

Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft (Text with EEA relevance)

COMMISSION IMPLEMENTING REGULATION (EU) 2019/947

of 24 May 2019

on the rules and procedures for the operation of unmanned aircraft

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 216/2008 and (EC) No 552/2004 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91⁽¹⁾, and in particular Article 57 thereof,

Whereas:

- (1) Unmanned aircraft, irrespective of their mass, can operate within the same Single European Sky airspace, alongside manned aircraft, whether airplanes or helicopters.
- (2) As for manned aviation, a uniform implementation of and compliance with rules and procedures should apply to operators, including remote pilots, of unmanned aircraft and unmanned aircraft system ('UAS'), as well as for the operations of such unmanned aircraft and unmanned aircraft system.
- (3) Considering the specific characteristics of UAS operations, they should be as safe as those in manned aviation.
- (4) Technologies for unmanned aircraft allow a wide range of possible operations. Requirements related to the airworthiness, the organisations, the persons involved in the operation of UAS and unmanned aircraft operations should be set out in order to ensure safety for people on the ground and other airspace users during the operations of unmanned aircraft.
- (5) The rules and procedures applicable to UAS operations 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 of operations, such as the population density, surface characteristics, and the presence of buildings.
- (6) The risk level criteria as well as other criteria should be used to establish three categories of operations: the 'open', 'specific' and 'certified' categories.

Status: Point in time view as at 06/06/2020.

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- (7) Proportionate risks mitigation requirements should be applicable to UAS operations according to the level of risk involved, the operational characteristics of the unmanned aircraft concerned and the characteristics of the area of operation.
- (8) Operations in the ‘open’ category, which should cover operations that present the lowest risks, should not require UAS that are subject to standard aeronautical compliance procedures, but should be conducted using the UAS classes that are defined in Commission Delegated Regulation (EU) 2019/945⁽²⁾.
- (9) Operations in the ‘specific’ category should cover other types of operations presenting a higher risk and for which a thorough risk assessment should be conducted to indicate which requirements are necessary to keep the operation safe.
- (10) A system of declaration by an operator should facilitate the enforcement of this Regulation in case of low risk operations conducted in the ‘specific’ category for which a standard scenario has been defined with detailed mitigation measures.
- (11) Operations in the ‘certified’ category should, as a principle, be subject to rules on certification of the operator, and the licensing of remote pilots, in addition to the certification of the aircraft pursuant to Delegated Regulation (EU) 2019/945.
- (12) Whilst mandatory for the ‘certified category’, for the ‘specific’ category a certificate delivered by the competent authorities for the operation of an unmanned aircraft, as well as for the personnel, including remote pilots and organisations involved in those activities, or for the aircraft pursuant to Delegated Regulation (EU) 2019/945 could also be required.
- (13) Rules and procedures should be established for the marking and identification of unmanned aircraft and for the registration of operators of unmanned aircraft or certified unmanned aircraft.
- (14) Operators of unmanned aircraft should be registered where they operate an unmanned aircraft which, in case of impact, can transfer, to a human, a kinetic energy above 80 Joules or the operation of which presents risks to privacy, protection of personal data, security or the environment.
- (15) Studies have demonstrated that unmanned aircraft with a take-off mass of 250 g or more would present risks to security and therefore UAS operators of such unmanned aircraft should be required to register themselves when operating such aircraft in the ‘open’ category.
- (16) Considering the risks to privacy and protection of personal data, operators of unmanned aircraft should be registered if they operate an unmanned aircraft which is equipped with a sensor able to capture personal data. However, this should not be the case when the unmanned aircraft is considered to be a toy within the meaning of Directive 2009/48/EC of the European Parliament and of the Council on the safety of toys⁽³⁾.
- (17) The information about registration of certified unmanned aircraft and of operators of unmanned aircraft that are subject to a registration requirement should be stored in digital, harmonised, interoperable national registration systems, allowing competent

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authorities to access and exchange that information. The mechanisms to ensure the interoperability of the national registers in this Regulation should be without prejudice to the rules applicable to the future repository referred to in Article 74 of Regulation (EU) 2018/1139.

- (18) In accordance with paragraph 8 of Article 56 of Regulation (EU) 2018/1139, this Regulation is without prejudice to the possibility for Member States to lay down national rules to make subject to certain conditions the operations of unmanned aircraft for reasons falling outside the scope of Regulation (EU) 2018/1139, including public security or protection of privacy and personal data in accordance with the Union law.
- (19) National registration systems should comply with the applicable Union and national law on privacy and processing of personal data and the information stored in those registrations systems should be easily accessible⁽⁴⁾.
- (20) UAS operators and remote pilots should ensure that they are adequately informed about applicable Union and national rules relating to the intended operations, in particular with regard to safety, privacy, data protection, liability, insurance, security and environmental protection.
- (21) Some areas, such as hospitals, gatherings of people, installations and facilities like penal institutions or industrial plants, top-level and higher-level government authorities, nature conservation areas or certain items of transport infrastructure, can be particularly sensitive to some or all types of UAS operations. This should be without prejudice to the possibility for Member States to lay down national rules to make subject to certain conditions the operations of unmanned aircraft for reasons falling outside the scope of this Regulation, including environmental protection, public security or protection of privacy and personal data in accordance with the Union law.
- (22) Unmanned aircraft noise and emissions should be minimised as far as possible taking into account the operating conditions and various specific characteristics of individual Member States, such as the population density, where noise and emissions are of concern. In order to facilitate the societal acceptance of UAS operations, Delegated Regulation (EU) 2019/945 includes maximum level of noise for unmanned aircraft operated close to people in the ‘open’ category. In the ‘specific’ category there is a requirement for the operator to develop guidelines for its remote pilots so that all operations are flown in a manner that minimises nuisances to people and animals.
- (23) Current national certificates should be adapted to certificates complying with the requirements of this Regulation.
- (24) In order to ensure the proper implementation of this Regulation, appropriate transitional measures should be established. In particular, Member States and stakeholders should have sufficient time to adapt their procedures to the new regulatory framework before this Regulation applies.
- (25) The new regulatory framework for UAS operations should be without prejudice to the applicable environmental and nature protection obligations otherwise stemming from national or Union law.

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- (26) While the ‘U-space’ system including the infrastructure, services and procedures to guarantee safe UAS operations and supporting their integration into the aviation system is in development, this Regulation should already include requirements for the implementation of three foundations of the U-space system, namely registration, geo-awareness and remote identification, which will need to be further completed.
- (27) Since model aircraft are considered as UAS and given the good safety level demonstrated by model aircraft operations in clubs and associations, there should be a seamless transition from the different national systems to the new Union regulatory framework, so that model aircraft clubs and associations can continue to operate as they do today, as well as taking into account existing best practices in the Member States.
- (28) In addition, considering the good level of safety achieved by aircraft of class C4 as provided in Annex to this Regulation, low risk operations of such aircraft should be allowed to be conducted in the ‘open’ category. Such aircraft, often used by model aircraft operators, are comparatively simpler than other classes of unmanned aircraft and should therefore not be subject to disproportionate technical requirements.
- (29) The measures provided for in this Regulation are in accordance with the opinion of the committee established in accordance with Article 127 of Regulation (EU) 2018/1139,

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter

This Regulation lays down detailed provisions for the operation of unmanned aircraft systems as well as for personnel, including remote pilots and organisations involved in those operations.

Article 2

Definitions

For the purposes of this Regulation, the definitions in Regulation (EU) 2018/1139 apply.

The following definitions also apply:

- (1) ‘unmanned aircraft system’ (‘UAS’) means an unmanned aircraft and the equipment to control it remotely;
- (2) ‘unmanned aircraft system operator’ (‘UAS operator’) means any legal or natural person operating or intending to operate one or more UAS;
- (3) ‘assemblies of people’ means gatherings where persons are unable to move away due to the density of the people present;
- (4) ‘UAS geographical zone’ means a portion of airspace established by the competent authority that facilitates, restricts or excludes UAS operations in order to address risks pertaining to safety, privacy, protection of personal data, security or the environment, arising from UAS operations;

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- (5) ‘robustness’ means the property of mitigation measures resulting from combining the safety gain provided by the mitigation measures and the level of assurance and integrity that the safety gain has been achieved;
- (6) ‘standard scenario’ means a type of UAS operation in the ‘specific’ category, as defined in Appendix 1 of the Annex, for which a precise list of mitigating measures has been identified in such a way that the competent authority can be satisfied with declarations in which operators declare that they will apply the mitigating measures when executing this type of operation;
- (7) ‘visual line of sight operation’ (‘VLOS’) 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;
- (8) ‘beyond visual line of sight operation’ (‘BVLOS’) means a type of UAS operation which is not conducted in VLOS;
- (9) ‘light UAS operator certificate’ (‘LUC’) means a certificate issued to a UAS operator by a competent authority as set out in part C of the Annex;
- (10) ‘model aircraft club or association’ means an organisation legally established in a Member State for the purpose of conducting leisure flights, air displays, sporting activities or competition activities using UAS;
- (11) ‘dangerous goods’ means articles or substances, which are capable of posing a hazard to health, safety, property or the environment in the case of an incident or accident, that the unmanned aircraft is carrying as its payload, including in particular:
 - (a) explosives (mass explosion hazard, blast projection hazard, minor blast hazard, major fire hazard, blasting agents, extremely insensitive explosives);
 - (b) gases (flammable gas, non-flammable gas, poisonous gas, oxygen, inhalation hazard);
 - (c) flammable liquids (flammable liquids; combustible, fuel oil, gasoline);
 - (d) flammable solids (flammable solids, spontaneously combustible solids, dangerous when wet);
 - (e) oxidising agents and organic peroxides;
 - (f) toxic and infectious substances (poison, biohazard);
 - (g) radioactive substances;
 - (h) corrosive substances;
- (12) ‘payload’ means instrument, mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is installed in or attached to the aircraft and is not used or intended to be used in operating or controlling an aircraft in flight, and is not part of an airframe, engine, or propeller;
- (13) ‘direct remote identification’ means a system that ensures the local broadcast of information about a unmanned aircraft in operation, including the marking of the unmanned aircraft, so that this information can be obtained without physical access to the unmanned aircraft;

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- (14) ‘follow-me mode’ means a mode of operation of a UAS where the unmanned aircraft constantly follows the remote pilot within a predetermined radius;
- (15) ‘geo-awareness’ means a function that, based on the data provided by Member States, detects a potential breach of airspace limitations and alerts the remote pilots so that they can take immediate and effective action to prevent that breach;
- (16) ‘privately built UAS’ means a UAS assembled or manufactured for the builder's own use, not including UAS assembled from sets of parts placed on the market as a single ready-to-assemble kit;
- (17) ‘autonomous operation’ means an operation during which an unmanned aircraft operates without the remote pilot being able to intervene;
- (18) ‘uninvolved persons’ means persons who are not participating in the UAS operation or who are not aware of the instructions and safety precautions given by the UAS operator;
- (19) ‘making available on the market’ means any supply of a product for distribution, consumption or use on the Union market in the course of a commercial activity, whether in exchange of payment or free of charge;
- (20) ‘placing on the market’ means the first making available of a product on the Union market;
- (21) ‘controlled ground area’ means the ground area where the UAS is operated and within which the UAS operator can ensure that only involved persons are present;
- (22) ‘maximum take-off mass’ (‘MTOM’) means the maximum Unmanned Aircraft mass, including payload and fuel, as defined by the manufacturer or the builder, at which the Unmanned Aircraft can be operated;
- (23) ‘unmanned sailplane’ means an unmanned aircraft that is supported in flight by the dynamic reaction of the air against its fixed lifting surfaces, the free flight of which does not depend on an engine. It may be equipped with an engine to be used in case of emergency^[F1];
- (24) ^[F2]‘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;
- (25) ‘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;
- (26) ‘command unit’ (‘CU’) means the equipment or system of equipment to control unmanned aircraft remotely as defined in point 32 of Article 3 of Regulation (EU) 2018/1139 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 (C2) link service;
- (27) ‘C2 link service’ means a communication service supplied by a third party, providing command and control between the unmanned aircraft and the CU;
- (28) ‘flight geography’ means the volume(s) of airspace defined spatially and temporally in which the UAS operator plans to conduct the operation under normal procedures described in point (6)(c) of Appendix 5 to the Annex;

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- (29) ‘flight geography area’ means the projection of the flight geography on the surface of the earth;
- (30) ‘contingency volume’ means the volume of airspace outside the flight geography where contingency procedures described in point (6)(d) of Appendix 5 to the Annex are applied;
- (31) ‘contingency area’ means the projection of the contingency volume on the surface of the earth;
- (32) ‘operational volume’ is the combination of the flight geography and the contingency volume;
- (33) ‘ground risk buffer’ is an area over the surface of the earth, which surrounds the operational volume and that is specified in order to minimise the risk to third parties on the surface in the event of the unmanned aircraft leaving the operational volume;
- (34) ‘night’ means the hours between the end of evening civil twilight and the beginning of morning civil twilight as defined in Implementing Regulation (EU) No 923/2012⁽⁵⁾.]

Textual Amendments

- F1** Substituted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight \(Text with EEA relevance\)](#).
- F2** Inserted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight \(Text with EEA relevance\)](#).

