated operating conditions including following the failure of one or, if appropriate, more systems. Due account must be taken of human-factor considerations, in particular available knowledge about factors conducive to safe operation of technology by humans.

2.1.4. An UA/UAS and its engines, propellers, parts, non-installed equipment and equipment to control the UA remotely must function as intended under any foreseeable operating conditions, throughout, and sufficiently beyond, the operation for which the UA/UAS was designed.

2.1.5. Unmanned aircraft and their engines, propellers, parts, non-installed equipment and equipment to control the UA remotely, considered separately and in relation to each other, must be designed such that the probability of a failure condition and the severity of its effect on people on the ground and other airspace users are mitigated.

2.1.6. Any equipment to control the UA remotely involved in the operation must be so as to facilitate flight operations, including means providing situational awareness, and management of any expected situation and emergencies.

2.1.7. The design of UA/UAS, engines and propellers must minimize the hazards arising from conditions, both internal and external to the UA/UAS and their systems, that experience

has shown to have a safety impact. This includes protection against interference by electronic means.

2.1.8. The manufacturing processes, materials and components used to produce the UA/UAS must result in adequate and reproducible properties and performance that are compliant with the design properties.

2.2. Organisations

Organisations involved in UA/UAS design, production, maintenance, related services and training shall meet the following conditions:

a. The organisation shall have all the means necessary for the scope of its work and ensure compliance with the relevant safety principles for its activity.

b. The organisation shall implement and maintain a management system to ensure compliance with the relevant Safety Principles, manage safety risks and aim for continuous improvement of this system. Such management system shall be proportionate to the organisation's type of activity, and size of the organisation, also considering the size of UA and category of UAS operation.

c. The organisation shall establish an occurrence reporting system to the Competent National Authority, as part of the safety management system, in order to contribute to the continuous improvement of safety. Such reporting system shall be proportionate to the organisation's type of activity, and size of the organisation, also considering the size of UA and category of UAS operation.

d. The organisation shall establish arrangements, where relevant, with other organisations to ensure continuing compliance with the relevant Safety principles set out in the Annex to PART A.

2.3. Persons involved in operation of unmanned aircraft

Any person involved in the operation of an unmanned aircraft/UAS shall possess the required knowledge and skills necessary to ensure the safety of the operation and proportionate to the risk associated with the type of operation. This person shall also demonstrate medical fitness, if this is necessary to mitigate the risks involved in the operation concerned.

2.4. Operations

Unless authorized otherwise by the competent Authority and in accordance with Article 2.3 of the Regulation (EU) 2018/1139:

2.4.1. The operator of an unmanned aircraft is responsible for the operation and must take any appropriate actions to ensure the safety of the operation.

2.4.2. A flight must be performed in accordance with the applicable laws, regulations and procedures, pertinent to the performance of their duties, prescribed for the area, airspace, aerodromes or sites planned to be used and, where applicable, related ATM/ANS systems.

2.4.3. Operations with unmanned aircraft shall be performed with due regard to 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.

2.4.4. UA/UAS must be operated only if it is in airworthy condition and where the equipment and the other components and services necessary for the intended operation are available and serviceable.

2.4.5. The operator of an unmanned aircraft must ensure that the aircraft has the necessary navigation, communication, surveillance as well as any other equipment deemed necessary for the safety of the intended flight, taking account of the nature of the operation, air traffic regulations and rules of the air applicable during any phase of the flight.

2.5. Essential requirements relating to electromagnetic compatibility and radio spectrum, for UA/UAS, as well as associated engines, propellers, parts and non-installed equipment

2.5.1. UA/UAS, engines, propellers, parts and non-installed equipment must be designed and produced in such a manner, having regard to the state of the art, as to ensure that they have a level of immunity to the electromagnetic disturbance which allows them to operate without unacceptable degradation of their intended use.

2.5.2. UA/UAS, engines, propellers, parts and non-installed equipment must be designed and produced in such a manner, having regard to the state of the art, to avoid harmful interference.

3. ESSENTIAL ENVIRONMENTAL REQUIREMENTS FOR UNMANNED AIRCRAFT

Unmanned aircraft shall comply with the environmental protection requirements set out in Annex D of the MAWA BFD, if so required by national regulations.

4. SAFETY PRINCIPLES FOR REGISTRATION OF UNMANNED AIRCRAFT AND THEIR OPERATORS AND MARKING OF UNMANNED AIRCRAFT

TBC in the future edition of this overview document.

PART B

RISK-BASED APPROACH TO UAS OPERATIONS[10]

Article 1: Objective/subject matter

The goal of this Part B is to provide details on the categories of UAS operations to enable the development of more harmonized regulations, with regard to the categories of Military UAS operations in the EDA Member States.

The risk-based approach at the basis of the categories of military UAS operations implies that Airworthiness, ATM and operational aspects are envisaged in a holistic/global approach, in view of supporting dual-use and cooperation/alignment with civil regulators/stakeholders.

