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Annex to EASA Opinion No 01/2020

COMMISSION IMPLEMENTING REGULATION (EU) .../...

of **XXX**

on a high-level regulatory framework for the U-space

COMMISSION IMPLEMENTING REGULATION (EU) .../...

of **XXX**

on a high-level regulatory framework for the U-space

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 (a), (b) and (c) thereof,

Whereas:

- (1) 'U-space' is the term used in the European Union to refer to the management of traffic for unmanned aircraft. It is meant as a set of services provided in a specific volume of airspace designated by the Member States to manage a large number of UAS operations in a safe and efficient manner.
- (2) The Drones Amsterdam Declaration of 28 November 2018 ⁽²⁾ urged that priority is given to the implementation of the European drone regulations and called for a timely delivery of the U-space regulatory framework and invited the relevant European Union organisations to join effort to develop an institutional, regulatory and architectural framework for a competitive U-space services market.
- (3) U-space is a way to respond to the growth of UAS operations in the European airspace and to ensure effective harmonisation across the EU.
- (4) A U-space regulatory framework should determine the main principles regarding the roles and responsibilities of the organisations involved in the U-space, the necessary services that need to be provided and the requirements for unmanned aircraft in order to operate in the U-space airspace.
- (5) A U-space regulatory framework is needed to enable more complex and longer-distance operations and to ensure that operations beyond visual line of sight (BVLOS) are conducted safely and efficiently.
- (6) A U-space regulation should support safe, secure, scalable, and environmentally friendly operations of aircraft in the U-space airspace while respecting the privacy of European citizens.

¹ OJ L 212, 22.8.2019, p. 1.

² <https://ec.europa.eu/transport/sites/transport/files/2018-drones-amsterdam-declaration.pdf>

- (7) A U-space regulation should ensure fair access of unmanned aircraft system (UAS) operators to the airspace in a cost-effective manner through a competitive U-space services market.
- (8) A U-space regulation should minimise the operational constraints, remove the safety risks to manned aviation airspace users, and ensure the protection of third parties or property on the ground even in the event of contingencies and emergencies.
- (9) 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.
- (10) It is the competence of the Member States to designate where they intend to establish the U-space airspace over their territory.
- (11) U-space service providers should provide UAS operators with the necessary U-space services in order to support safe and efficient UAS operations. They should be certified in order to offer a range of U-space services in a free competitive market setting, provided that they comply with the set of applicable requirements.
- (12) Mandatory U-space services should be available to cover all designated U-space airspace and be provided as a bundle of services.
- (13) The institutional set-up for the provision of U-space services should avoid the possibility of conflicts of interest and abuse of monopolistic market power.
- (14) The objectives of the U-space services should be to prevent collision between UAS and between UAS and manned aviation; expedite and maintain an orderly flow of UAS; provide advice and information useful for the safe and efficient conduct of UAS operations; notify the appropriate organisations regarding emergency or abnormal situations pertaining to UAS which may endanger people and goods on the ground or manned aviation; and ensure that environmental, security and privacy requirements are met.
- (15) This Regulation should apply to any UAS intended to be operated in the ‘open’ category, within the meaning of Regulation (EU) 2019/947 ⁽³⁾, with some exceptions based on the risks associated with their operations in the U-space airspace.
- (16) This Regulation should not apply to model aircraft operations in clubs and associations nor to UAS which are considered to be toys within the meaning of Directive 2009/48/EC ⁽⁴⁾.
- (17) This Regulation should define clear responsibilities of all the organisations and natural persons involved in the U-space and describe who is responsible to manage the traffic in the U-space airspace when such airspace is within controlled or uncontrolled areas. The current obligations of air navigation service providers in the framework of the Single European Sky Regulations should be taken due account of.
- (18) The communications protocol and interfaces between U-space service providers and air navigation service providers should be established, and U-space and air traffic

³ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft (OJ L 152, of 11.6.2019, p. 45).

⁴ 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).

management (ATM) systems should be complementary, but at the same time acknowledging that their needs are not the same.