Article 3

Categories of UAS operations

UAS operations shall be performed in the ‘open’, ‘specific’ or ‘certified’ category defined respectively in Articles 4, 5 and 6, subject to the following conditions:

- (a) UAS operations in the ‘open’ category shall not be subject to any prior operational authorisation, nor to an operational declaration by the UAS operator before the operation takes place;
- (b) UAS operations in the ‘specific’ category shall require an operational authorisation issued by the competent authority pursuant to Article 12 or an authorisation received in accordance with Article 16, or, under circumstances defined in Article 5(5), a declaration to be made by a UAS operator;
- (c) UAS operations in the ‘certified’ category shall require the certification of the UAS pursuant to Delegated Regulation (EU) 2019/945 and the certification of the operator and, where applicable, the licensing of the remote pilot.

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Article 4

‘Open’ category of UAS operations

1 Operations shall be classified as UAS operations in the ‘open’ category only where the following requirements are met:

- a the UAS belongs to one of the classes set out in Delegated Regulation (EU) 2019/945 or is privately built or meets the conditions defined in Article 20;
- b the unmanned aircraft has a maximum take-off mass of less than 25 kg;
- c 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;
- d the remote pilot keeps the unmanned aircraft in VLOS at all times except when flying in follow-me mode or when using an unmanned aircraft observer as specified in Part A of the Annex;
- e during flight, the unmanned aircraft is maintained within 120 metres from the closest point of the surface of the earth, except when overflying an obstacle, as specified in Part A of the Annex
- f during flight, the unmanned aircraft does not carry dangerous goods and does not drop any material;

2 UAS operations in the ‘open’ category shall be divided in three sub-categories in accordance with the requirements set out in Part A of the Annex.

Article 5

‘Specific’ category of UAS operations

1 Where one of the requirements laid down in Article 4 or in Part A of the Annex is not met, a UAS operator shall be required to obtain an operational authorisation pursuant to Article 12 from the competent authority in the Member State where it is registered.

2 When applying to a competent authority for an operational authorisation pursuant Article 12, the operator shall perform a risk assessment in accordance with Article 11 and submit it together with the application, including adequate mitigating measures.

3 In accordance with point UAS.SPEC.040 laid down in Part B of the Annex, the competent authority shall issue an operational authorisation, if it considers that the operational risks are adequately mitigated in accordance with Article 12.

4 The competent 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 an LUC, in accordance with part C of the Annex.

[^{F15} Where the UAS operator submits a declaration to the competent authority of the Member State of registration in accordance with point UAS.SPEC.020 laid down in Part B of the Annex for an operation complying with a standard scenario set out in Appendix 1 to that Annex, the UAS operator shall not be required to obtain an operational authorisation in accordance with paragraphs 1 to 4 of this Article and the procedure laid down in paragraph 5 of Article 12 shall apply. The UAS operator shall use the declaration referred to in Appendix 2 to that Annex.]

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- 6 An operational authorisation or a declaration shall not be required for:
- a UAS operators holding an LUC with appropriate privileges in accordance with point UAS.LUC.060 of the Annex;
 - b operations conducted in the framework of model aircraft clubs and associations that have received an authorisation in accordance with Article 16.

Textual Amendments

- F1** Substituted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight \(Text with EEA relevance\)](#).

Article 6

‘Certified’ category of UAS operations

- 1 Operations shall be classified as UAS operations in the ‘certified’ category only where the following requirements are met:
- a the UAS is certified pursuant to points (a), (b) and (c) of paragraph 1 of Article 40 of Delegated Regulation (EU) 2019/945; and
 - b the operation is conducted in any of the following conditions:
 - i. over assemblies of people;
 - ii. involves the transport of people;
 - iii. involves the carriage of dangerous goods, that may result in high risk for third parties in case of accident.
- 2 In addition, UAS operations shall be classified as UAS operations in the ‘certified’ category where the competent authority, based on the risk assessment provided for in Article 11, considers that the risk of the operation cannot be adequately mitigated without the certification of the UAS and of the UAS operator and, where applicable, without the licensing of the remote pilot.

Article 7

Rules and procedures for the operation of UAS

- 1 UAS operations in the ‘open’ category shall comply with the operational limitations set out in Part A of the Annex.
- 2 UAS operations in the ‘specific’ category shall comply with the operational limitations set out in the operational authorisation as referred to in Article 12 or the authorisation as referred to in Article 16, or in a standard scenario defined in Appendix 1 to the Annex as declared by the UAS operator.

This paragraph shall not apply where the UAS operator holds an LUC with appropriate privileges.

UAS operations in the ‘specific’ category shall be subject to the applicable operational requirements laid down in Commission Implementing Regulation (EU) No 923/2012⁽⁶⁾.

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3 UAS operations in the ‘certified’ category shall be subject to the applicable operational requirements laid down in Implementing Regulation (EU) No 923/2012 and Commission Regulations (EU) No 965/2012⁽⁷⁾ and (EU) No 1332/2011⁽⁸⁾.

Article 8

Rules and procedures for the competency of remote pilots

1 Remote pilots operating UAS in the ‘open’ category shall comply with the competency requirements set in Part A of the Annex.

2 Remote pilots operating UAS in the ‘specific’ category shall comply with the competency requirements set out in the operational authorisation by the competent authority or in the standard scenario defined in Appendix 1 to the Annex 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;
- c manage the unmanned aircraft flight path and automation;
- d leadership, teamwork and self-management;
- e problem solving and decision-making;
- f situational awareness;
- g workload management;
- h coordination or handover, as applicable.

3 Remote pilots operating in the framework of model aircraft clubs or associations shall comply with the minimum competency requirements defined in the authorisation granted in accordance with Article 16.

Article 9

Minimum age for remote pilots

1 The minimum age for remote pilots operating a UAS in the ‘open’ and ‘specific’ category shall be 16 years.

2 No minimum age for remote pilots shall be required:

- a when they operate in subcategory A1 as specified in Part A of the Annex to this Regulation, with a UAS Class C0 defined in Part 1 of the Annex to Delegated Regulation (EU) 2019/945 that is a toy within the meaning of Directive 2009/48/EC;
- b for privately-built UAS with a maximum take-off mass of less than 250g;
- c when they operate under the direct supervision of a remote pilot complying with paragraph 1 and Article 8.

3 Member States may lower the minimum age following a risk-based approach taking into account specific risks associated with the operations in their territory:

- a for remote pilots operating in the ‘open’ category by up to 4 years;
- b for remote pilots operating in the ‘specific’ category by up to 2 years.

4 Where a Member State lowers the minimum age for remote pilots, those remote pilots shall only be allowed to operate a UAS on the territory of that Member State.

Status: Point in time view as at 06/06/2020.

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5 Member States may define a different minimum age for remote pilots operating in the framework of model aircraft clubs or associations in the authorisation issued in accordance with Article 16.

Article 10

Rules and procedures for the airworthiness of UAS

Unless privately-built, or used for operations referred to in Article 16, or meeting the conditions defined in Article 20, UAS used in operations set out in this Regulation shall comply with the technical requirements and rules and procedures for the airworthiness defined in the delegated acts adopted pursuant to Article 58 of Regulation (EU) 2018/1139.

Article 11

Rules for conducting an operational risk assessment

- 1 An operational risk assessment shall:
 - a describe the characteristics of the UAS operation;
 - b propose adequate operational safety objectives;
 - c identify the risks of the operation on the ground and in the air considering all of the below:
 - i. the extent to which third parties or property on the ground could be endangered by the activity;
 - ii. the complexity, performance and operational characteristics of the unmanned aircraft involved;
 - iii. the purpose of the flight, the type of UAS, the probability of collision with other aircraft and class of airspace used;
 - iv. the type, scale, and complexity of the UAS operation or activity, including, where relevant, the size and type of the traffic handled by the responsible organisation or person;
 - v. the extent to which the persons affected by the risks involved in the UAS operation are able to assess and exercise control over those risks.
 - d identify a range of possible risk mitigating measures;
 - e determine the necessary level of robustness of the selected mitigating measures in such a way that the operation can be conducted safely.
- 2 The description of the UAS operation shall include at least the following:
 - a the nature of the activities performed;
 - b the operational environment and geographical area for the intended operation, in particular overflown population, orography, types of airspace, airspace volume where the operation will take place and which airspace volume is kept as necessary risk buffers, including the operational requirements for geographical zones;
 - c the complexity of the operation, in particular which planning and execution, personnel competencies, experience and composition, required technical means are planned to conduct the operation;

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- d the technical features of the UAS, including its performance in view of the conditions of the planned operation and, where applicable, its registration number;
 - e the competence of the personnel for conducting the operation including their composition, role, responsibilities, training and recent experience.
- 3 The assessment shall propose a target level of safety, which shall be equivalent to the safety level in manned aviation, in view of the specific characteristics of UAS operation.
- 4 The identification of the risks shall include the determination of all of the below:
- a the unmitigated ground risk of the operation taking into account the type of operation and the conditions under which the operation takes place, including at least the following criteria:
 - i. VLOS or BVLOS;
 - ii. population density of the overflowed areas;
 - iii. flying over an assembly of people;
 - iv. the dimension characteristics of the unmanned aircraft;
 - b the unmitigated air risk of the operation taking into account all of the below:
 - i. the exact airspace volume where the operation will take place, extended by a volume of airspace necessary for contingency procedures;
 - ii. the class of the airspace;
 - iii. the impact on other air traffic and air traffic management (ATM) and in particular:
 - the altitude of the operation;
 - controlled versus uncontrolled airspace;
 - aerodrome versus non-aerodrome environment;
 - airspace over urban versus rural environment;
 - separation from other traffic.
- 5 The identification of the possible mitigation measures necessary to meet the proposed target level of safety shall consider the following possibilities:
- a containment measures for people on the ground;
 - b strategic operational limitations to the UAS operation, in particular:
 - i. restricting the geographical volumes where the operation takes place;
 - ii. restricting the duration or schedule of the time slot in which the operation takes place;
 - c strategic mitigation by common flight rules or common airspace structure and services;
 - d capability to cope with possible adverse operating conditions;
 - e organisation factors such as operational and maintenance procedures elaborated by the UAS operator and maintenance procedures compliant with the manufacturer's user manual;
 - f the level of competency and expertise of the personnel involved in the safety of the flight;
 - g the risk of human error in the application of the operational procedures;
 - h the design features and performance of the UAS in particular:

Status: Point in time view as at 06/06/2020.

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- i. the availability of means to mitigate risks of collision;
- ii. the availability of systems limiting the energy at impact or the frangibility of the unmanned aircraft;
- iii. the design of the UAS to recognised standards and the fail-safe design.

6 The robustness of the proposed mitigating measures shall be assessed in order to determine whether they are commensurate with the safety objectives and risks of the intended operation, particularly to make sure that every stage of the operation is safe.

Article 12

Authorising operations in the ‘specific’ category

1 The competent authority shall evaluate the risk assessment and the robustness of the mitigating measures that the UAS operator proposes to keep the UAS operation safe in all phases of flight.

2 The competent 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;
- c the UAS operator has provided a statement confirming that the intended operation complies with any applicable Union and national rules relating to it, in particular, with regard to privacy, data protection, liability, insurance, security and environmental protection.

3 When the operation is not deemed sufficiently safe, the competent authority shall inform the applicant accordingly, giving reasons for its refusal to issue the operational authorisation.

4 The operational authorisation granted by the competent authority shall detail:

- a the scope of the authorisation;
- b the ‘specific’ conditions that shall apply:
 - 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 registration number of the UAS operator and 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;

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- iv. the mitigation measures that the UAS operator has to apply;
- v. the location(s) where the operation is authorised to take place and any other locations in a Member States in accordance with Article 13;
- vi. all documents and records relevant for the type of operation and the type of events that should be reported in addition to those defined in Regulation (EU) No 376/2014 of the European Parliament and of the Council⁽⁹⁾.

5 Upon receipt of the declaration referred to in paragraph 5 of Article 5, the competent authority shall:

- a verify that it contains all elements set out in paragraph 2 of point UAS.SPEC.020 of the Annex;
- b if this is the case, provide the UAS operator with a confirmation of receipt and completeness without undue delay so that the operator may start the operation.

Article 13

Cross-border operations or operations outside the state of registration

1 When an UAS operator intends to conduct an operation in the ‘specific’ category for which an operational authorisation has already been granted in accordance with Article 12, and which is intended to take place partially or entirely in the airspace of a Member State other than the Member State of registration, the UAS operator shall provide the competent authority of the Member State of intended operation with an application including the following information:

- a a copy of the operational authorisation granted to the UAS operator in accordance with Article 12; and
- b the location(s) of the intended operation including the updated mitigation measures, if needed, to address those risks identified under Article 11(2)(b) which are specific to the local airspace, terrain and population characteristics and the climatic conditions.

2 Upon receipt of the application set out in paragraph 1, the competent authority of the Member State of intended operation shall assess it without undue delay and provide the competent authority of the Member State of registration and the UAS operator with a confirmation that the updated mitigation measures referred to in point (b) of paragraph 1 are satisfactory for the operation at the intended location. Upon receipt of that confirmation, the UAS operator may start the intended operation and the Member State of registration shall record the updated mitigation measures that the UAS operator has to apply in the operational authorisation issued in accordance with Article 12.