Article 2: Definitions

The terms and definitions are listed alphabetically.

Some terms and definitions in this PART B are proposed to be included in the MAWA EMAD1 document.

The table[11] in this article will be further updated in function of the publication of UAS Working Papers.

[10] This part B could be seen as mirroring the civilian Implementing and Delegated Acts
[11] Extracted from the table endorsed by ESMAB Policy in July 2023

Table 1 – Definitions.

Proposed for inclusion in EMAD 1	Terms	Acronyms	Definitions/explanations	Source[12]
X	**Airspace observer**		Airspace observer means a person who assists the remote pilot by performing unaided visual scanning of the airspace in which the unmanned aircraft is operating for any potential hazard in the air.	From Regulation (EU) 2020/639
	Assemblies of people		Assemblies of people means gatherings where persons are unable to move away due to the density of the people present.	From Regulation (EU) 2020/639
	Autonomous Operation		Autonomous Operation means an operation during which an unmanned aircraft operates without the remote pilot being able to intervene. Guidance: Flight phases during which the remote pilot has no ability to intervene in the course of the aircraft, either following the implementation of emergency procedures, or due to a loss of the command-and-control connection, are not considered autonomous operations. An autonomous operation should not be confused with an automatic operation, which refers to an operation following pre-programmed instructions that the UAS executes while the remote pilot is able to intervene at any time.	From Regulation (EU) 2020/639 and Guidance Material to ED Decision 2019/021/R
X	**Beyond Visual Line of Sight**	**BVLOS**	Beyond Visual Line of Sight means a type of UAS operation which is not conducted in VLOS.	From Regulation (EU) 2020/639

[12] In case of amendment, the last valid civilian regulation reference number is included.

X	**Category of UAS operations**		The UAS operations are divided into three categories defined as: • The MIL-UAS-OPEN category of operations covers operations where the risk is mitigated mainly through a combination of operational limitations, requirements for the competence of the remote pilot as well as technical requirements for the UAS. • The MIL-UAS-SPECIFIC category of operations covers operations where, considering the risks involved, the identification of risk mitigation measures is required through an operational risk assessment performed, using the process and methodology accepted by the competent military Authority. • The MIL-UAS-CERTIFIED category of operations covers operations that, considering the risks involved, requires the certification of the UAS, Organisation approvals (e.g. design, production, maintenance, operations and training organizations) and, the licensing of the personnel.	Adapted from civilian regulations to cover Military needs
X	**Command and Control link**	**C2 link**	Command and Control link means a data transmission used for control of the unmanned aircraft that transmits unmanned aircraft crew commands from the command unit to the unmanned aircraft (uplink) and unmanned aircraft status data from the unmanned aircraft to the command unit (downlink).	Adapted from STANAG 4671: note that C2 link is also often called Data Link or Datalink (e.g., in STANAG 4703)
X	**Command and Control link service**	**C2 link service**	Command and Control link service means a communication service supplied by a third party, providing command and control between the unmanned aircraft and the command unit.	From Regulation (EU) 2020/639

X	**Command Unit**[13]	**CU**	Command Unit means the equipment or system of equipment to control unmanned aircraft remotely which supports the control or the monitoring of the unmanned aircraft during any phase of flight, with the exception of any infrastructure supporting the command and control link service.	From Regulation (EU) 2020/639. Note that the "CU" is also often called "(Ground) Control Station/Unit" or "Unmanned Aircraft Systems Control Station/Unit"
	Competent Authority		Competent Authority means one or more entities designated by a Member State and having the necessary powers and allocated responsibilities to regulate and oversee a Member State's military (or state) aviation in accordance with national regulation.	Derived from TSAMA Test Case Transport Fleet (dated 14/12/21)
X	**Extended Visual Line of Sight**	**EVLOS**	The unmanned aircraft is within the extended visual line of sight of the remote pilot when the unmanned aircraft is beyond the visual line of sight of the remote pilot but within the visual line of sight of one or more unmanned aircraft extended visual observer(s) assisting the remote pilot in safely conducting the flight. The unmanned aircraft extended visual observer(s) must be able to immediately notify the remote pilot of any danger that may prevent the remote pilot to conduct the flight safely.	Adapted from civilian regulations to cover Military needs
	Follow-me mode		Follow-me mode means a mode of operation of a UAS where the unmanned aircraft constantly follows the remote pilot within a predetermined radius.	From Regulation (EU) 2020/639
	Operator/operating organisation		Military organisation or entity performing military air operations.	TSAMA Test Case Transport Fleet uses "operator" while TSAMA Test Case RPAS uses "operating

[13] In NPA 03 2023 and following EASA Decision, the term is modified in "control and monitoring unit (CMU)", the equipment to control and monitor unmanned aircraft remotely as defined in point (32) of Article 3 of Regulation (EU) 2018/1139". This change will be incorporated in the future edition of this overview document as CMU is not yet published in EU regulation.