- (19) All the organisations and natural persons involved in the U-space should share real-time data to provide the U-space and ATM systems with the information required to ensure safe coexistence between manned and unmanned aviation. Where necessary, U-space service providers should interact with the ATM systems to ensure the safe transition of unmanned aircraft between uncontrolled and controlled airspace.
- (20) This Regulation should ensure that the necessary information is available to all the participants in the U-space. A common information service (CIS) should enable the provision of information to UAS operators, U-space service providers and other organisations and natural persons involved in the U-space. The CIS should be an access point for information on operations and any situations that could have an impact on the airspace.
- (21) A CIS provider should be established and designated by the Member State to manage the CIS in order to ensure that all the relevant information is available.
- (22) This Regulation should assist UAS operators in conducting safe flights, supported by the services that they require for the specific nature of their intended operation. A procedure should therefore be defined to ensure that a flight authorisation request is properly made and that the UAS flight authorisation is granted to avoid any conflicting flight intentions.
- (23) It is not expected that manned aircraft will operate in the U-space; however, there should be a mechanism to ensure that if they need to do so, they can safely be separated from unmanned aircraft. The transmission of information by manned aircraft to the U-space service providers should facilitate meeting this objective.
- (24) Rules should be established and description should be provided to authenticate the UAS identity and to provide the relevant information to other participants in the U-space during operations and in contingency situations. A network identification service should facilitate this authentication.
- (25) In order to meet the safety and operational requirements for UAS operations, a geo-awareness service should be mandatory and provide real-time information coming from the CIS.
- (26) Service description to provide UAS operators with information on other known or observed air traffic should be specified, such as real-time 3D position, latitude, longitude, altitude and time of report. This provision of traffic information should be a mandatory service to be provided by U-space service providers.
- (27) It is necessary to track position reports of the UAS in order for other services to operate in the U-space airspace. Therefore, a tracking service should enable real-time tracking of the UAS and provide different levels of access to the tracking data to users with different credentials.
- (28) It is recognised that weather information is necessary to support operational decisions and that such information should support the UAS operator in flight planning and execution with respect to weather using real-time information.
- (29) A conformance monitoring service should be established to provide real-time alerting of non-conformance with the intended flight path and inform the UAS when leaving or deviating from it.

- (30) A common certification scheme should be established for certifying U-space service providers and CIS providers and for regularly monitoring compliance with the applicable requirements. This system should ensure the provision of safe and high-quality U-space services and increase the freedom of movement while improving the availability of those services.
- (31) The certificates of service providers should be mutually recognised by all Member States in order to allow them to provide services in a Member State other than the one in which they obtained their certificates, in accordance with Regulation (EU) 2018/1139.
- (32) The tasks of the competent authorities designated by the Member States in accordance with this Regulation should be clearly defined. The coordination between the competent authorities and the local authorities should be ensured. The Agency should be the competent authority for the service providers that would provide services in more than one Member States.
- (33) With a view to ensuring that the requirements for U-space service providers and the CIS provider are complied with at all times, competent authorities should be granted certain specific investigatory powers. Those powers should be exercised in accordance with the applicable national rules and procedures, while having due regard to a number of specific elements which are meant to ensure a fair balance between all rights and interests at issue in a particular case.
- (34) UAS operators should be able to rely on a single contract with a U-space service provider of their choice that covers all required U-space services for the operation in U-space airspace.
- (35) For safety reasons, there can only be one common information service provider per designated U-Space airspace. The price set for this natural monopoly service should therefore be regulated, so that the risk of abuse of dominant position is mitigated and the price is based on the real cost of managing the exchange of data, with a markup reflecting the risks associated with this activity.
- (36) Member States should ensure that the cost bases according to the common charging scheme for air navigation services ⁽⁵⁾ do not include determined costs relating to U-space.
- (37) In order to ensure the proper implementation of this Regulation, Member States and affected stakeholders should have sufficient time to adapt their procedures to the new regulatory framework before this Regulation applies.
- (38) The European Union Aviation Safety Agency has prepared a draft implementing act and submitted it with Opinion No 01/2020 ⁽⁶⁾ in accordance with points (b) and (c) of Article 75(2) and with Article 76(1) of Regulation (EU) 2018/1139.
- (39) 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:

⁵ Commission Regulation (EC) No 1794/2006 of 6 December 2006 laying down a common charging scheme for air navigation services (OJ L 341, 7.12.2006, p. 3)