3 When an UAS operator intends to conduct an operation in the ‘specific’ category for which a declaration has been made in accordance with paragraph 5 of Article 5, and which is intended to take place partially or entirely in the airspace of a Member State other than the Member State of registration, the UAS operator shall provide the competent authority of the Member State of the intended operation with a copy of the declaration submitted to the Member State of registration, as well as a copy of the confirmation of receipt and completeness.

^[F24] Where a UAS operator holding an LUC with privileges in accordance with point UAS.LUC.060 of the Annex intends to conduct an operation in the ‘specific category’ taking place partially or entirely in the airspace of a Member State other than the Member State of registration, the UAS operator shall provide the competent authority of the Member State of intended operation with the following information:

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- a a copy of the term of approval received in accordance with point UAS.LUC.050 of the Annex; and
- b the location or locations of the intended operation in accordance with paragraph 1(b) of this Article.]

Textual Amendments

- F2** Inserted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947](#) as regards standard scenarios for operations executed in or beyond the visual line of sight (Text with EEA relevance).

Article 14

Registration of UAS operators and certified UAS

1 Member States shall establish and maintain accurate registration systems for UAS whose design is subject to certification and for UAS operators whose operation may present a risk to safety, security, privacy, and protection of personal data or environment.

2 The registration systems for UAS operators shall provide the fields for introducing and exchanging the following information:

- a the full name and the date of birth for natural persons and the name and their identification number for legal persons;
- b the address of UAS operators;
- c their email address and telephone number;
- d an insurance policy number for UAS if required by Union or national law;
- e the confirmation by legal persons of the following statement: ‘All personnel directly involved in the operations are competent to perform their tasks, and the UAS will be operated only by remote pilots with the appropriate level of competency’;
- f operational authorisations and LUCs held and declarations followed by a confirmation in accordance with Article 12(5)(b).

3 The registration systems for unmanned aircraft whose design is subject to certification shall provide the fields for introducing and exchanging the following information:

- a manufacturer's name;
- b manufacturer's designation of the unmanned aircraft;
- c unmanned aircraft's serial number;
- d full name, address, email address and telephone number of the natural or legal person under whose name the unmanned aircraft is registered.

4 Member States shall ensure that registration systems are digital and interoperable and allow for mutual access and exchange of information through the repository referred to in Article 74 of Regulation (EU) 2018/1139.

5 UAS operators shall register themselves:

- a when operating within the ‘open’ category any of the following unmanned aircraft:
 - i. with a MTOM of 250 g or more, or, which in the case of an impact can transfer to a human kinetic energy above 80 Joules;

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- ii. that is equipped with a sensor able to capture personal data, unless it complies with Directive 2009/48/EC.
 - b when operating within the ‘specific’ category an unmanned aircraft of any mass.
- 6 UAS operators shall register themselves in the Member State where they have their residence for natural persons or where they have their principal place of business for legal persons and ensure that their registration information is accurate. A UAS operator cannot be registered in more than one Member State at a time.

Member States shall issue a unique digital registration number for UAS operators and for the UAS that require registration, allowing their individual identification.

The registration number for UAS operators shall be established on the basis of standards that support the interoperability of the registration systems;

7 The owner of an unmanned aircraft whose design is subject to certification shall register the unmanned aircraft.

The nationality and registration mark of an unmanned aircraft shall be established in line with ICAO Annex 7. An unmanned aircraft cannot be registered in more than one State at a time.

8 The UAS operators shall display their registration number on every unmanned aircraft meeting the conditions described in paragraph 5.

[^{F29} In addition to the data defined in point (2) Member States may collect additional identity information from the UAS operators.]

Textual Amendments

- F2** Inserted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight \(Text with EEA relevance\).](#)

Article 15

Operational conditions for UAS geographical zones

1 When defining UAS geographical zones for safety, security, privacy or environmental reasons, Member States may:

- [^{F1}a prohibit certain or all UAS operations, request particular conditions for certain or all UAS operations or require a prior flight authorisation for certain or all UAS operations;]
- b subject UAS operations to specified environmental standards;
- c allow access to certain UAS classes only;
- d allow access only to UAS equipped with certain technical features, in particular remote identification systems or geo awareness systems.

2 On the basis of a risk assessment carried out by the competent authority, Member States may designate certain geographical zones in which UAS operations are exempt from one or more of the ‘open’ category requirements.

3 When pursuant to paragraphs 1 or 2 Member States define UAS geographical zones, for geo awareness purposes they shall ensure that the information on the UAS geographical

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

zones, including their period of validity, is made publicly available in a common unique digital format.

Textual Amendments

- F1** Substituted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight \(Text with EEA relevance\)](#).

Article 16

UAS operations in the framework of model aircraft clubs and associations

1 Upon request by a model aircraft club or association, the competent authority may issue an authorisation for UAS operations in the framework of model aircraft clubs and associations.

2 The authorisation referred to in paragraph 1 shall be issued in accordance with any of the following:

- a relevant national rules;
- b established procedures, organisational structure and management system of the model aircraft club or association, ensuring that:
 - i. remote pilots operating in the framework of model aircraft clubs or associations are informed of the conditions and limitations defined in the authorisation issued by the competent authority;
 - ii. remote pilots operating in the framework of model aircraft clubs or associations are assisted in achieving the minimum competency required to operate the UAS safely and in accordance with the conditions and limitations defined in the authorisation;
 - iii. the model aircraft club or association takes appropriate action when informed that a remote pilot operating in the framework of model aircraft clubs or associations does not comply with the conditions and limitations defined in the authorisation, and, if necessary, inform the competent authority;
 - iv. the model aircraft club or association provides, upon request from the competent authority, documentation required for oversight and monitoring purposes.

3 The authorisation referred to in paragraph 1 shall specify the conditions under which operations in the framework of the model aircraft clubs or associations may be conducted and shall be limited to the territory of the Member State in which it is issued.

4 Member States may enable model aircraft clubs and associations to register their members into the registration systems established in accordance with Article 14 on their behalf. If this is not the case, the members of model aircraft clubs and associations shall register themselves in accordance with Article 14.

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

Article 17

Designation of the competent authority

1 Each Member State shall designate one or more entities as the competent authority for the tasks referred to in Article 18.

2 Where a Member State designates more than one entity as a competent authority it shall:

- a clearly define the areas of competence of each competent 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 this Regulation.

Article 18

Tasks of the competent authority

The competent authority shall be responsible for:

- (a) enforcing this Regulation;
- (b) issuing, suspending or revoking certificates of UAS operators and licenses of remote pilots operating within the 'certified' category of UAS operations;
- (c) issuing remote pilots with a proof of completion of an online theoretical knowledge examination according to points UAS.OPEN.020 and UAS.OPEN.040 of the Annex and issuing, amending, suspending, limiting or revoking certificates of competency of remote pilots according to point UAS.OPEN.030 of the Annex;
- (d) issuing, amending, suspending, limiting or revoking operational authorisations and LUCs and verifying completeness of declarations, which are required to carry out UAS operations in the 'specific' category of UAS operations;
- (e) keeping documents, records and reports concerning UAS operational authorisations, declarations, certificates of competency of the remote pilots and LUCs;
- (f) making available in a common unique digital format information on UAS geographical zones identified by the Member States and established within the national airspace of its State;
- (g) issuing a confirmation of receipt and completeness in accordance with Article 12(5) (b) or a confirmation in accordance with paragraph 2 of Article 13;
- (h) developing a risk-based oversight system for:
 - i. UAS operators that have submitted a declaration or hold an operational authorisation or an LUC;
 - ii. model clubs and associations that hold an authorisation referred to in Article 16;
- (i) for operations other than those in the 'open' category, establishing audit planning based on the risk profile, compliance level and the safety performance of UAS

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- operators who have submitted a declaration, or hold a certificate issued by the competent authority;
- (j) for operations other than those in the ‘open’ 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 this Regulation;
 - (k) implementing a system to detect and examine incidents of non-compliance by UAS operators operating in the ‘open’ or ‘specific’ categories and reported in accordance with paragraph 2 of Article 19;
 - (l) providing UAS operators with information and guidance that promotes the safety of UAS operations;
 - (m) establishing and maintaining registration systems for UAS whose design is subject to certification and for UAS operators whose operation may present a risk to safety, security, privacy, and protection of personal data or the environment.

Article 19

Safety information

1 The competent authorities of the Member States and market surveillance and control authorities referred to in Article 36 of Delegated Regulation (EU) 2019/945 shall cooperate on safety matters and establish procedures for the efficient exchange of safety information.

2 Each UAS operator shall report to the competent authority on any safety-related occurrence and exchange information regarding its UAS in compliance with Regulation (EU) No 376/2014.

3 The European Union Aviation Safety Agency (‘the Agency’) and the competent authorities shall collect, analyse and publish safety information concerning UAS operations in their territory in accordance with Article 119 of Regulation (EU) 2018/1139 and its implementing acts.

4 Upon receiving any of the information referred to in paragraphs 1, 2 or 3, the Agency and the competent authority shall take the necessary measures to address any safety issues on the best available evidence and analysis, taking into account interdependencies between the different domains of aviation safety, and between aviation safety, cyber security and other technical domains of aviation regulation.

5 Where the competent authority or the Agency takes measures in accordance with paragraph 4, it shall immediately notify all relevant interested parties and organisations that need to comply with those measures in accordance with Regulation (EU) 2018/1139 and its implementing acts.

Article 20

Particular provisions concerning the use of certain UAS in the ‘open’ category

UAS types within the meaning of Decision No 768/2008/EC of the European Parliament and of the Council⁽¹⁰⁾, which do not comply with Delegated Regulation (EU) 2019/945 and which are not privately-built are allowed to continue to be operated under the

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

following conditions, when they have been placed on the market before [^{F3}1 January 2023]:

- (a) in subcategory A1 as defined in Part A of the Annex, provided that the unmanned aircraft has a maximum take-off mass of less than 250 g, including its payload;
- (b) in subcategory A3 as defined in Part A of the Annex, provided that the unmanned aircraft has a maximum take-off mass of less than 25 kg, including its fuel and payload.

Textual Amendments

- F3** Substituted by [Commission Implementing Regulation \(EU\) 2020/746 of 4 June 2020 amending Implementing Regulation \(EU\) 2019/947 as regards postponing dates of application of certain measures in the context of the COVID-19 pandemic \(Text with EEA relevance\)](#).

Article 21

Adaptation of authorisations, declarations and certificates

1 Authorisations granted to UAS operators, certificates of remote pilot competency and declarations made by UAS operators or equivalent documentation, issued on the basis of national law, shall remain valid until [^{F3}1 January 2022].

2 By [^{F3}1 January 2022] Member States shall convert their existing certificates of remote pilot competency and their UAS operator authorisations or declarations, or equivalent documentation, including those issued until that date, in accordance with this Regulation.

3 Without prejudice to Article 14, UAS operations conducted in the framework of model aircraft clubs and associations shall be allowed to continue in accordance with relevant national rules and without an authorisation in accordance with Article 16 until [^{F3}1 January 2023].

Textual Amendments

- F3** Substituted by [Commission Implementing Regulation \(EU\) 2020/746 of 4 June 2020 amending Implementing Regulation \(EU\) 2019/947 as regards postponing dates of application of certain measures in the context of the COVID-19 pandemic \(Text with EEA relevance\)](#).

[^{F1}Article 22

Without prejudice to Article 20, the use of UAS in the ‘open’ category which do not comply with the requirements of Parts 1 to 5 of the Annex to Commission Delegated Regulation (EU) 2019/945⁽¹¹⁾ shall be allowed for a transitional period of [^{F3}30 months] starting one year after the date of entry into force of this Regulation, subject to the following conditions:

- (a) unmanned aircraft with a take-off mass of less than 500 g are operated within the operational requirements set out in points UAS.OPEN.020(1) of Part A of the Annex by a remote pilot having competency level defined by the Member State concerned;
- (b) unmanned aircraft with a take-off mass of less than 2 kg is operated by keeping a minimum horizontal distance of 50 meters from people and the remote pilots have a competency level at least equivalent to the one set out in point UAS.OPEN.030(2) of Part A of the Annex;

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (c) unmanned aircraft with a take-off mass of less than 25 kg is operated within the operational requirements set out in point UAS.OPEN.040(1) and (2) and the remote pilots have a competency level at least equivalent to the one set out in point UAS.OPEN.020(4)(b) of Part A of the Annex.]

Textual Amendments

- F1** Substituted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight \(Text with EEA relevance\).](#)
- F3** Substituted by [Commission Implementing Regulation \(EU\) 2020/746 of 4 June 2020 amending Implementing Regulation \(EU\) 2019/947 as regards postponing dates of application of certain measures in the context of the COVID-19 pandemic \(Text with EEA relevance\).](#)

[^{F1}Article 23

1 This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

[^{F3}It shall apply from 31 December 2020.]

2 Paragraph 5 of Article 5 and point (1)(l) of point UAS.SPEC.050 shall apply from 2 December 2021;

3 Point (2)(g) of point UAS.OPEN.060 shall apply from 1 July 2022.

4 Without prejudice to paragraph 1 of Article 21, until 2 December 2021 Member States may accept declarations made by UAS operators in accordance with paragraph 5 of Article 5, based on national standard scenarios or equivalent, if those national scenarios meet the requirements of point UAS.SPEC.020 of the Annex.