				organisations". Both terms are synonyms.
	Remote crew (also called RPAS crew)		The remote crew is all natural, qualified persons charged with duties essential to the flight operation of a RPAS and directly influencing the RPA and the status of its subsystems during flight duty period.	Agreed in the framework of the TSAMA RPAS Test Case
	Remote ground crew (also called RPAS ground crew)		The remote ground crew is all natural persons involved with the maintenance, repair and / or manoeuvring of an RPAS and whose duty related actions directly influence the performance, behaviour or status of the RPAS.	Agreed in the framework of the TSAMA RPAS Test Case
X	**Remote pilot (also called RPAS pilot)**		Remote pilot means a natural person responsible for safely conducting the flight of an unmanned aircraft by operating its flight controls, either manually or, when the unmanned aircraft flies automatically, by monitoring its course and remaining able to intervene and change the course at any time.	From EASA BR 2018/1139
	Safe distance		Minimum horizontal distance (between the points where the UA would hit the ground in the event of a vertical fall and the position of the uninvolved persons) of the UA to human beings at which operation of the UA is unlikely to endanger the human beings. The appropriate safe distance depends on the technical properties of the UA and the prevailing environmental conditions. The competent military remote pilot is responsible for maintaining the appropriate safe distance.	Adapted from civilian regulations
	Uninvolved person(s)		Person(s) not instructed on the safety precautions and protection measures necessary to ensure a safe UAS operation	Adapted from civilian regulations

X	**Unmanned Aircraft**	**UA**	Unmanned aircraft means any reusable aircraft operated or designed to be operated without a pilot on board, which has the capacity to operate autonomously or to be piloted remotely, and is not classified as guided missile or similar ammunition type or cargo parachute.	Adapted from civilian regulations to be consistent with NATO definition
X	**Unmanned aircraft extended visual observer**		Unmanned aircraft extended visual observer means a person, who, by unaided visual observation of the unmanned aircraft, assists the remote pilot in safely conducting the flight.	Adapted from civilian regulations to cover Military needs
X	**Unmanned aircraft observer**		Unmanned aircraft observer means 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.	From Regulation (EU) 2020/639
X	**Unmanned Aircraft System**	**UAS**	Unmanned Aircraft System means an unmanned aircraft and the equipment to control it remotely. A UAS comprises individual UAS elements consisting of an Unmanned Aircraft (UA), a Command Unit[14] (CU) and any other UAS elements necessary to enable flight, such as a command and control (C2) (data) link, communication system, and launch and recovery equipment. There may be multiple unmanned aircraft, command unit, or launch and recovery equipment within a UAS. The UAS are divided in two groups: • the Remotely Piloted Aircraft Systems which do allow the intervention of a remote pilot in/during the management of the flight. In this case, the UAS is called Remotely	Adapted from civilian regulation to be consistent with NATO definition

[14] In NPA 03 2023 and following EASA Decision, the term is modified in "control and monitoring unit (CMU)", the equipment to control and monitor unmanned aircraft remotely as defined in point (32) of Article 3 of Regulation (EU) 2018/1139". This change will be incorporated in the future edition of this overview document as CMU is not yet published in EU regulation.

			Piloted Aircraft System (RPAS), the unmanned aircraft is called Remotely Piloted Aircraft (RPA) and the command unit is called Remote Pilot Station (RPS). • the autonomous systems which are used for autonomous operations.	
X	**Visual Line of Sight**	**VLOS**	Visual Line of Sight means a type of UAS operation in which, the remote pilot is able to maintain continuous unaided visual contact with the unmanned aircraft, allowing the remote pilot to control the flight path of the unmanned aircraft in relation to other aircraft, people and obstacles for the purpose of avoiding collisions.	From Regulation (EU) 2020/639

Article 3: Categories of UAS operations

The safe operation of UAS requires the uniform implementation and compliance with rules and procedures to be established, applicable to the personnel, including remote pilots, and organisations involved in the operation; that should be proportionate to the nature and risk of the operation or activity, and adapted to the operational characteristics of the unmanned aircraft concerned and the characteristics of the area/volume of operations.

There are three categories of UAS operations defined as:

- The **MIL-UAS-OPEN** category of operations covers operations where the risk is mitigated mainly through a combination of operational limitations, requirements for the competence of the remote pilot as well as technical requirements for the UAS.
- The **MIL-UAS-SPECIFIC** category of operations covers operations where, considering the risks involved, the identification of risk mitigation measures is required through an operational risk assessment performed, using the process and methodology accepted by the competent military Authority.
- The **MIL-UAS-CERTIFIED** category of operations covers operations that, considering the risks involved, requires the certification of the UAS, Organisation approvals (e.g., design, production, maintenance and training organizations) and the licensing of the personnel.

These categories have been defined with due regard to civil categorisation proposed by EASA.
The deviations from civilian regulation are identified in the Articles of this PART B and the rationale for the deviation is captured as well.