⁶ <https://www.easa.europa.eu/document-library/opinions>

CHAPTER I

PRINCIPLES AND GENERAL REQUIREMENTS

Article 1

Subject matter and scope

1. This Regulation lays down rules and procedures for the provision of U-space services and the establishment of the U-space airspace.
2. This Regulation shall apply to:
 - (a) operators of manned and unmanned aircraft; and
 - (b) U-space service providers that deliver services, in the volumes of airspace designated as U-space airspace by Member States.
3. This Regulation shall also apply to the competent authorities designated as such by the Member States in accordance with Article 20 of this Regulation.
4. This Regulation shall not apply to:
 - (a) operations of unmanned aircraft that are toys within the meaning of Directive 2009/48/EC on the safety of toys;
 - (b) operations of unmanned aircraft conducted in the framework of model aircraft clubs and associations that receive an authorisation in accordance with Article 16 of Commission Implementing Regulation (EU) 2019/947 ⁽⁷⁾; and
 - (c) operators of unmanned aircraft in subcategory A1 of the ‘open’ category of operations with an unmanned aircraft that:
 - (i) has a maximum take-off mass (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
 - (ii) is marked as class C0 and complies with the requirements of that class, as defined in Part 1 of the Annex to Commission Delegated Regulation (EU) 2019/945 ⁽⁸⁾.

Article 2

Objectives

The objectives of this Regulation are to:

- (a) support safe, secure and environmentally friendly operations of aircraft in the U-space airspace while respecting the privacy of European citizens;
- (b) maintain the current safety levels for manned aviation;
- (c) create the conditions for an internal market for U-space services; and

⁷ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft (OJ L 152, 11.6.2019, p. 45).

⁸ 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).

- (d) ensure fair, affordable and efficient access to the U-space airspace to all airspace users.

Article 3
Definitions

For the purposes of this Regulation, the definitions of Regulation (EU) 2018/1139, Commission Implementing Regulation (EU) No 923/2012 ⁹, Commission Delegated Regulation (EU) 2019/945, and Commission Implementing Regulation (EU) 2019/947 apply. The following definitions also apply:

1. ‘Airspace risk assessment’ means an evaluation of risk which takes into account the type, complexity and density of traffic, location, altitudes or heights, airspace classification, in order to define the U-space airspace where UAS operations can take place, the minimum list of U-space services and, if necessary, the UAS capabilities and performance requirements.
2. ‘Dynamic reconfiguration of the airspace’ means a temporary limitation of the area within the designated U-space airspace where UAS operations can take place in order to respond to changes in manned traffic demand.
3. ‘Open communication protocols’ means a set of publicly available standards that allow two or more entities of a given system to communicate with each other. Protocols define the rules, syntax, semantics and synchronisation of communication and possible error recovery methods.
4. ‘Principal place of business’ means the head office or registered office of a U-space service provider or CIS provider in the Member State within which the principal financial functions and operational control of the service provider are exercised.
5. ‘U-space airspace’ means a geographical zone, defined in accordance with Commission Implementing Regulation (EU) 2019/947, designated by Member States, where U-space services are required.
6. ‘U-space service provider’ means any legal or natural person providing or intending to provide U-space services as listed and defined in Chapter V of this Regulation.
7. ‘Connectivity’ means the capacity of a system to be interconnected.

CHAPTER II

ESTABLISHMENT OF THE U-SPACE

Article 4
Designation of U-space airspace

1. Member States may designate one or more volumes of airspace as U-space airspace, in controlled or uncontrolled airspace and on a temporary or permanent basis, supported by an airspace risk assessment.

⁹ 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).

2. Member States shall make the information on the designated U-space airspace publicly available, in accordance with Article 15(3) of Regulation (EU) 2019/947, as well as through their aeronautical information service.
3. Member States shall provide their U-space service provider(s) with means for authenticating identities of unmanned aircraft operators with access to:
 - (a) the national registration database of the Member State where the U-space service provider has its main place of business; and
 - (b) any other national registration database connected through the repository referred to in Article 74 of Regulation (EU) 2018/1139.
4. Where the U-space airspace is designated within controlled airspace:
 - (a) air navigation service providers shall remain responsible for the provision of air navigation services to operators of manned aircraft, as well as for the dynamic reconfiguration of the airspace within the designated U-space airspace to ensure that manned and unmanned aircraft remain segregated;
 - (b) U-space service providers shall be responsible for the provision of U-space services to operators of unmanned aircraft.
5. Where the U-space airspace is designated within uncontrolled airspace or when within the airspace there is uncontrolled traffic:
 - (a) air traffic services providers shall remain responsible for the provision of flight information service to the operators of manned aircraft;
 - (b) U-space service providers shall be responsible for the provision of U-space services required to support the safe and efficient movement of aircraft in that U-space airspace.
6. The U-space services referred to in Articles 10, 11, 12 and 13 of this Regulation shall be mandatory in each designated U-space airspace.
7. When Member States decide to establish cross-border U-space airspace, they shall, as a minimum, coordinate on:
 - (a) the designation of the U-space airspace;
 - (b) the U-space service provision; and
 - (c) the common information service.
8. Member States may mandate U-space services in addition to those stipulated in Chapter IV of this Regulation, in the designated U-space airspace, based on the airspace risk assessment referred to in paragraph 1.