Such declarations shall cease to be valid from 2 December 2023.

[^{F35} Paragraph 3 of Article 15 shall apply from 1 January 2022.]]

Textual Amendments

- F1** Substituted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight \(Text with EEA relevance\).](#)
- F3** Substituted by [Commission Implementing Regulation \(EU\) 2020/746 of 4 June 2020 amending Implementing Regulation \(EU\) 2019/947 as regards postponing dates of application of certain measures in the context of the COVID-19 pandemic \(Text with EEA relevance\).](#)

This Regulation shall be binding in its entirety and directly applicable in all Member States.

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

I^{FI} ANNEX

UAS OPERATIONS IN THE ‘OPEN’ AND ‘SPECIFIC’ CATEGORIES

PART A

UAS OPERATIONS IN THE ‘OPEN’ CATEGORY

UAS.OPEN.010 General provisions

- (1) The category of UAS ‘open’ operations is divided into three subcategories A1, A2 and A3, on the basis of operational limitations, requirements for the remote pilot and technical requirements for UAS.
- (2) Where the UAS operation involves the flight of the unmanned aircraft starting from a natural elevation in the terrain or over terrain with natural elevations, the unmanned aircraft shall be maintained within 120 metres from the closest point of the surface of the earth. The measurement of distances shall be adapted accordingly to the geographical characteristics of the terrain, such as plains, hills, mountains.
- (3) When flying an unmanned aircraft within a horizontal distance of 50 metres from an artificial obstacle taller than 105 metres, the maximum height of the UAS operation may be increased up to 15 metres above the height of the obstacle at the request of the entity responsible for the obstacle.
- (4) By way of derogation from point (2), unmanned sailplanes with a MTOM, including payload, of less than 10 kg, may be flown at a distance in excess of 120 metres from the closest point of the surface of the earth, provided that the unmanned sailplane is not flown at a height greater than 120 metres above the remote pilot at any time.

UAS.OPEN.020 UAS operations in subcategory A1

UAS operations in subcategory A1 shall comply with all of the following conditions:

- (1) for unmanned aircraft referred to in point (5)(d), be conducted in such a way that a remote pilot of the unmanned aircraft does not overfly assemblies of people and reasonably expects that no uninvolved person will be overflowed. In the event of unexpected overflight of uninvolved persons, the remote pilot shall reduce as much as possible the time during which the unmanned aircraft overflies those persons;
- (2) in the case of an unmanned aircraft referred to in points (5)(a), (5)(b) and (5)(c), be conducted in such a way that the remote pilot of the unmanned aircraft may overfly uninvolved persons, but shall never overfly assemblies of people;
- (3) by way of derogation from point (d) of paragraph 1 of Article 4, be conducted, when the follow-me mode is active, up to a distance of 50 metres from the remote pilot;
- (4) be performed by a remote pilot who:
 - (a) is familiar with manufacturer’s instructions provided by the manufacturer of the UAS;
 - (b) in the case of an unmanned aircraft class C1, as defined in Part 2 of the Annex to Delegated Regulation (EU) 2019/945, has completed an online training course followed by completing successfully an online theoretical knowledge examination provided by the competent authority or by an entity designated by the competent authority of a Member State achieving at least 75% of the

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

overall marks. The examination shall comprise 40 multiple-choice questions distributed appropriately across the following subjects:

- (i) air safety;
- (ii) airspace restrictions;
- (iii) aviation regulation;
- (iv) human performance limitations;
- (v) operational procedures;
- (vi) UAS general knowledge;
- (vii) privacy and data protection;
- (viii) insurance;
- (ix) security.

(5) be performed with an unmanned aircraft that:

- (a) has an MTOM, including payload, of less than 250 g and a maximum operating speed of less than 19 m/s, in the case of a privately built UAS; or
- (b) meets the requirements defined in point (a) of Article 20;
- (c) is marked as class C0 and complies with the requirements of that class, as defined in Part 1 of the Annex to Delegated Regulation (EU) 2019/945; or
- (d) is marked as class C1 and complies with the requirements of that class, as defined in Part 2 of the Annex to Delegated Regulation (EU) 2019/945 and is operated with active and updated direct remote identification system and geo-awareness function.

UAS.OPEN.030 UAS operations in subcategory A2

UAS operations in subcategory A2 shall comply with all of the following conditions:

- (1) be conducted in such a way that the unmanned aircraft does not overfly uninvolved persons and the UAS operations take place at a safe horizontal distance of at least 30 metres from them; the remote pilot may reduce the horizontal safety distance down to a minimum of 5 metres from an uninvolved person when operating an unmanned aircraft with an active low speed mode function and after evaluation of the situation regarding:
 - (a) weather conditions,
 - (b) performance of the unmanned aircraft,
 - (c) segregation of the overflowed area.
- (2) be performed by a remote pilot who is familiar with manufacturer's instructions provided by the manufacturer of the UAS and holds a certificate of remote pilot competency issued by the competent authority or by an entity designated by the competent authority of a Member State. This certificate shall be obtained after complying with all of the following conditions and in the order indicated:

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (a) completing an online training course and passed the online theoretical knowledge examination as referred to in point (4)(b) of point UAS.OPEN.020;
 - (b) completing a self-practical training in the operating conditions of the subcategory A3 set out in points (1) and (2) of point UAS.OPEN.040;
 - (c) declaring the completion of the self-practical training defined in point (b) and passing an additional theoretical knowledge examination provided by the competent authority or at an entity designated by the competent authority of a Member State achieving at least 75% of the overall marks. The examination shall comprise at least 30 multiple-choice questions aimed at assessing the remote pilot's knowledge of the technical and operational mitigations for ground risk, distributed appropriately across the following subjects:
 - (i) meteorology;
 - (ii) UAS flight performance;
 - (iii) technical and operational mitigations for ground risk.
- (3) be performed with an unmanned aircraft which is marked as class C2 and complies with the requirements of that class, as defined in Part 3 of the Annex to Delegated Regulation (EU) 2019/945, and is operated with active and updated direct remote identification system and geo-awareness function.
- UAS.OPEN.040 UAS operations in subcategory A3

UAS operations in subcategory A3 shall comply with all of the following conditions:

- (1) be conducted in an area where the remote pilot reasonably expects that no uninvolved person will be endangered within the range where the unmanned aircraft is flown during the entire time of the UAS operation;
- (2) be conducted at a safe horizontal distance of at least 150 metres from residential, commercial, industrial or recreational areas;
- (3) be performed by a remote pilot who is familiar with manufacturer's instructions provided by the manufacturer of the UAS and who has completed an online training course and passed an online theoretical knowledge examination as defined in point (4)(b) of point UAS.OPEN.020;
- (4) be performed with an unmanned aircraft that:
 - (a) has an MTOM, including payload, of less than 25 kg, in the case of a privately built UAS, or
 - (b) meets the requirements defined in point (b) of Article 20;
 - (c) is marked as class C2 and complies with the requirements of that class, as defined in Part 3 of the Annex to Delegated Regulation (EU) 2019/945 and is operated with active and updated direct remote identification system and geo-awareness function or;
 - (d) is marked as class C3 and complies with the requirements of that class, as defined in Part 4 of the Annex to Delegated Regulation (EU) 2019/945 and is operated with active and updated direct remote identification system and geo-awareness function; or

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (e) is marked as class C4 and complies with the requirements of that class, as defined in Part 5 of the Annex to Delegated Regulation (EU) 2019/945.

UAS.OPEN.050 Responsibilities of the UAS operator

The UAS operator shall comply with all of the following:

- (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 performing a task in support of the operations are familiar with manufacturer's instructions provided by the manufacturer of the UAS, and:
 - (a) have appropriate competency in the subcategory of the intended UAS operations in accordance with points UAS.OPEN.020, UAS.OPEN.030 or UAS.OPEN.040 to perform their tasks or, for personnel other than the remote pilot, have completed an on-the-job-training course developed by the operator;
 - (b) are fully familiar with the UAS operator's procedures;
 - (c) are provided with the information relevant to the intended UAS operation concerning any geographical zones published by the Member State of operation in accordance with Article 15;
- (5) update the information into the geo-awareness system when applicable according to the intended location of operation;
- (6) in the case of an operation with an unmanned aircraft of one of the classes defined in Parts 1 to 5 of the Annex of Delegated Regulation (EU) 2019/945, ensure that the UAS is:
 - (a) accompanied by the corresponding EU declaration of conformity, including the reference to the appropriate class; and
 - (b) the related class identification label is affixed to the unmanned aircraft.
- (7) Ensure in the case of an UAS operation in subcategory A2 or A3, that all involved persons present in the area of the operation have been informed of the risks and have explicitly agreed to participate.

UAS.OPEN.060 Responsibilities of the remote pilot

- (1) Before starting an UAS operation, the remote pilot shall:
 - (a) have the appropriate competency in the subcategory of the intended UAS operations in accordance with points UAS.OPEN.020, UAS.OPEN.030 or UAS.OPEN.040 to perform its task and carry a proof of competency while operating the UAS, except when operating an unmanned aircraft referred to in points (5)(a), (5)(b) or (5)(c) of point UAS.OPEN.020;
 - (b) obtain updated information relevant to the intended UAS operation about any geographical zone published by the Member State of operation in accordance with Article 15;

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (c) observe the operating environment, check the presence of obstacles and, unless operating in subcategory A1 with an unmanned aircraft referred to in points (5)(a), (5)(b) or (5)(c) of point UAS.OPEN.020, check the presence of any uninvolved person;
 - (d) ensure that the UAS is in a condition to safely complete the intended flight, and if applicable, check if the direct remote identification is active and up-to-date;
 - (e) if the UAS is fitted with an additional payload, verify that its mass does not exceed neither the MTOM defined by the manufacturer or the MTOM limit of its class.
- (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 in geographical zones defined in accordance with Article 15;
 - (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 operator's procedures when available;
 - (g) when operating at night, ensure that a green flashing light on the unmanned aircraft is activated.
- (3) During the flight, remote pilots and UAS operators shall not fly close to or inside areas where an emergency response effort is ongoing unless they have permission to do so from the responsible emergency response services.
- (4) For the purposes of point (2)(b), remote pilots may be assisted by an unmanned aircraft observer. In such case, clear and effective communication shall be established between the remote pilot and the unmanned aircraft observer.

UAS.OPEN.070 Duration and validity of the remote pilot online theoretical competency and certificates of remote pilot competency

- (1) The remote pilot online theoretical competency, required by points (4)(b) of point UAS.OPEN.020 and point (3) of point UAS.OPEN.040, and the certificate of remote pilot competency, required by point (2) of point UAS.OPEN.030, shall be valid for five years.
- (2) The revalidation of the remote pilot online theoretical competency and of the certificate of remote pilot competency is, within its validity period, subject to:

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (a) a demonstration of competencies respectively in accordance with point (4)(b) of point UAS.OPEN.020 or point (2) of point UAS.OPEN.030; or
 - (b) the completion of a refresher training addressing respectively the theoretical knowledge subjects as defined in point (4)(b) of point UAS.OPEN.020 or point (2) of point UAS.OPEN.030 provided by the competent authority or by an entity designated by the competent authority.
- (3) In order to revalidate the remote pilot online theoretical competency or the certificate of remote pilot competency upon its expiration, the remote pilot shall comply with point (2)(a).

PART B

UAS OPERATIONS IN THE ‘SPECIFIC’ CATEGORY

UAS.SPEC.010 General provisions

The UAS operator shall provide the competent authority with an operational risk assessment for the intended operation in accordance with Article 11, or submit a declaration when point UAS.SPEC.020 is applicable, unless the operator holds a light UAS operator certificate (LUC) with the appropriate privileges, in accordance with Part C of this Annex. The UAS operator shall regularly evaluate the adequacy of the mitigation measures taken and update them where necessary.

UAS.SPEC.020 Operational declaration

- (1) In accordance with Article 5, the UAS operator may submit an operational declaration of compliance with a standard scenario as defined in Appendix 1 to this Annex to the competent authority of the Member State of registration as an alternative to points UAS.SPEC.30 and UAS.SPEC.40 in relation to operations:
- (a) of unmanned aircraft with:
 - (i) maximum characteristic dimension up to 3 metres in VLOS over controlled ground area except over assemblies of people,
 - (ii) maximum characteristic dimension up to 1 metre in VLOS except over assemblies of people;
 - (iii) maximum characteristic dimension up to 1 metre in BVLOS over sparsely populated areas;
 - (iv) maximum characteristic dimension up to 3 metres in BVLOS over controlled ground area.
 - (b) performed below 120 metres from the closest point of the surface of the earth, and:
 - (i) in uncontrolled airspace (class F or G) unless different limitations are provided by Member States through UAS geographical zones in areas where the probability of encountering manned aircraft is not low; or
 - (ii) in controlled airspace, in accordance with published procedures for the area of operation, so that a low probability of encountering manned aircraft is ensured.