Article 4: MIL-UAS-OPEN category of operations

A military UAS operation should be classified as a **MIL-UAS-OPEN** operation when the requirements in Table 1 are met.

The table 1 summarizes boundaries for the MIL-UAS-OPEN category of operations.

Table 1 – MIL-UAS-OPEN boundaries

Military requirements	Deviation from the civilian requirements[15]
MIL-UAS-OPEN 1.1 The unmanned aircraft has a maximum take-off mass of less than 25 kg.	Regulation (EU) 2019/947 Article 4 bullet 1 (b)
MIL-UAS-OPEN 1.2 The remote pilot ensures that the unmanned aircraft is kept at a safe distance from people and that it is not flown over assemblies of people.	Regulation (EU) 2019/947 Article 4 bullet 1 (c) No deviation (considering the definition of “assembly of people” in Part B Article 2 for the military.
MIL-UAS-OPEN 1.3 The remote pilot keeps the unmanned aircraft in VLOS or EVLOS at all times except when flying in follow-me mode.	Regulation (EU) 2019/947 Article 4 bullet 1 (d) Deviating as considering EVLOS as defined in Part B Article 2. It allows that the UA leaves the VLOS of the remote pilot if it remains in the VLOS of one or more UA extended visual observer(s) who assist(s) the remote pilot in safely conducting the flight. Including “unmanned aircraft observer”, like the civilians, is not needed considering the addition of EVLOS
MIL-UAS-OPEN 1.4	Regulation (EU) 2019/947 Article 4 bullet 1 (e)

[15] In case of amendment, the last valid civilian regulation reference number is included.

During flight, the unmanned aircraft is maintained within 120 metres from the closest point of the surface of the earth. If an artificial obstacle on the ground is more than 105 m high, the flight altitude of the UA may exceed the obstacle's height by no more than 15 m within a horizontal distance of 50 m to the obstacle.	No deviation (figures coming from civilian requirement UAS.OPEN.010 General provisions – Regulation (EU) 2020/639)
MIL-UAS-OPEN 1.5 During flight, the unmanned aircraft does not carry dangerous goods and/or weapons/ammunitions.	Regulation (EU) 2019/947 Article 4 bullet 1 (f) No major deviation – addition of "and/or weapons/ammunitions" to exclude such possible military operations
MIL-UAS-OPEN 1.6 Neither CE marking nor class label is mandatory.	CE marking and label are not in Regulation (EU) 2019/947 Article 4, but in Annex to the civilian regulation. Deviating, as dedicated military UAS may be not available on the civil market (e.g., ad-hoc self-made military UAS)

When operating in the MIL-UAS-OPEN category of operation, the requirements from Table 2 shall be met.

Table 2 – MIL-UAS-OPEN requirements

Military requirements	**Deviation from the civilian requirements[16]**
MIL.UAS.OPEN 2.1 Maintenance personnel shall comply with the competency requirements specified by the competent military Authority.	Not copied from civilian regulation
MIL.UAS.OPEN 2.2 Personnel involved, other than remote pilots and maintenance personnel (e.g., ground crew for LRE) shall comply with the competency requirements and/or the safety instructions specified by the competent military Authority.	Not copied from civilian regulation
MIL.UAS.OPEN 2.3 The maintenance process shall meet the requirements as accepted by the competent military Authority.	Not copied from civilian regulation
MIL.UAS.OPEN 2.4 The following documentation shall be available to the UAS operators and competent military Authority: - Instruction manual describing the design and the functions of the UAS necessary for safely conducting a flight. - if applicable: maintenance manual describing the maintenance tasks to be carried out by the UAS operator.	Not copied from civilian regulation
MIL.UAS.OPEN 2.5 The UAS operator shall comply with all of the following:	From civilian Annex to Implementing Regulation (EU) 2019/947 Part A: UAS.OPEN.050

[16] In case of amendment, the last valid civilian regulation reference number is included.