Article 5

Common information service

1. Member States shall designate a certified common information service (CIS) provider for each designated U-space airspace.
2. The CIS provider shall ensure the exchange of static and dynamic information between U-space service providers and air navigation service providers, necessary for safe operations.
3. The CIS provider shall make the following information available:

- (a) horizontal and vertical limits of the designated U-space airspace;
 - (b) the UAS capabilities and performance requirements set by the competent authorities for a given U-space airspace;
 - (c) a list of different certified U-space service providers effectively offering U-space services in the designated U-space airspace, which shall include information on:
 - (i) identification and contact details of active U-space service providers;
 - (ii) types of services provided;
 - (iii) terms and conditions of services;
 - (iv) certification limitation(s), if any;
 - (d) the applicable operational conditions and airspace constraints;
 - (e) any adjacent designated U-space airspace(s);
 - (f) the connectivity methods, constraints and cybersecurity protection measures, as determined by the Agency;
 - (g) terms and conditions for UAS flight authorisations, including the authorisation deviation thresholds;
 - (h) requirements related to the use of public key infrastructure, identity management, and authentication; and
 - (i) the list of all the publicly known authorities that can be contacted with regard to the common information.
4. When Member States make publicly available the information on the UAS geographical zones, in accordance with Article 15(3) of Commission Implementing Regulation (EU) 2019/947, they may use the CIS to disseminate this information.
5. Member States shall ensure that the CIS provider:
- (a) provides the information in paragraph 3 in accordance with the data quality requirements as laid down in ATM/ANS.OR.A.085(b) of Regulation (EU) 2017/373 ⁽¹⁰⁾;
 - (b) establishes the necessary procedures for the access to the information and ensures the necessary protection of the information;
 - (c) uses interoperable open communication protocols, as determined by the Agency, to allow fair and sustainable competition between U-space service providers;
 - (d) supplies connectivity interface protocols;
 - (e) establishes a single point of access for exchange of information and coordination procedure between U-space service providers and air traffic services providers for procedural and collaborative interface with air traffic control (ATC).

¹⁰ Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p 1).

6. The CIS provider shall not be related or connected in any manner or form to any U-space service provider in the airspace for which it has been designated and shall not provide any U-space services itself in that airspace.

CHAPTER III

GENERAL REQUIREMENTS FOR AIRCRAFT OPERATORS AND U-SPACE SERVICE PROVIDERS

Article 6

UAS operators

1. When operating in the U-space airspace, UAS operators shall:
 - (a) comply with the applicable requirements established by the competent authority for the U-space airspace being flown;
 - (b) ensure that the aircraft to be operated in the U-space airspace have adequate technical capabilities for utilising the necessary U-space services and for exchanging the required information within the U-space airspace being flown;
 - (c) ensure that during their operations, the U-space services required for the U-space airspace are received and their requirements complied with.
2. UAS operators shall make the necessary service level agreement with a certified U-space service provider of their choice, covering the full set of U-space services necessary to keep all phases of flight safe, in view of the applicable performance objectives and the operational risks of the intended operation.
3. UAS operators shall authorise U-space service providers to get access from the competent authority to the relevant registration information, as defined in Article 14(2) of Commission Implementing Regulation (EU) 2019/947, and shall be identifiable therein with the registration number.
4. At least 30 minutes before each individual flight, the UAS operator shall make a UAS flight authorisation request to the U-space service provider concerned:
 - (a) in the form as defined in Appendix 1; and
 - (b) complying with the terms and conditions for UAS flight authorisations, including the authorisation deviation thresholds, as defined in Article 5(3)(g).
5. When ready to commence the flight, the UAS operator shall request the activation of the UAS flight authorisation. Upon receiving the confirmation of the activation for the UAS flight authorisation from the U-space service provider, the UAS operator is entitled to start its flight.
6. UAS operators shall not start operations unless a UAS flight authorisation has been granted by the U-space service provider and activated in accordance with paragraph 5.
7. UAS operators shall comply with the terms and conditions set by the UAS flight authorisation as well as to its amendment or the changes which may be introduced by the U-space service provider at any phase of flight.
8. In case UAS operators are not able to comply with the UAS flight authorisation deviation thresholds in accordance with Article 5(3)(g), they shall request a new UAS flight authorisation.