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- (2) A declaration of UAS operators shall contain:
 - (a) administrative information about the UAS operator;
 - (b) a statement that the operation satisfies the operational requirement set out in point (1) and a standard scenario as defined in Appendix 1 to the Annex;
 - (c) the commitment of the UAS operator to comply with the relevant mitigation measures required for the safety of the operation, including the associated instructions for the operation, for the design of the unmanned aircraft and the competency of involved personnel.
 - (d) confirmation by the UAS operator that an appropriate insurance cover will be in place for every flight made under the declaration, if required by Union or national law.
 - (3) Upon receipt of the declaration, the competent authority shall verify that the declaration contains all the elements listed in point (2) and shall provide the UAS operator with a confirmation of receipt and completeness without undue delay.
 - (4) After receiving the confirmation of receipt and completeness, the UAS operator is entitled to start the operation.
 - (5) UAS operators shall notify, without any delay, the competent authority of any change to the information contained in the operational declaration that they submitted.
 - (6) UAS operators holding an LUC with appropriate privileges, in accordance with Part C of this Annex, are not required to submit the declaration.
- UAS.SPEC.030 Application for an operational authorisation
- (1) Before starting an UAS operation in the ‘specific’ category the UAS operator shall obtain an operational authorisation from the national competent authority of the Member State of registration, except:
 - (a) when point UAS.SPEC.020 is applicable; or
 - (b) the UAS operator holds an LUC with the appropriate privileges, in accordance with Part C of this Annex.
 - (2) The UAS operator shall submit an application for an updated operational authorisation if there are any significant changes to the operation or to the mitigation measures listed in the operational authorisation.
 - (3) The application for an operational authorisation shall be based on the risk assessment referred to in Article 11 and shall include in addition the following information:
 - (a) the registration number of the UAS operator;
 - (b) the name of the accountable manager or the name of the UAS operator in the case of a natural person;
 - (c) the operational risk assessment;
 - (d) the list of mitigation measures proposed by the UAS operator, with sufficient information for the competent authority to assess the adequacy of the mitigation means to address the risks;
 - (e) an operations manual when required by the risk and complexity of the operation;

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- (f) a confirmation that an appropriate insurance cover will be in place at the start of the UAS operations, if required by Union or national law.

UAS.SPEC.040 Issuing of an operational authorisation

- (1) When receiving an application in accordance with point UAS.SPEC.030, the competent authority shall issue, without undue delay, an operational authorisation in accordance with Article 12 when it concludes that the operation meets the following conditions:
- (a) all information in accordance with point (3) of point UAS.SPEC.030 is provided;
- (b) a procedure is in place for coordination with the relevant service provider for the airspace if the entire operation, or part of it, is to be conducted in controlled airspace.
- (2) The competent authority shall specify in the operational authorisation the exact scope of the authorisation in accordance with Article 12.

UAS.SPEC.050 Responsibilities of the UAS operator

- (1) The UAS operator shall comply with all of the following:
- (a) establish procedures and limitations adapted to the type of the intended operation and the risk involved, including:
- (i) operational procedures to ensure the safety of the operations;
- (ii) procedures to ensure that security requirements applicable to the area of operations are complied with in the intended operation;
- (iii) measures to protect against unlawful interference and unauthorised access;
- (iv) procedures to ensure that all operations are in respect of Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data. In particular it shall carry out a data protection impact assessment, when required by the National Authority for data protection in application of Article 35 of Regulation (EU) 2016/679;
- (v) guidelines for its remote pilots to plan UAS operations in a manner that minimises nuisances, including noise and other emissions-related nuisances, to people and animals.
- (b) designate a remote pilot for each flight or, in the case of autonomous operations, ensure that during all phases of the flight, responsibilities and tasks especially those defined in points (2) and (3) of point UAS.SPEC.060 are properly allocated in accordance with the procedures established pursuant to point (a);
- (c) ensure that all operations effectively use and support the efficient use of radio spectrum in order to avoid harmful interference;
- (d) ensure that before conducting operations, remote pilots comply with all of the following conditions:

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (i) have the competency to perform their tasks in line with the applicable training identified by the operational authorisation or, if point UAS.SPEC.020 applies, by the conditions and limitations defined in the appropriate standard scenario listed in Appendix 1 or as defined by the LUC;
 - (ii) follow remote pilot training which shall be competency based and include the competencies set out in paragraph 2 of Article 8;
 - (iii) follow remote pilot training, as defined in the operational authorisation, for operations requiring such authorisation, it shall be conducted in cooperation with an entity designated by the competent authority;
 - (iv) follow remote pilot training for operations under declaration that shall be conducted in accordance with the mitigation measures defined by the standard scenario;
 - (v) have been informed about the UAS operator's operations manual, if required by the risk assessment and procedures established in accordance with point (a);
 - (vi) obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15;
- (e) ensure that personnel in charge of duties essential to the UAS operation, other than the remote pilot itself, comply with all of the following conditions:
- (i) have completed the on-the-job-training developed by the operator;
 - (ii) have been informed about the UAS operator's operations manual, if required by the risk assessment, and about the procedures established in accordance with point (a);
 - (iii) have obtained updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15;
- (f) carry out each operation within the limitations, conditions, and mitigation measures defined in the declaration or specified in the operational authorisation;
- (g) keep and maintain an up-to-date record of:
- (i) all the relevant qualifications and training courses completed by the remote pilot and the other personnel in charge of duties essential to the UAS operation and by the maintenance staff, for at least 3 years after those persons have ceased employment with the organisation or have changed their position in the organisation;
 - (ii) the maintenance activities conducted on the UAS for a minimum of 3 years;
 - (iii) the information on UAS operations, including any unusual technical or operational occurrences and other data as required by

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the declaration or by the operational authorisation for a minimum of 3 years;

- (h) use UAS which, as a minimum, are designed in such a manner that a possible failure will not lead the UAS to fly outside the operation volume or to cause a fatality. In addition, Man Machine interfaces shall be such to minimise the risk of pilot error and shall not cause unreasonable fatigue;
- (i) maintain the UAS in a suitable condition for safe operation by:
 - (i) as a minimum, defining maintenance instructions and employing an adequately trained and qualified maintenance staff; and
 - (ii) complying with point UAS.SPEC.100, if required;
 - (iii) using an unmanned aircraft which is designed to minimise noise and other emissions, taking into account the type of the intended operations and geographical areas where the aircraft noise and other emissions are of concern.
- (j) establish and keep an up-to-date list of the designated remote pilots for each flight;
- (k) establish and keep an up-to-date list of the maintenance staff employed by the operator to carry out maintenance activities; and
- (l) ensure that each individual unmanned aircraft is installed with:
 - (i) at least one green flashing light for the purpose of visibility of the unmanned aircraft at night, and
 - (ii) an active and up-to-date remote identification system.

UAS.SPEC.060 Responsibilities of the remote pilot

- (1) 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) have the appropriate remote pilot competency as defined in the operational authorisation, in the standard scenario defined in Appendix 1 or as defined by the LUC and carry a proof of competency while operating the UAS.
 - (c) be familiar with manufacturer's instructions provided by the manufacturer of the UAS.
- (2) Before starting an UAS operation, the remote pilot shall comply with all of the following:
 - (a) obtain updated information relevant to the intended operation about any geographical zones defined in accordance with Article 15;
 - (b) ensure that the operating environment is compatible with the authorised or declared limitations and conditions;
 - (c) ensure that the UAS is in a safe condition to complete the intended flight safely, and if applicable, check if the direct remote identification is active and up-to-date;

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (d) ensure that the information about the operation has been made available to the relevant air traffic service (ATS) unit, other airspace users and relevant stakeholders, as required by the operational authorisation or by the conditions published by the Member State for the geographical zone of operation in accordance with Article 15.
- (3) During the flight, the remote pilot shall:
- (a) comply with the authorised or declared limitations and conditions;
 - (b) avoid any risk of collision with any manned aircraft and discontinue a flight when continuing it may pose a risk to other aircraft, people, animals, environment or property;
 - (c) comply with the operational limitations in geographical zones defined in accordance with Article 15;
 - (d) comply with the operator's procedures;
 - (e) not fly close to or inside areas where an emergency response effort is ongoing unless they have permission to do so from the responsible emergency response services.

UAS.SPEC.070 Transferability of an operational authorisation

An operational authorisation is not transferable.

UAS.SPEC.080 Duration and validity of an operational authorisation

- (1) The competent authority shall specify the duration of the operational authorisation in the authorisation itself.
- (2) Notwithstanding point (1), the operational authorisation remains valid as long as the UAS operator remains compliant with the relevant requirements of this Regulation and with the conditions defined in the operational authorisation.
- (3) Upon revocation or surrender of the operational authorisation the UAS operator shall provide an acknowledgment in digital format that must be returned to the competent authority without delay.

UAS.SPEC.085 Duration and validity of an operational declaration:

The operational declaration shall have a limited duration of 2 years. The declaration shall no longer be considered as complete within the meaning of point (4) of point UAS.SPEC.020 if:

- (1) during the oversight of the UAS operator, the competent authority has found that the UAS operation is not conducted in accordance with the operational declaration;
- (2) the conditions of the UAS operation have changed to the extent that the operational declaration no longer complies with the applicable requirements of this Regulation;
- (3) the competent authority is not granted access in accordance with point UAS.SPEC.090.

UAS.SPEC.090 Access

For the purpose of demonstrating compliance with this Regulation, an UAS operator shall grant to any person, that is duly authorised by the competent authority, an access to any facility, UAS, document, records, data, procedures or to any other material relevant to its activity, which is subject to operational authorisation or operational declaration, regardless of whether or not its activity is contracted or subcontracted to another organisation.

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

UAS.SPEC.100 Use of certified equipment and certified unmanned aircraft

- (1) If the UAS operation is using an unmanned aircraft for which a certificate of airworthiness or a restricted certificate of airworthiness have been issued, or using certified equipment, the UAS operator shall record the operation or service time in accordance either with the instructions and procedures applicable to the certified equipment, or with the organisational approval or authorisation.
- (2) The UAS operator shall follow the instructions referred to in the unmanned aircraft certificate or equipment certificate, and also comply with any airworthiness or operational directives issued by the Agency.

PART C

LIGHT UAS OPERATOR CERTIFICATE (LUC)

UAS.LUC.010 General requirements for an LUC

- (1) A legal person is eligible to apply for an LUC under this Part.
- (2) An application for an LUC or for an amendment to an existing LUC shall be submitted to the competent authority and shall contain all of the following information:
 - (a) a description of the UAS operator's management system, including its organisational structure and safety management system;
 - (b) the name(s) of the responsible UAS operator's personnel, including the person responsible for authorising operations with UASs;
 - (c) a statement that all the documentation submitted to the competent authority has been verified by the applicant and found to comply with the applicable requirements.
- (3) If the requirements of this Part are met, an LUC holder may be granted the privileges, in accordance with point UAS.LUC.060.

UAS.LUC.020 Responsibilities of the LUC holder

The LUC holder shall:

- (1) comply with the requirements of points UAS.SPEC.050 and UAS.SPEC.060;
- (2) comply with the scope and privileges defined in the terms of approval;
- (3) establish and maintain a system for exercising operational control over any operation conducted under the terms of its LUC;
- (4) carry out an operational risk assessment of the intended operation in accordance with Article 11 unless conducting an operation for which an operational declaration is sufficient according to point UAS.SPEC.020,
- (5) keep records of the following items in a manner that ensures protection from damage, alteration and theft for a period at least 3 years for operations conducted using the privileges specified under point UAS.LUC.060:
 - (a) the operational risk assessment, when required according to point (4), and its supporting documentation;
 - (b) mitigation measures taken; and

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (c) the qualifications and experience of personnel involved in the UAS operation, compliance monitoring and safety management;
- (6) keep personnel records referred to in point (5)(c) as long as the person works for the organisation and shall be retained until 3 years after the person has left the organisation.

UAS.LUC.030 Safety management system

- (1) An UAS operator who applies for an LUC shall establish, implement and maintain a safety management system corresponding to the size of the organisation, to the nature and complexity of its activities, taking into account the hazards and associated risks inherent in these activities.
- (2) The UAS operator shall comply with all of the following:
 - (a) nominate an accountable manager with authority for ensuring that within the organisation all activities are performed in accordance with the applicable standards and that the organisation is continuously in compliance with the requirements of the management system and the procedures identified in the LUC manual referred to in point UAS.LUC.040;
 - (b) define clear lines of responsibility and accountability throughout the organisation;
 - (c) establish and maintain a safety policy and related corresponding safety objectives;
 - (d) appoint key safety personnel to execute the safety policy;
 - (e) establish and maintain a safety risk management process including the identification of safety hazards associated with the activities of the UAS operator, as well as their evaluation and the management of associated risks, including taking action to mitigate those risks and verify the effectiveness of the action;
 - (f) promote safety in the organisation through:
 - (i) training and education;
 - (ii) communication;
 - (g) document all safety management system key processes for making personnel aware of their responsibilities and of the procedure for amending this documentation; key processes include:
 - (i) safety reporting and internal investigations;
 - (ii) operational control;
 - (iii) communication on safety;
 - (iv) training and safety promotion;
 - (v) compliance monitoring;
 - (vi) safety risk management;
 - (vii) management of change;
 - (viii) interface between organisations;
 - (ix) use of sub-contractors and partners;

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- (h) include an independent function to monitor the compliance and adequacy of the fulfilment of the relevant requirements of this Regulation, including a system to provide feedback of findings to the accountable manager to ensure effective implementation of corrective measures as necessary;
- (i) include a function to ensure that safety risks inherent to a service or product delivered through subcontractors are assessed and mitigated under the operator's safety management system.
- (3) If the organisation holds other organisation certificates within the scope of Regulation (EU) 2018/1139, the safety management system of the UAS operator may be integrated with the safety management system that is required by any of those additional certificate(s).