(1) develop operational procedures adapted to the type of operation and the risk involved. (2) ensure that all operations effectively use and support the efficient use of radio spectrum in order to avoid harmful interference. (3) designate a remote pilot for each flight. (4) ensure that remote pilots and all other personnel, except observers, performing a task in support of the operations are familiar with manufacturer's instructions provided by the manufacturer of the UAS, and are fully familiar with the UAS operator's procedures.	Responsibilities of the UAS operator (Regulation (EU) 2020/639) Adapted for military in bullet (4) to include that observers could be trained without reference to manufacturer's instructions. Reference to "geo-awareness" removed in initial version of the overview document. Reference to sub-categories of UAS operations removed from the initial version of the overview document.
MIL.UAS.OPEN 2.9 (1) Before starting an UAS operation, the remote pilot shall: (a) have the appropriate competency. (b) obtain updated information relevant to the intended UAS operations, about the area of operations. (c) observe the operating environment, check the presence of obstacles and check the presence of any uninvolved person. (d) ensure that the UAS is in a condition to safely complete the intended flight. (e) if the UAS is fitted with an additional payload, verify that its mass does not exceed the MTOM defined by the manufacturer. (2) During the flight, the remote pilot shall: (a) not perform duties under the influence of psychoactive substances or alcohol or when it is unfit to perform its tasks due to injury, fatigue, medication, sickness or other causes. (b) keep the unmanned aircraft in VLOS and maintain a thorough visual scan of the airspace surrounding the unmanned aircraft in order to avoid any risk of collision with any manned aircraft. The remote pilot shall discontinue the flight if the operation poses a risk to other aircraft, people, animals, environment or property. (c) comply with the operational limitations linked with the area of operations. (d) have the ability to maintain control of the unmanned aircraft, except in the case of a lost link or when operating a free-flight unmanned aircraft. (e) operate the UAS in accordance with manufacturer's instructions provided by the manufacturer, including any applicable limitations. (f) comply with the UAS operator's procedures when available.	From civilian Annex to Implementing Regulation (EU) 2019/947 Part A: UAS.OPEN.060 Responsibilities of the remote pilot (Regulation (EU) 2021/1166) Several modifications are introduced to match military needs: - Reference to "geo-zones" or U-Space removed in initial version of the overview document. - Reference to "remote identification" removed in initial version of the overview document. - Reference to sub-categories of UAS operations removed from the initial version of the overview document. - Requirement for mandatory lights for night flights is removed. - Requirement involving emergency response is not included.

The competent military Authority may decide to subdivide the MIL-UAS-OPEN category (e.g., adopting EASA's, JARUS's or any other proposal).

When the intended UAS operation does not meet the conditions set for the MIL-UAS-OPEN category of operations, it is classified as a MIL-UAS-SPECIFIC or as a MIL-UAS-CERTIFIED operation.

Article 5: MIL-UAS-SPECIFIC category of operations

When operating in the MIL-UAS-SPECIFIC category of operation, the requirements from Table 3 shall be met.

Table 3 MIL-UAS-SPECIFIC requirements

Military requirements	Deviation from the civilian requirements[17]
MIL-UAS-SPECIFIC 1.1 Where one of the requirements of the MIL-UAS-OPEN category is not met, a UAS operator shall be required to obtain an operational authorisation in the MIL-UAS-SPECIFIC category from the competent military Authority.	Regulation (EU) 2021/1166 Article 5 "Specific category of UAS operations" bullet 1 The military UAS operator is not required to be registered.
MIL-UAS-SPECIFIC 1.2 When applying to a competent military Authority for an operational authorisation, the UAS operator shall perform a risk assessment in accordance with Article 11 and submit it together with the application, including adequate mitigating measures.	Regulation (EU) 2021/1166 Article 5 "Specific category of UAS operations" bullet 2 No deviation.
MIL-UAS-SPECIFIC 1.3 The competent military Authority shall issue an operational authorisation, if it considers that the operational risks are adequately mitigated in accordance with Article 12.	Regulation (EU) 2021/1166 Article 5 "Specific category of UAS operations" bullet 3 No deviation.
MIL-UAS-SPECIFIC 1.4 The competent military Authority shall specify whether the operational authorisation concerns: (a) The approval of a single operation or a number of operations specified in time or location(s) or both. The operational authorisation shall include the associated precise list of mitigating measures. (b) the approval of a Light UAS Operator Certificate (LUC).	Regulation (EU) 2021/1166 Article 5 "Specific category of UAS operations" bullet 4 For the time being, there are not yet harmonised LUC requirements for military. In addition, the possibility of having a LUC is let optional for the military.
MIL-UAS-SPECIFIC 1.5 Where the UAS operator submits a declaration to the competent military Authority for an operation complying with a standard scenario issued by that Authority, the UAS operator shall not be required to obtain an operational authorisation.	Regulation (EU) 2021/1166 Article 5 "Specific category of UAS operations" bullet 5 No deviation. It is not yet harmonised if military will use (standard) scenarios.
MIL-UAS-SPECIFIC 1.6 An operational authorisation or a declaration shall not be required for UAS operators holding a LUC with appropriate privileges.	Regulation (EU) 2021/1166 Article 5 "Specific category of UAS operations" bullet 6 Deviating as Model aircraft are out of military scope.

[17] In case of amendment, the last valid civilian regulation reference number is included.

MIL-UAS-SPECIFIC 2.1 Unless a UAS needs to be certified (following a Risk Assessment), a UAS used in the 'MIL-UAS-SPECIFIC' category shall feature the technical capabilities set out in the operational authorisation issued by the competent military Authority or as defined by the Light UAS Operator Certificate (LUC).	Regulation (EU) 2020/1058 Article 40 "Requirements for UAS operated in the Certified and Specific categories except when conducted under a declaration" bullet 3 No deviation.
MIL-UAS-SPECIFIC 2.2 All UAS shall have a unique serial number compliant with a format as specified by the competent military Authority.	Regulation (EU) 2020/1058 Article 40 "Requirements for UAS operated in the Certified and Specific categories except when conducted under a declaration" bullet 4 No deviation.
MIL-UAS-SPECIFIC 2.3 Each UA intended to be operated in the 'MIL-UAS-SPECIFIC' category and at a height below 120 meters could be equipped with a remote identification system. If equipped and functional, the remote identification system shall be approved by the competent military Authority.	Regulation (EU) 2020/1058 Article 40 "Requirements for UAS operated in the Certified and Specific categories except when conducted under a declaration" bullet 5 - Reference to "remote identification" removed in initial version of the overview document.