9. UAS operators shall make any contingency measures and procedures available to the U-space service providers.

Article 7

Obligations for operators of manned aircraft operating in U-space airspace

1. Operators of manned aircraft shall not operate in uncontrolled airspace designated as U-space airspace unless the information about the manned aircraft position is made available to U-space service providers at regular intervals and there is sufficient level of performance in terms of accuracy, integrity, legitimacy of source and continuity as determined by the Agency.
2. The above requirement shall also apply when operators of manned aircraft operate as uncontrolled traffic within in the U-space airspace designated in controlled airspace.

Article 8

U-space service providers

1. U-space service providers shall be responsible for providing to UAS operators the services required to ensure the safe and efficient movement of aircraft during all phases of operations in the designated U-space airspace.
2. U-space service providers shall retain data used for the service for a period of at least 30 days following its use. If the data is used for accident and incident investigations, it shall be retained for a longer period until it is evident that it will no longer be required.
3. U-space service providers shall handle air traffic data without discrimination, restriction or interference, independently of its sender or receiver, content, application or service, or terminal equipment and shall act in accordance with the applicable requirements in the U-space airspace established in accordance with this Regulation.
4. U-space service providers shall ensure that the information contained in Article 10(2) is made available to:
 - (a) the general public as regards information that is deemed public in accordance with applicable EU and national rules;
 - (b) other U-space service providers in other to ensure safety of operations in the U-space airspace;
 - (c) the air traffic services providers concerned; and
 - (d) their competent authorities.
5. U-space service providers shall:
 - (a) exchange information, including air traffic information of the unmanned aircraft, between themselves;
 - (b) adhere to an open communication protocol acceptable to the Agency, and use the latest information available from the CIS in accordance with Article 5(3);
 - (c) provide the information exchanged in accordance with the necessary data quality requirements;
 - (d) ensure the access to and the necessary protection of the information exchanged;

- (e) request and establish arrangements with the air traffic services providers to ensure adequate coordination of activities, as well as exchange of relevant data and information; and
 - (f) provide any information as an input to the CIS for free.
- 6. U-space service providers shall ensure the continuity of the services during operations in the designated U-space airspace(s) where they provide services.
- 7. When U-space service providers receive the UAS flight authorisation request, they shall:
 - (a) check if the UAS flight authorisation request form is complete and correct;
 - (b) accept or reject it; and
 - (c) notify the UAS operator accordingly.
- 8. The U-space service providers shall ensure that a UAS flight authorisation is provided based on complete, current and accurate information.
- 9. When the conditions do not permit issuing a UAS flight authorisation in accordance with the UAS operator's request, U-space services providers shall propose an alternative UAS flight authorisation.
- 10. U-space service providers shall ensure the exchange of information relevant for the safe operations with air navigation service providers through the CIS.
- 11. Upon receiving the request for a UAS flight authorisation activation, the U-space service providers shall, without unjustified delay, confirm the activation of the UAS flight authorisation.
- 12. When providing a UAS flight authorisation service, U-space service providers shall establish proper arrangements to resolve conflicting authorisation requests received by different U-space services providers.
- 13. When providing flight authorisation to UAS operators, U-space service providers shall take into account the information received in accordance with Article 8 and the priority rules in accordance with paragraph 6 of Article 13.
- 14. U-space service providers shall report to the competent authority:
 - (a) the starting of operations after receiving the certificate; and
 - (b) the ceasing and subsequent restarting of operations, if applicable.

Article 9

Occurrence reporting

- 1. U-space service providers shall establish mandatory and voluntary reporting systems in accordance with 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 ⁽¹¹⁾.

¹¹ 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).

2. Such reports shall be made in a form and manner acceptable to the competent authority.

CHAPTER IV

U-SPACE SERVICES

Article 10

Network identification service

1. The network identification service shall continuously process the remote identification of the UAS throughout the whole duration of the flight and provide it to authorised users in an aggregated manner.
2. This service shall distribute messages with the following content:
 - (a) the UAS operator registration number;
 - (b) the unique physical serial number of the add-on compliant with standard ANSI/CTA-2063;
 - (c) the geographical position of the unmanned aircraft and its height above the surface or take-off point;
 - (d) the route course measured clockwise from true north and the ground speed of the UA;
 - (e) the geographical position of the remote pilot or, if not available, the take-off point;
 - (f) the emergency status of the UAS; and
 - (g) the time at which the messages were generated.
3. The identification service shall ensure the levels of access to authorised users based on the credentials of the user. The levels of access established by the competent authority in accordance with Article 21(1)(b) shall be complied with by the U-space service providers based on the credentials of the user.
4. The identification service shall correlate identification and UAS traffic information.
5. U-space service providers shall be able to receive and exchange broadcast and network e-identification information.