UAS.LUC.040 LUC manual

- (1) An LUC holder shall provide the competent authority with an LUC manual describing directly or by cross reference its organisation, the relevant procedures and the activities carried out.
- (2) The manual shall contain a statement signed by the accountable manager that confirms that the organisation will at all times work in accordance with this Regulation and with the approved LUC manual. When the accountable Manager is not the Chief Executive Officer of the organisation, the chief executive officer shall countersign the statement.
- (3) If any activity is carried out by partner organisations or subcontractors, the UAS operator shall include in the LUC manual procedures on how the LUC holder shall manage the relationship with those partner organisations or subcontractors.
- (4) The LUC manual shall be amended as necessary to retain an up-to-date description of the LUC holder's organisation, and copies of amendments shall be provided to the competent authority.
- (5) The UAS operator shall distribute the relevant parts of the LUC manual to all its personnel in accordance with their functions and duties.

UAS.LUC.050 Terms of approval of the LUC holder

- (1) The competent authority shall issue an LUC after it is satisfied that the UAS operator complies with points UAS.LUC.020, UAS.LUC.030 and UAS.LUC.040.
- (2) The LUC shall include:
 - (a) the UAS operator identification;
 - (b) the UAS operator's privileges;
 - (c) authorised type(s) of operation;
 - (d) the authorised area, zone or class of airspace for operations, if applicable;
 - (e) any special limitations or conditions, if applicable;

UAS.LUC.060 Privileges of the LUC holder

When satisfied with the documentation provided, the competent authority:

- (1) shall specify the terms and conditions of the privilege granted to the UAS operator in the LUC; and

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (2) may, within the terms of approval, grant to an LUC holder the privilege to authorise its own operations without:
- (a) submitting an operational declaration;
 - (b) applying for an operational authorisation.

UAS.LUC.070 Changes in the LUC management system

After an LUC is issued, the following changes require prior approval by the competent authority:

- (1) any change in the terms of approval of the UAS operator;
- (2) any significant change to the elements of the LUC holder's safety management system as required by point UAS.LUC.030.

UAS.LUC.075 Transferability of an LUC

Except for the change to the ownership of the organisation, approved by the competent authority in accordance with point UAS.LUC.070, an LUC is not transferable.

UAS.LUC.080 Duration and validity of an LUC

- (1) An LUC shall be issued for an unlimited duration. It shall remain valid subject to:
 - (a) the LUC holder's continuous compliance with the relevant requirements of this Regulation and of the Member State that issued the certificate; and
 - (b) it not being surrendered or revoked.
- (2) Upon revocation or surrender of an LUC, the LUC holder shall provide an acknowledgment in digital format that must be returned to the competent authority without delay.

UAS.LUC.090 Access

For the purpose of demonstrating compliance with this Regulation, the LUC holder shall grant any person, that is duly authorised by the competent authority, an access to any facility, UAS, document, records, data, procedures or to any other material relevant to its activity, which is subject to certification, operational authorisation or operational declaration, regardless of whether or not its activity is contracted or subcontracted to another organisation.

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Appendix 1

for standard scenarios supporting a declaration

CHAPTER I

STS-01 – VLOS over a controlled ground area in a populated environment UAS.STS-01.010 General provisions

- (1) During flight, the unmanned aircraft shall be maintained within 120 m from the closest point of the surface of the earth. The measurement of distances shall be adapted accordingly to the geographical characteristics of the terrain, such as plains, hills, mountains.
- (2) When flying an unmanned aircraft within a horizontal distance of 50 m from an artificial obstacle taller than 105 metres, the maximum height of the UAS operation may be increased up to 15 m above the height of the obstacle at the request of the entity responsible for the obstacle.
- (3) The maximum height of the operational volume shall not exceed 30 m above the maximum height allowed in points (1) and (2).
- (4) During flight, the unmanned aircraft shall not carry dangerous goods.

UAS.STS-01.020 UAS operations in STS-01

- (1) UAS operations in STS-01 shall meet all of the following conditions:
 - (a) be conducted with the unmanned aircraft kept in VLOS at all times;
 - (b) be conducted in accordance with the operations manual referred to in point (1) of point UAS.STS-01.030;
 - (c) be conducted over a controlled ground area comprising:
 - (i) for the operation of an untethered unmanned aircraft:
 - (A) the flight geography area;
 - (B) the contingency area, with its external limit(s) at least 10 m beyond the limit(s) of the flight geography area; and
 - (C) the ground risk buffer, which shall cover a distance beyond the external limit(s) of the contingency area that meets at least the following parameters:

Maximum height above ground	Minimum distance to be covered by the ground risk buffer for untethered unmanned aircraft	
	with an MTOM up to 10 kg	with an MTOM above 10 kg
30 m	10 m	20 m
60 m	15 m	30 m
90 m	20 m	45 m

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120 m	25 m	60 m
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- (ii) for operation of a tethered unmanned aircraft, a radius equal to the tether length plus 5 m and centred on the point where the tether is fixed over the surface of the earth.
- (d) be conducted at a ground speed of less than 5 m/s in the case of untethered unmanned aircraft;
- (e) be conducted by a remote pilot who:
 - (i) holds a certificate of remote pilot theoretical knowledge in accordance with Attachment A to this Chapter for operations in the standard scenarios issued by the competent authority or by an entity designated by the competent authority of a Member State;
 - (ii) holds an accreditation of completion of the STS-01 practical skill training, in accordance with Attachment A to this Chapter and issued by:
 - (A) an entity that has declared compliance with the requirements in Appendix 3 and is recognised by the competent authority of a Member State; or
 - (B) an UAS operator that has declared to the competent authority of the Member State of registration, compliance with STS-01 and that has declared compliance with the requirements in Appendix 3; and
- (f) be conducted with an unmanned aircraft which is marked as class C5 and complies with the requirements of that class, as defined in Part 16 of the Annex to Delegated Regulation (EU) 2019/945, and is operated with active and updated direct remote identification system.
- (2) The remote pilot shall obtain the certificate of theoretical knowledge for operations in the standard scenarios after:
 - (a) having completed an online training course and passed the online theoretical knowledge examination as referred to in point (4)(b) of point UAS.OPEN.020; and
 - (b) having passed an additional theoretical knowledge examination provided by the competent authority or by an entity designated by the competent authority of a Member State in accordance with Attachment A to this Chapter.
- (3) This certificate shall be valid for five years. The revalidation, within its validity period is subject to any of the following:
 - (a) the demonstration of competencies in accordance with point (2);
 - (b) the completion of a refresher training addressing the theoretical knowledge subjects as defined in point (2) provided by the competent authority or by an entity designated by the competent authority.
- (4) In order to revalidate the certificate upon its expiration, the remote pilot shall comply with point (2).

UAS.STS-01.030 Responsibilities of the UAS operator

In addition to the responsibilities defined in UAS.SPEC.050, the UAS operator shall:

- (1) develop an operations manual including the elements defined in Appendix 5;

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- (2) define the operational volume and ground risk buffer for the intended operations, including the controlled ground area covering the projections on the surface of the earth within both the volume and the buffer;
- (3) ensure the adequacy of the contingency and emergency procedures through any of the following:
 - (a) dedicated flight tests;
 - (b) simulations, provided that the representativeness of the simulation means is appropriate for the intended purpose;
- (4) develop an effective emergency response plan (ERP) suitable for the operation that includes at least:
 - (a) the plan to limit any escalating effects of the emergency situation;
 - (b) the conditions to alert the relevant authorities and organisations;
 - (c) the criteria to identify an emergency situation;
 - (d) clear delineation of the duties of the remote pilot(s) and any other personnel in charge of duties essential to the UAS operation;
- (5) ensure that the level of performance for any externally provided service necessary for the safety of the flight is adequate for the intended operation;
- (6) define the allocation of the roles and responsibilities between the operator and the external service provider(s), if applicable;
- (7) upload updated information into the geo-awareness, if the function is installed on the UAS, when required by the UAS geographical zone for the intended location of operation;
- (8) ensure that, before starting the operation, the controlled ground area is in place, effective and compliant with the minimum distance defined in point UAS.STS-01.020(1)(C)(i)(C) and, when required, coordination with the appropriate authorities has been conducted;
- (9) ensure that, before starting the operation, all persons present in the controlled ground area:
 - (a) have been informed of the risks of the operation;
 - (b) have been briefed or trained, as appropriate, on the safety precautions and measures established by the UAS operator for their protection; and
 - (c) have explicitly agreed to participate in the operation;
- (10) ensure that:
 - (a) the UAS is accompanied by the corresponding EU declaration(s) of conformity, including the reference to class C5 or reference to class C3 and to the accessories kit; and
 - (b) the class C5 identification label is affixed to the unmanned aircraft or to the accessories kit.

UAS.STS-01.040 Responsibilities of the remote pilot

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

In addition to the responsibilities defined in UAS.SPEC.060, the remote pilot:

- (1) before starting an UAS operation, shall verify that the means to terminate the flight of the unmanned aircraft are operational and check if the direct remote identification is active and up-to-date;
- (2) during the flight:
 - (a) shall keep the unmanned aircraft in VLOS and maintain a thorough airspace scan of the airspace surrounding the unmanned aircraft in order to avoid any risk of a 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;
 - (b) for the purposes of point (a), may be assisted by an unmanned aircraft observer. In such case, clear and effective communication shall be established between the remote pilot and the unmanned aircraft observer;
 - (c) shall have the ability to maintain control of the unmanned aircraft, except in the case of a lost command and control (C2) link;
 - (d) shall operate only one unmanned aircraft at a time;
 - (e) shall not operate the unmanned aircraft from a moving vehicle;
 - (f) shall not hand over the control of the unmanned aircraft to another command unit;
 - (g) shall perform the contingency procedures defined by the UAS operator for abnormal situations, including when the remote pilot has an indication that the unmanned aircraft may exceed the limits of the flight geography; and
 - (h) shall perform the emergency procedures defined by the UAS operator for emergency situations, including triggering the means to terminate the flight when the remote pilot has an indication that the unmanned aircraft may exceed the limits of the operational volume.

ATTACHMENT A: REMOTE PILOT THEORETICAL KNOWLEDGE AND PRACTICAL SKILL EXAMINATION FOR STS-01

- (1) **Theoretical knowledge examination**
 - (a) The examination referred in point (2)(b) of point UAS.STS-01.020 shall comprise at least 40 multiple-choice questions aimed at assessing the remote pilot's knowledge of the technical and operational mitigations, distributed appropriately across the following subjects:
 - (i) aviation regulations;
 - (ii) human performance limitations;
 - (iii) operational procedures;
 - (iv) technical and operational mitigations for ground risk;
 - (v) UAS general knowledge;
 - (vi) meteorology;
 - (vii) the flight performance of the UAS; and

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- (viii) technical and operational mitigations for air risks.
 - (b) If the student remote pilot already holds a certificate of remote pilot competency as referred to in point (2) of point UAS.OPEN.030, the examination shall comprise at least 30 multiple-choice questions distributed appropriately across the subjects in points (1)(a)(i) to (1)(a)(v).
 - (c) To pass the theoretical knowledge examination, the remote pilot student shall achieve at least 75 % of the overall marks.
- (2) **Practical skill training and assessment**

The training and assessment of the practical skill for operations under any standard scenario shall cover at least the subjects and areas identified in Table 1:

TABLE 1

Subjects and areas to be covered for practical skill training and assessment

Subject	Areas to be covered
(a) Pre-flight actions	(i) Operation planning, airspace considerations and site risk assessment. The following points are to be included: <ul style="list-style-type: none"> (A) identify the objectives of the intended operation; (B) make sure that the defined operational volume and relevant buffers (e.g. ground risk buffer) are suitable for the intended operation; (C) spot the obstacles in the operational volume that could hinder the intended operation; (D) identify whether the wind speed and/or direction may be affected by topography or by obstacles in the operational volume; (E) select relevant data on airspace information (including on UAS geographical zones) that can have an impact on the intended operation; (F) make sure the UAS is suitable for the intended operation; (G) make sure that the selected payload is

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- (H) compatible with the UAS used for the operation; implement the necessary measures to comply with the limitations and conditions applicable to the operational volume and ground risk buffer for the intended operation in accordance with the operations manual procedures for the relevant scenario;
 - (I) implement the necessary procedures to operate in controlled airspace, including a protocol to communicate with ATC and obtain clearance and instructions, if necessary;
 - (J) confirm that all the necessary documents for the intended operation are on site; and
 - (K) brief all participants about the planned operation.
- (ii) UAS pre-flight inspection and set-up (including flight modes and power-source hazards). The following points are to be included:
- (A) assess the general condition of the UAS;
 - (B) ensure that all the removable components of the UAS are properly secured;
 - (C) make sure that the UAS software configurations are compatible;
 - (D) calibrate the instruments in the UAS;
 - (E) identify any flaw that may jeopardise the intended operation;
 - (F) make sure that the energy level of the battery is sufficient for the intended operation;
 - (G) make sure that the flight termination system of the UAS and its triggering system are operational;