Article 6: MIL-UAS-CERTIFIED category of operations

Organization approvals such as design, production, CAMO, maintenance, training, shall follow the same approval processes as in manned aviation but the requirements could be tailored by the competent military Authority.

Table 4 – MIL-UAS-CERTIFIED requirements

Military requirements	Deviation from the civilian regulation[18]
MIL-UAS-CERTIFIED 1.1. The design, production and maintenance of UAS shall be certified if the operation to be performed with the UAS meets any of the following conditions of flight: a) Transporting people. b) The conclusions of the risk analysis do not allow the UAS to be used in the MIL-UAS-SPECIFIC category. This risk analysis must take into consideration worsening factors like «overflying assemblies of people» and « transporting dangerous goods/weapons/explosives/ammunitions». If the risk analysis does not take those worsening factors into consideration, UAS operations including «flying over assemblies of people» and/or «transporting dangerous goods /weapons/explosives/ammunitions» must be solely operated in the MIL-UAS-CERTIFIED category of operations.	Deviation from Regulation (EU) 2019/947 Article 6 "certified category of UAS operations", e.g., for military specificities (e.g., weapons), removal of dimension of UAS and consideration of the scope of the risk assessment methodology. Same information in regulation (EU) 2020/1058 Article 40 "Requirements for UAS operated in the certified and specific categories except when conducted under a declaration". Deviation from Bullet 1.to meet military needs.

[18] In case of amendment, the last valid civilian regulation reference number is included.

MIL-UAS-CERTIFIED 1.2 A UAS subject to certification shall comply with the applicable requirements set out in the European Military Airworthiness Requirements (EMARs).	The deviation is the exact reference to the EMARs, while Art. 40 (2) EU 2019/945 refers to other regulations of the Commission. The EMARs then specify the requirements for UAS operators, design organisations, production organisations, type certificates etc. Currently the EMARs for UAS are not yet available.

Article 7: Rules and procedures for the operation of UAS

Military requirements	Deviation from the civilian requirements[19]
MIL-UAS-OPEN 3.1 UAS operations in the MIL-UAS-OPEN category shall comply with the operational limitations set out in Article 4.	Regulation (EU) 2019/947 Article 7 "Rules and procedures for the operations of UAS bullet 1 mentions the Part A of the Annex (including the UAS.OPEN requirements for the EASA sub-categories). Deviation for the military, as the sub-categories of UAS operations are not considered in the initial version of the overview document. Deviation as the UAS.OPEN.070 on remote pilot competency is not included while UAS.OPEN.050 and UAS.OPEN.060 are included in the initial version of the overview document.
MIL-UAS-SPECIFIC 3.1 UAS operations in the MIL-UAS-SPECIFIC category shall comply with the operational limitations set out in the operational authorisation as referred to in article 12 or in a standard scenario accepted by the competent military Authority, as declared by the UAS operator. This paragraph shall not apply where the UAS operator holds a LUC with appropriate privileges. UAS operations in the MIL-UAS-SPECIFIC category shall be subject to the applicable operational requirements laid down in the Part A.	Regulation (EU) 2019/947 Article 7 "Rules and procedures for the operations of UAS bullet 2 No deviation. It is not yet harmonised if military will use (standard) scenarios.
MIL-UAS-CERTIFIED 2.1 UAS operations in the MIL-UAS-CERTIFIED category shall be subject to the applicable operational requirements laid down in the Part A, and subject to military regulations for airworthiness, for service provision, for operations and for collision avoidance for UAS, if any.	Regulation (EU) 2019/947 Article 7 "Rules and procedures for the operations of UAS bullet 1 mentions Implementing Regulation (EU) No 923/2012 (= «services and procedures in air navigation») and Commission Regulations (EU) No 965/2012 (= Air OPS regulation) and (EU) No 1332/2011, (= regulation for «common airspace usage requirements and operating procedures for airborne collision avoidance») not implemented for military.

Article 8: Rules and procedures for the competency of remote pilots

Military requirements	Deviation from the civilian requirements[20]

[19] In case of amendment, the last valid civilian regulation reference number is included.

[20] In case of amendment, the last valid civilian regulation reference number is included.

MIL.UAS.OPEN 4.1 Remote pilots operating UAS in the MIL-UAS-OPEN category shall comply with the competency requirements accepted by the competent military Authority.	Deviating from the Regulation (EU) 2019/947 Article 8 "Rules and procedures for the competency of remote pilots" as currently there is no harmonised military requirements to refer to.
MIL-UAS-SPECIFIC 4.1 Remote pilots operating UAS in the MIL-UAS-SPECIFIC category shall comply with the competency requirements set out in the operational authorisation by the competent military Authority or in the standard scenario published by the competent military Authority or as defined by the LUC and shall have at least the following competencies: (a) ability to apply operational procedures (normal, contingency and emergency procedures, flight planning, pre-flight and post-flight inspections). (b) ability to manage aeronautical communication, where applicable. (c) manage the unmanned aircraft flight path and automation. (d) leadership, teamwork and self-management, where applicable. (e) problem solving and decision-making. (f) situational awareness. (g) workload management. (h) coordination or handover, as applicable.	Regulation (EU) 2019/947 Article 8 "Rules and procedures for the competency of remote pilots" bullet 2: No deviation. Regulation (EU) 2019/947 Article 8 "Rules and procedures for the competency of remote pilots" bullet 3: model aircraft clubs not applicable to military.
MIL-UAS-CERTIFIED 3.1 Not covered in the initial version of the overview document.	Not yet in EASA regulation

Article 9 dealing with minimum age for remote pilots is not applicable in this initial version of the overview document.

Article 10: Rules and procedures for the airworthiness of UAS

Military requirements	Deviation from the civilian requirements[21]
MIL.UAS.OPEN 5.1 UAS shall comply with the technical requirements for the airworthiness as accepted by the competent military Authority.	Deviating from the Regulation (EU) 2019/947 Article 10 "Rules and procedures for the airworthiness of UAS" as it points to the Regulation (EU) 2018/1139 not yet covered in the initial version of this overview document.
MIL-UAS-SPECIFIC 5.1 UAS used in operations set out in this Regulation shall comply with the technical requirements and rules and procedures for the airworthiness defined in Part A.	Deviating from the Regulation (EU) 2019/947 Article 10 "Rules and procedures for the airworthiness of UAS" as it points to the Regulation (EU) 2018/1139 not yet covered in the initial version of this overview document.
MIL-UAS-CERTIFIED 4.1 Not covered in the initial version of the overview document.	Not yet in EASA regulation.

[21] In case of amendment, the last valid civilian regulation reference number is included.

Article 11: Rules for conducting an operational risk assessment

Military requirements	Deviation from the civilian requirements[22]
MIL-UAS-SPECIFIC 6.1 To be approved/recognised by the competent military Authority, an operational risk assessment shall: (a) describe the characteristics of the UAS and its operation. (b) propose adequate operational safety objectives. (c) identify the risks of the operation on the ground and in the air. (d) identify a range of possible risk mitigating measures to ensure that the operation can be conducted safely.	Regulation (EU) 2019/947 Article 11 "Rules for conducting an operational risk assessment" bullet 1. No deviation regarding the high-level description of a Risk Assessment methodology. Details are not mentioned as a military risk assessment methodology is not yet harmonised. Remaining at high level increase the flexibility required by the military until further progress in harmonisation.

Article 12 - Authorising operations in the 'specific' category

Military requirements	Deviation from the civilian requirements[23]
MIL-UAS-SPECIFIC 7.1 The competent military Authority shall evaluate the risk assessment - methodology - and the mitigating measures that the UAS operator proposes to keep the UAS operation safe in all phases of flight.	Regulation (EU) 2019/947 Article 12 "Authorising operations in the Specific category" bullet 1 No major deviation (robustness reference removed to cover all methodologies).
MIL-UAS-SPECIFIC 7.2 The competent military Authority shall grant an operational authorisation when the evaluation concludes that: (a) the operational safety objectives take account of the risks of the operation. (b) the combination of mitigation measures concerning the operational conditions to perform the operations, the competence of the personnel involved and the technical features of the unmanned aircraft, are adequate and sufficiently robust to keep the operation safe in view of the identified ground and air risks.	Regulation (EU) 2019/947 Article 12 "Authorising operations in the Specific category" bullet 2 Deviation as not mentioning the "applicable Union and national rules relating to it, in particular, with regard to privacy, data protection, liability, insurance, security and environmental protection".
MIL-UAS-SPECIFIC 7.3 When the operation is not deemed sufficiently safe, the competent military Authority shall inform the applicant, accordingly, giving reasons for its refusal to issue the operational authorisation.	Regulation (EU) 2019/947 Article 12 "Authorising operations in the Specific category" bullet 3 No deviation.
MIL-UAS-SPECIFIC 7.4 The operational authorisation granted by the competent military Authority shall detail: (a) the scope of the authorisation. (b) the 'specific' conditions that shall apply:	Regulation (EU) 2019/947 Article 12 "Authorising operations in the Specific category" bullet 4 Deviation: registration not considered

[22] In case of amendment, the last valid civilian regulation reference number is included.