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	<ul style="list-style-type: none"> (H) check the correct functioning of the command and control link; (I) activate the geo-awareness function and upload the information to it (if geo-awareness function is available); and (J) set the height and speed limitation systems (if available). <p>(iii) Knowledge of the basic actions to be taken in the event of an emergency situation, including issues with the UAS, or if a mid-air collision hazard arises during the flight.</p>
<p>(b) In-flight procedures</p>	<ul style="list-style-type: none"> (i) Maintain an effective look-out and keep the unmanned aircraft within visual line of sight (VLOS) at all times to include: situational awareness of the location in relation to the operational volume and other airspace users, obstacles, terrain and persons who are not involved at all times. (ii) Perform accurate and controlled flight manoeuvres at different heights and distances representative of the corresponding STS (including flight in manual/ non-GNSS assisted mode or the equivalent, where fitted). At least the following manoeuvres shall be performed: <ul style="list-style-type: none"> (A) hover in position (only for rotorcraft); (B) transition from hover into forward flight (only for rotorcraft); (C) climb and descent from level flight; (D) turns in level flight; (E) speed control in level flight; (F) actions after a failure of a motor/ propulsion system; and (G) evasive action (manoeuvres) to avoid collisions

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	<p>(iii) Real-time monitoring of the UAS status and endurance limitations. Flight under abnormal conditions:</p> <p>(A) manage a partial or complete power shortage of the unmanned aircraft propulsion system while ensuring the safety of third parties on the ground;</p> <p>(B) manage the path of the unmanned aircraft in abnormal situations;</p> <p>(C) manage a situation in which the unmanned aircraft positioning equipment is impaired;</p> <p>(D) manage a situation of an incursion by a person not involved into the operational volume or the controlled ground area, and take appropriate measures to maintain safety;</p> <p>(E) react to, and take the appropriate corrective actions for a situations where the unmanned aircraft is likely to exceed the limit of the flight geography (contingency procedures) and from the operational volume (emergency procedures) as defined during the flight preparation;</p> <p>(F) manage the situation when an aircraft approaches the operational volume; and</p> <p>(G) demonstrate the recovery method following a deliberate (simulated) loss of the command and control link.</p>
<p>(c) Post-flight actions</p>	<p>(i) Shut down and secure the UAS.</p> <p>(ii) Post-flight inspection and recording of any relevant data relating to the general condition of the UAS (its systems, components and power sources) and crew fatigue.</p>

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|-------|--|
| (iii) | Conduct a debriefing about the operation. |
| (iv) | Identify situations when an occurrence report was necessary and complete the required occurrence report. |

CHAPTER II

STS-02 – BVLOS with Airspace Observers over a controlled ground area in a sparsely populated environment

UAS.STS-02.010 General provisions

- (1) During flight, the unmanned aircraft shall be maintained within 120 m from the closest point of the surface of the earth. The measurement of distances shall be adapted according to the geographical characteristics of the terrain, such as plains, hills, mountains.
- (2) When flying an unmanned aircraft within a horizontal distance of 50 m from an artificial obstacle taller than 105 m, the maximum height of the UAS operation may be increased up to 15 m above the height of the obstacle at the request of the entity responsible for the obstacle.
- (3) The maximum height of the operational volume shall not exceed 30 m above the maximum height allowed in points (1) and (2).
- (4) During flight, the unmanned aircraft shall not carry dangerous goods.

UAS.STS-02.020 UAS operations in STS-02

UAS operations in STS-02 shall be conducted:

- (1) in accordance with the operations manual referred to in point (1) of point UAS.STS-02.030;
- (2) over a controlled ground area entirely located in a sparsely populated environment including:
 - (a) the flight geography area,
 - (b) the contingency, which its external limit(s) shall be located at least 10 m beyond the limit(s) of the flight geography area,
 - (c) a ground risk buffer covering a distance that is at least equal to the distance most likely to be travelled by the UA after activation of the means to terminate the flight specified by the UAS manufacturer in manufacturer's instructions, considering the operational conditions within the limitations specified by the UAS manufacturer;
- (3) in an area where the minimum flight visibility is more than 5 km;
- (4) with the unmanned aircraft in sight of the remote pilot during the launch and recovery of the unmanned aircraft, unless the latter is the result of an emergency flight termination;

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- (5) if no airspace observer is used in the operation, with the unmanned aircraft flying no further than 1 km from the remote pilot, with the unmanned aircraft following a pre-programmed trajectory when the unmanned aircraft is not in VLOS of the remote pilot;
- (6) if one or more airspace observers are used in the operation, it shall comply with all of the following conditions:
 - (a) the airspace observer(s) are positioned in a manner allowing for an adequate coverage of the operational volume and the surrounding airspace with the minimum flight visibility indicated in point (3);
 - (b) the unmanned aircraft is operated no further than 2 km from the remote pilot;
 - (c) the unmanned aircraft is operated no further than 1 km from the airspace observer who is nearest to the unmanned aircraft;
 - (d) the distance between any airspace observer and the remote pilot is not more than 1 km;
 - (e) robust and effective communication means are available for the communication between the remote pilot and the airspace observer(s);
- (7) by a remote pilot who holds:
 - (a) a certificate of remote pilot theoretical knowledge for operations in standard scenarios, issued by the competent authority or by an entity designated by the competent authority of a Member State;
 - (b) an accreditation of completion of the STS-02 practical skill training, in accordance with Attachment A to this Chapter and issued by:
 - (A) an entity that has declared compliance with the requirements in Appendix 3 and is recognised by the competent authority of a Member State; or
 - (B) by an UAS operator that has declared to the competent authority of the Member State of registration, compliance with STS-02 and that has declared compliance with the requirements in Appendix 3;
- (8) with an unmanned aircraft which complies with all of the following conditions:
 - (a) is marked as class C6 and complies with the requirements of that class, as defined in Part 17 of the Annex to Delegated Regulation (EU) 2019/945;
 - (b) is operated with an active system to prevent the unmanned aircraft from breaching the flight geography;
 - (c) is operated with active and updated direct remote identification system.
- (9) The remote pilot shall obtain the certificate of theoretical knowledge for operations in the standard scenarios after:
 - (a) having completed an online training course and passed the online theoretical knowledge examination as referred to in point (4)(b) of point UAS.OPEN.020; and
 - (b) having passed an additional theoretical knowledge examination provided by the competent authority or by an entity designated by the competent

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authority of a Member State in accordance with Attachment A to this Chapter.

- (10) This certificate shall be valid for five years. The revalidation, within its validity period is subject to any of the following:
- (a) the demonstration of competencies in accordance with point (9);
 - (b) the completion of a refresher training addressing the theoretical knowledge subjects as defined in point (9) provided by the competent authority or by an entity designated by the competent authority;
- (11) In order to revalidate the certificate upon its expiration, the remote pilot shall comply with point (9).

UAS.STS-02.030 Responsibilities of the UAS operator

In addition to the responsibilities defined in UAS.SPEC.050, the UAS operator shall:

- (1) develop an operations manual including the elements defined in Appendix 5;
- (2) define the operational volume and ground risk buffer for the intended operations, including the controlled ground area covering the projections on the surface of the earth of both the volume and the buffer;
- (3) ensure the adequacy of the contingency and emergency procedures through any of the following:
 - (a) dedicated flight tests;
 - (b) simulations, provided that the representativeness of the simulation means is appropriate for the intended purpose;
- (4) develop an effective emergency response plan (ERP) suitable for the operation that includes at least:
 - (a) the plan to limit the escalating effects of the emergency situation;
 - (b) the conditions to alert the relevant authorities and organisations;
 - (c) the criteria to identify an emergency situation;
 - (d) clear delineation of the duties of the remote pilot(s) and any other personnel in charge of duties essential to the UAS operation;
- (5) ensure that the level of performance for any externally provided service necessary for the safety of the flight is adequate for the intended operation;
- (6) define the allocation of the roles and responsibilities between the operator and the external service provider(s), if applicable;
- (7) upload updated information into the geo-awareness, if the function is installed on the UAS, when required by the UAS geographical zone for the intended location of the operation;
- (8) ensure that, before starting the operation, all appropriate measures to reduce the risk of intrusion of uninvolved persons in the controlled ground area compliant with the minimum distance defined in point UAS.STS-02.020(2) have been taken and, when required, coordination with the appropriate authorities has been conducted;

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- (9) ensure that, before starting the operation, all persons present in the controlled ground area:
 - (a) have been informed of the risks of the operation;
 - (b) have been briefed and, if applicable, trained on the safety precautions and measures established by the UAS operator for their protection; and
 - (c) have explicitly agreed to participate in the operation;
- (10) before starting the operation, if airspace observers are used:
 - (a) ensure the correct placement and number of airspace observers along the intended flight path;
 - (b) verify:
 - (i) that the visibility and the planned distance of the airspace observer are within acceptable limits as defined in the operations manual;
 - (ii) the absence of potential terrain obstructions for each airspace observer;
 - (iii) that there are no gaps between the zones covered by each of the airspace observers;
 - (iv) that the communication with each airspace observer is established and effective;
 - (v) that if means are used by the airspace observers to determine the position of the unmanned aircraft, those means are functioning and effective;
 - (c) ensure that the airspace observers have been briefed on the intended path of the unmanned aircraft and the associated timing;
- (11) ensure that:
 - (a) the UAS is accompanied by the corresponding EU declaration of conformity, including the reference to class C6;
 - (b) the class C6 identification label is affixed to the unmanned aircraft.

UAS.STS-02.040 Responsibilities of the remote pilot

In addition to the responsibilities defined in UAS.SPEC.060, the remote pilot shall:

- (1) before starting an UAS operation:
 - (a) set the programmable flight volume of the unmanned aircraft to keep it within the flight geography;
 - (b) verify that the means to terminate the flight and the programmable operational volume functionality of the unmanned aircraft are operational; and, check if the direct remote identification is active and up-to-date.
- (2) during flight:
 - (a) unless supported by airspace observers, maintain a thorough airspace scan of the airspace surrounding the unmanned aircraft in order to avoid any risk of a collision with any manned aircraft. The remote pilot shall discontinue

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- the flight if the operation poses a risk to other aircraft, people, animals, environment or property;
- (b) have the ability to maintain control of the unmanned aircraft, except in the case of a lost command and control (C2) link;
 - (c) operate only one unmanned aircraft at a time;
 - (d) not operate the unmanned aircraft from a moving vehicle;
 - (e) not hand over the control of the unmanned aircraft to another command unit;
 - (f) inform the airspace observer(s), when employed, in a timely manner of any deviations of the unmanned aircraft from the intended path, and the associated timing;
 - (g) perform the contingency procedures defined by the UAS operator for abnormal situations, including when the remote pilot has indication that the unmanned aircraft may exceed the limits of the flight geography;
 - (h) perform the emergency procedures defined by the UAS operator for emergency situations, including triggering the means to terminate the flight when the remote pilot has an indication that the unmanned aircraft may exceed the limits of the operational volume.

UAS.STS-02.050 Responsibilities of the airspace observer

An airspace observer shall:

- (1) maintain a thorough airspace scan of the airspace surrounding the unmanned aircraft in order to identify any risk of a collision with any manned aircraft;
- (2) maintain awareness of the position of the unmanned aircraft through direct airspace observation or through assistance provided by electronic means;
- (3) alert the remote pilot when a hazard is detected and assist in avoiding or minimising the potential negative effects.

ATTACHMENT A: REMOTE PILOT THEORETICAL KNOWLEDGE AND PRACTICAL SKILL FOR STS-02

1. Theoretical knowledge examination

The examination shall be defined in accordance with point 1 of Attachment A to Chapter I.

2. Practical skill training and assessment

In addition to the areas defined in point A.2 of Attachment A to Chapter I, the following areas shall be covered:

TABLE I

Additional subjects and areas to be covered for practical skill training and assessment for STS-02

Subject	Areas to be covered
(a) BVLOS operations conducted under STS-02	(i) Pre-flight actions — operation planning, airspace considerations and site risk-assessment. The following points are to be included:

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- (A) airspace scanning;
- (B) operations with airspace observers (AOs): adequate placement of AOs, and a deconfliction scheme that includes phraseology, coordination and communications means;

- (ii) The in-flight procedures, defined in point 2.(b)(ii) of Attachment A to Chapter I, shall be performed in both VLOS and BVLOS.
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Appendix 2

Operational declaration

	Operational declaration		
<p>Data protection: Personal data included in this declaration is processed by the competent authority pursuant to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). It will be processed for the purposes of the performance, management and follow up of the oversight activities according to Commission Implementing Regulation (EU) 2019/947.</p> <p>If you require further information concerning the processing of your personal data or you wish to exercise your rights (e.g. to access or rectify any inaccurate or incomplete data), please refer to the contact point of the competent authority.</p> <p>The applicant has the right to make a complaint regarding the processing of the personal data at any time to the national Data Protection Supervisory Authority.</p>			
UAS operator registration number			
UAS operator name			
UAS manufacturer			
UAS model			
UAS Serial number			
<p>I hereby declare that:</p> <ul style="list-style-type: none">— I comply with all the applicable provisions of Implementing Regulation (EU) 2019/947 and with STS.x; and— appropriate insurance cover will be in place for every flight made under the declaration, if required by Union or national law.			
Date		Signature or other verification	

Status: Point in time view as at 06/06/2020.

Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

Appendix 3

Additional requirements for entities recognised by the competent authority and UAS operators that conduct practical skill training and assessment of remote pilots for operations covered by STS

An entity that intends to be recognised by the competent authority for conducting practical skill training and assessment of remote pilots for an STS, shall declare to the competent authority compliance with the following requirements using the declaration form in Appendix 6.

An UAS operator that intends to conduct practical skill training and assessment of remote pilots for an STS, in addition to submitting the operational declaration for that STS, shall declare to the competent authority compliance with the following requirements using the declaration form in Appendix 4.

If the competent authority or the UAS operator intends to conduct practical skill training and assessment of remote pilots for an STS in a Member State other than the Member State of registration, a copy of the declaration form in Appendix 4 shall be submitted to the competent authority of the Member State where the training is conducted.

If an entity recognised by the competent authority intends to conduct practical skill training and assessment of remote pilots for an STS in a Member State other than the Member State of recognition, a proof of the recognition shall be submitted to the competent authority of the Member State where the training is conducted.

- (1) The entity recognised by the competent authority or the UAS operator shall ensure a clear separation between the training activities and any other operational activity to guarantee the independence of the evaluation.
- (2) The entity recognised by the competent authority or the UAS operator shall have the capability to adequately perform the technical and administrative activities linked with the entire task process, including the adequacy of personnel and the use of facilities and equipment appropriate to the task.
- (3) The entity recognised by the competent authority or the UAS operator shall have an accountable manager, with the responsibility for ensuring that all tasks are performed in compliance with the information and procedures identified in point (8).
- (4) The personnel responsible for the practical skill training and practical skill assessment tasks shall:
 - (a) have the competence to conduct these tasks;
 - (b) be impartial and shall not participate in assessments if they feel that their objectivity may be affected;
 - (c) have a sound theoretical knowledge and practical skill training experience, and satisfactory knowledge of the requirements for the practical skill assessment tasks they carry out as well as adequate experience of such processes;
 - (d) have the ability to administer the declarations, records and reports that demonstrate that the relevant practical skill assessments have been carried out and to draw the conclusions of those practical skill assessments; and
 - (e) not disclose any information supplied by the operator or remote pilot to any person other than the competent authority upon their request.

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- (5) The training and assessment shall cover the practical skills corresponding to the STS for which the declaration is made, included in Attachment A to the relevant Chapter.
- (6) The practical skill training and assessment location(s) shall be conducted in an environment representative of the conditions of the STS.
- (7) The practical skill assessment shall consist of a continuous evaluation of the student remote pilot.
- (8) The entity recognised by the competent authority or the UAS operator shall produce an assessment report after completing the practical skill assessment, which shall:
 - (a) include at least:
 - (i) the student remote pilot's identification details;
 - (ii) the identity of the person responsible for the practical skill assessment;
 - (iii) the identification of the STS for which the practical skill assessment has been performed;
 - (iv) performance marks for each action performed by the student remote pilot;
 - (v) an overall practical skill assessment of the student remote pilot's competencies; and
 - (vi) practical skill assessment feedback providing guidance on areas for improvement where applicable;
 - (b) be appropriately signed and dated by the person responsible for the practical skill assessment once complete; and
 - (c) be recorded and made available for inspection by the competent authority upon request.
- (9) An accreditation of completion of the practical skill training for the STS shall be delivered to the student remote pilot by entity recognised by the competent authority or the UAS operator if the assessment report concludes that the student remote pilot has achieved a satisfactory level of practical skill.
- (10) The issuance of the accreditation of completion of point (9) shall be notified to the competent authority of the Member State where the practical skill training and assessment are conducted including the student remote pilot's identification details, the STS covered, the date of issuance and the identification details of the entity recognised by the competent authority of a Member State or the UAS operator issuing it.
- (11) The entity recognised by the competent authority or the UAS operator shall include in the operations manual, developed in accordance with Appendix 5, a separate section covering the training elements, including the following:
 - (a) the nominated personnel conducting practical skill training and assessment, including:
 - (i) descriptions of the respective personnel's competence;
 - (ii) the personnel's duties and responsibilities; and
 - (iii) a chart of the organisation showing the associated chains of responsibility;

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- (b) the procedures and processes used for practical skill training and assessment, including the training syllabus covering the practical skill corresponding to the STS for which the declaration is made, defined in Attachment A to the relevant Chapter;
- (c) a description of the UAS and any other equipment, tools and environment used for the practical skill training and assessment; and
- (d) a template for the assessment report.

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Appendix 4

Declaration of UAS operators that intend to provide practical skill training and assessment of remote pilots in STS-x

	STS-x		
Declaration of UAS operators that intend to provide practical skill training and assessment of remote pilots			
<p>Data protection: Personal data included in this declaration is processed by the competent authority pursuant to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). It will be processed for the purposes of the performance, management and follow up of the oversight activities according to Commission Regulation (EU) 2019/947.</p>			
<p>If you require further information concerning the processing of your personal data or you wish to exercise your rights (e.g. to access or rectify any inaccurate or incomplete data), please refer to the contact point of the competent authority.</p>			
<p>The applicant has the right to make a complaint regarding the processing of the personal data at any time to the national Data Protection Supervisory Authority.</p>			
UAS operator registration number			
UAS operator name			
I hereby declare that:			
— I have submitted the operational declaration for STS-x;			
— I comply with the requirements defined in Appendix 3 to the Annex to Implementing Regulation (EU) 2019/947; and			
— when operating an UAS in the context of training activities for STS.x, I comply with all the applicable provisions of Implementing Regulation (EU) 2019/947, including requirements for operations under STS.x			
Date		Signature or other verification	

Status: Point in time view as at 06/06/2020.

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Appendix 5

Operations manual for Standard Scenario

The operations manual for STS defined in Appendix 1 shall contain at least the following:

- (1) a statement that the operations manual complies with the relevant requirements of this Regulation and with the declaration, and contains instructions that are to be complied with by the personnel involved in flight operations;
- (2) an approval signature by the accountable manager or the UAS operator in the case of a natural person;
- (3) an overall description of the UAS operator's organisation;
- (4) a description of the concept of the operation, including at least:
 - (a) the nature and description of the activities performed in the UAS operations, and the identified associated risks;
 - (b) the operational environment and geographical area for the intended operations, including:
 - (i) the characteristics of the area to be overflown in terms of the population density, topography, obstacles, etc.;
 - (ii) the characteristics of the airspace to be used;
 - (iii) the environmental conditions including at least the weather and the electromagnetic environment;
 - (iv) the definition of the operational volume and risk buffers to address the ground and air risks;
 - (c) the technical means used and their main characteristics, performance and limitations, including the UAS, external systems supporting the UAS operation, facilities, etc.;
 - (d) the required personnel for conducting operations, including the composition of the team, their roles and responsibilities, selection criteria, initial training and recent experience requirements and/or recurrent training;
- (5) the maintenance instructions required to keep the UAS in a safe condition, covering the UAS manufacturer's maintenance instructions and requirements, if applicable;
- (6) operational procedures, which shall be based on manufacturer's instructions provided by the UAS manufacturer, and shall include:
 - (a) consideration of the following to minimise human errors:
 - (i) a clear distribution and assignment of tasks; and
 - (ii) an internal checklist to check that staff are performing their assigned tasks adequately;
 - (b) consideration of the deterioration of external systems supporting the UAS operation;
 - (c) normal procedures, including at least:

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- (i) pre-flight preparations and checklists, covering:
 - (A) the assessment of the operational volume and related buffers (the ground risk buffer, and air risk buffer when applicable), including the terrain and potential obstacles and obstructions that may reduce the ability to keep the unmanned aircraft in visual line of sight or to scan the airspace, the potential overflight of persons who are not involved and potential overflight of critical infrastructure;
 - (B) the assessment of the surrounding environment and airspace, including the proximity of UAS geographical zones and potential activities by other airspace users;
 - (C) the environmental conditions suitable for conducting the UAS operation;
 - (D) the minimum number of personnel in charge of duties essential to the UAS operation who are required to perform the operation, and their responsibilities;
 - (E) the required communication procedures between the remote pilot(s) and any other personnel in charge of duties essential to the UAS operation and with any external parties, when needed;
 - (F) compliance with any specific requirements from the relevant authorities in the intended area of operations, including those related to security, privacy, data and environmental protection, and the use of the RF spectrum;
 - (G) the required risk mitigations in place to ensure the safe conduct of the operation; in particular, for the controlled ground area:
 - (a) determination of the controlled ground area; and
 - (b) securing the controlled ground area to prevent third parties from entering the area during the operation, and ensuring coordination with the local authorities, when needed;
 - (H) the procedures to verify that the UAS is in a suitable condition to safely conduct the intended operation;
- (ii) launch and recovery procedures;
- (iii) in-flight procedures, including those to ensure that the unmanned aircraft remains within the flight geography;
- (iv) post-flight procedures, including the inspections to verify the condition of the UAS;

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (v) procedures for the detection of potentially conflicting aircraft by the remote pilot and, when required by the UAS operator, by airspace observer(s) or unmanned aircraft observer(s), as applicable;
- (d) contingency procedures, including at least:
 - (i) procedures to cope with the unmanned aircraft leaving the designated ‘flight geography’;
 - (ii) procedures to cope with persons who are not involved entering the controlled ground area;
 - (iii) procedures to cope with adverse operating conditions;
 - (iv) procedures to cope with the deterioration of external systems supporting the operation;
 - (v) if airspace observers are employed, the phraseology to be used;
 - (vi) Conflict avoidance procedures with other airspace users;
- (e) emergency procedures to cope with emergency situations, including at least:
 - (i) procedures to avoid, or at least minimise, harm to third parties in the air or on the ground;
 - (ii) procedures to cope with the unmanned aircraft leaving the ‘operational’ volume;
 - (iii) procedures for the emergency recovery of the unmanned aircraft;
- (f) security procedures as referred to in point (1)(a)(ii) and (iii) of point UAS.SPEC.050;
- (g) the procedures for the protection of personal data referred to in point (1)(a)(iv) of point UAS.SPEC.050;
- (h) the guidelines to minimise nuisance and environmental impact referred to in point (1)(a)(v) of point UAS.SPEC.050;
- (i) occurrence reporting procedures;
- (j) record-keeping procedures; and
- (k) the policy defining how the remote pilot(s) and any other personnel in charge of duties essential to the UAS operation can declare themselves fit to operate before conducting any operation.

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

Appendix 6

Declaration of the entity intending to be recognised by the competent authority to provide practical skill training and assessment of remote pilots in STS-x

	STS-x		
Declaration of the entity intending to be recognised by the competent authority to provide practical skill training and assessment of remote pilots			
Data protection: Personal data included in this declaration is processed by the competent authority pursuant to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). It will be processed for the purposes of the performance, management and follow up of the oversight activities according to Regulation (EU) 2019/947.			
If you require further information concerning the processing of your personal data or you wish to exercise your rights (e.g. to access or rectify any inaccurate or incomplete data), please refer to the contact point of the competent authority.			
The applicant has the right to make a complaint regarding the processing of the personal data at any time to the national Data Protection Supervisory Authority.			
Identification of the entity			
First and last name, telephone number and email address of the responsible person			
I hereby declare that:			
— I comply with the requirements defined in Appendix 3 to the Annex to Regulation (EU) 2019/947; and			
— when operating an UAS in the context of training activities for STS.x, I comply with all the applicable provisions of Regulation (EU) 2019/947, including requirements for operations under STS.x			
Date		Signature or other verification]

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Changes to legislation: There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947. (See end of Document for details)

- (1) [OJ L 212, 22.8.2018, p. 1.](#)
- (2) Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems (see page 1 of this Official Journal).
- (3) Directive 2009/48/EC of the European Parliament and of the Council of 18 June 2009 on the safety of toys ([OJ L 170, 30.6.2009, p. 1.](#))
- (4) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) ([OJ L 119, 4.5.2016, p. 1.](#))
- (5) [^{F2}Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 ([OJ L 281, 13.10.2012, p. 1.](#))]
- (6) Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 ([OJ L 281, 13.10.2012, p. 1.](#))
- (7) Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council ([OJ L 296, 25.10.2012, p. 1.](#))
- (8) Commission Regulation (EU) No 1332/2011 of 16 December 2011 laying down common airspace usage requirements and operating procedures for airborne collision avoidance ([OJ L 336, 20.12.2011, p. 20.](#))
- (9) Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation, amending Regulation (EU) No 996/2010 of the European Parliament and of the Council and repealing Directive 2003/42/EC of the European Parliament and of the Council and Commission Regulations (EC) No 1321/2007 and (EC) No 1330/2007 ([OJ L 122, 24.4.2014, p. 18.](#))
- (10) Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC ([OJ L 218 13.8.2008, p. 82.](#))
- (11) [^{F1}Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems ([OJ L 152, 11.6.2019, p. 1.](#))]

Textual Amendments

- F1** Substituted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight \(Text with EEA relevance\).](#)
- F2** Inserted by [Commission Implementing Regulation \(EU\) 2020/639 of 12 May 2020 amending Implementing Regulation \(EU\) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight \(Text with EEA relevance\).](#)

Status:

Point in time view as at 06/06/2020.

Changes to legislation:

There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/947.