[23] In case of amendment, the last valid civilian regulation reference number is included.

i. to the UAS operation and the operational limitations. ii. to the required competency of the UAS operator and, where applicable, of the remote pilots. iii. to the technical features of the UAS, including the certification of the UAS, if applicable. (c) the following information: i. the technical features of the UAS. ii. a reference to the operational risk assessment developed by the UAS operator; iii. the operational limitations and conditions of the operation. iv. the mitigation measures that the UAS operator has to apply. v. the location(s) where the operation is authorised to take place. vi. all documents and records relevant for the type of operation and the type of events that should be reported according to the national regulation(s) for occurrence reporting.	
MIL-UAS-SPECIFIC 7.5 Upon receipt of the declaration (following/corresponding to MIL-UAS-SPECIFIC 1.5), the competent military Authority shall: (a) verify that it contains all elements. (b) if this is the case, provide the UAS operator with a confirmation of receipt and completeness without undue delay so that the UAS operator may start the operation.	Regulation (EU) 2019/947 Article 12 "Authorising operations in the Specific category" bullet 5 No deviation.

Article 13 dealing with cross-border is not applicable in this initial version of the overview document.
Article 14 dealing with registration is not applicable in this initial version of the overview document.
Article 15 dealing with geo-zones is not applicable in this initial version of the overview document.
Article 16 dealing with model clubs is not applicable in this initial version of the overview document.

Article 17: Designation of the competent authority[24]

Military requirements	Deviation from the civilian regulation[25]
Each Member State shall designate one or more entities as the competent military Authority for the enforcement of the national military regulation(s) related to UAS, fulfilling the responsibilities listed in Table 5 of PART B Article 18. Where a Member State designates more than one entity as a competent military Authority it shall:	In Regulation (EU) 2019/947 Article 17 "Designation of the competent authority", there is an obligation linked with registration which is dropped. No other major changes.

[24] A clear designation of responsibilities at State level is needed to facilitate the Military UAS operations and their categorisation.
[25] In case of amendment, the last valid civilian regulation reference number is included.

a) clearly define the areas of competence of each competent military Authority in terms of responsibilities. b) establish appropriate coordination mechanism between those entities to ensure the effective oversight of all organisations and persons subject to the national military regulation(s) related to UAS.	

Article 18: Tasks of the competent authority

Table 5 – Competent military Authority responsibilities

Military requirements	Deviation from the civilian regulation[26]
The competent military Authority or the entity/entities acting as competent military Authority shall be responsible for: • enforcing the national military regulation(s) related to UAS. • issuing remote pilots with a proof of completion of appropriate examination and training (certificate) and amending, suspending, limiting, revoking such proof. • deciding on accepting foreign certificates of competency of remote pilots. • keeping documents, records and reports concerning, declarations and certificates of competency of the remote pilots. • providing UAS operators[27] with information and guidance that promotes the safety of UAS operations. • implementing a system to detect non-compliance with the requirements from the national military regulation(s) related to UAS when operations are in the MIL-UAS-OPEN or MIL-UAS-SPECIFIC categories. • issuing, amending, suspending, limiting or revoking operational authorisations and LUCs, if applicable, and verifying completeness of declarations, which are required to carry out UAS operations in the 'MIL-UAS-SPECIFIC' category. • carrying out inspections with regard to UAS operators who have submitted a declaration or hold a certificate issued by the competent authority inspecting UAS and ensuring that UAS operators and remote pilots comply with the requirements.	Regulation (EU) 2019/947 Article 18 "Tasks of the competent authority" Deviation: in civilian regulation, there is an obligation for the competent Removing reference to UAS geographical zones, not replicated on the military side. Deviation: Risk-based oversight is also not replicated in the military regulation. Deviation: Removing reference to registration, in accordance with PART A. Deviation: Removing all reference to age of remote pilot (article 9). Text modified to meet military needs.

[26] In case of amendment, the last valid civilian regulation reference number is included.
[27] "UAS operators" are the military UAS operating organisations.

Article 19: Safety information

Military requirements	Deviation from the civilian requirements[28]
MIL.UAS.OPEN 6.1 Each UAS operator shall report to the competent military Authority on any safety-related occurrence. Each UAS operator shall exchange information regarding its UAS linked with such safety-related occurrences (reporting, analysis and follow-up), as far as national regulations allow.	The Regulation (EU) 2019/947 Article 19 "Safety information" bullet 2 is tuned for MIL-UAS-OPEN only. MIL-UAS-SPECIFIC and MIL-UAS-CERTIFIED are not yet covered in the initial version of the overview document. Deviation: the reference to market surveillance is not considered. Deviation: the reference to EASA tasks is disregarded.

The articles 20 to 23 from the Regulation (EU) 2019/947 are not considered in the initial version of this overview document.

[28] In case of amendment, the last valid civilian regulation reference number is included.

Civilian references:

Regulation (EU) 2018/1139 | EASA (europa.eu)

Easy Access Rules for Unmanned Aircraft Systems - Revision from September 2022 | EASA (europa.eu)