Article 11

Geo-awareness service

1. The geo-awareness service shall provide:
 - (a) information related to the operational conditions for UAS geographical zones established in accordance with Article 15 of Commission Implementing Regulation (EU) 2019/947; and
 - (b) the relevant data from the CIS,to support the UAS geo-awareness system.

2. The geometry of all airspace with special access rules for UAS shall be provided to other relevant U-space service providers.
3. Any valid times or special airspace rules shall be provided with the airspace geometries.
4. The Member State shall specify which authorities have the privilege to update or add to the geo-awareness information.
5. The geo-awareness information shall be updated in a timely manner to allow contingencies and emergencies to be addressed, and shall include its time of update or a version number and/or a valid time.

Article 12

Flight authorisation service

1. The flight authorisation service shall provide the authorisation to the unmanned aircraft operator to enter the U-space airspace under the terms and conditions specified by the U-space service provider in the flight authorisation.
2. When the U-space airspace is within controlled airspace, the U-space service providers and the relevant air traffic services units shall establish a procedure to coordinate the flight authorisation requests.
3. The procedure established in paragraph 2 shall ensure that the flight authorisation service is provided in a timely manner.
4. This service shall check the request for flight authorisations against airspace restrictions and limitations which are maintained and updated in accordance with Article 5 and ensure strategic de-confliction from other traffic according to the priority rules as established in paragraph 6.
5. Each flight authorisation shall have a unique authorisation number associated with it. This number shall also enable the identification of the U-space service provider issuing the authorisation.
6. When a flight authorisation is granted, the following priority rules shall be respected in accordance with the order specified below:
 - (a) aircraft in distress with passengers shall have priority over any other air traffic;
 - (b) when manned and unmanned aircraft are conducting special operations, within the meaning of Article 4 of Commission Implementing Regulation (EU) No 923/2012⁽¹²⁾, manned aircraft shall have priority over unmanned aircraft;
 - (c) when unmanned aircraft conduct special operations, within the meaning of Article 4 of Commission Implementing Regulation (EU) No 923/2012, they shall have priority over any other air traffic;
 - (d) aircraft carrying passengers shall have priority over aircraft without passengers on board;
 - (e) manned aircraft shall have priority over unmanned aircraft;

¹² 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).

- (f) BVLOS operations shall have priority over visual line of sight (VLOS) operations;
- (g) when two flight authorisation requests have the same priority, they shall be processed on a first come first served basis.

Article 13

Traffic information service

1. The traffic information service shall provide the UAS operator with information on other known or observed air traffic which may be in proximity to the position or intended route of the UAS flight to alert and to help the UAS operator to avoid a collision.
2. The traffic information service shall include real-time 3D position of the known air traffic which may include manned and unmanned aircraft.
3. The information about the position of other known air traffic shall include latitude and longitude, altitude, and time of report. When known, the information shall also include speed, heading or direction and emergency status.
4. The traffic information shall be updated at a frequency that the competent authority has determined to be adequate for safety in the given U-space airspace.
5. Upon receiving the traffic information services from the U-space service provider, UAS operators shall take the relevant action to avoid any collision hazard.

Article 14

Tracking service

1. The tracking service shall comprise UAS telemetry messages with actual information about the UAS flight sent from the unmanned aircraft, flight plans, and identification information from UAS operators and other U-space service providers.
2. This service shall associate consecutive surveillance observations of the same UAS flight with tracks, including the current position, heading and speed.
3. This service shall comprise ground-based surveillance information where available.
4. A tracking report shall contain:
 - (a) the identities of the unmanned aircraft and operator, if available;
 - (b) the identity of the mission plan being executed (if any and if available), or an automatically generated identifier for the flight;
 - (c) the identifier of the system(s) that has (have) calculated the track;
 - (d) the time at which the track position has been calculated;
 - (e) the 3D position of the unmanned aircraft at the time calculated, expressed as latitude and longitude, and altitude;
 - (f) the route course measured clockwise from true north and the ground speed of the unmanned aircraft at the time calculated, expressed in knots; and
 - (g) the estimated uncertainties regarding or confidence in the calculated position and the route course measured clockwise from true north and the ground speed of the unmanned aircraft.

5. This service shall produce track updates at a rate that the competent authority has determined appropriate for the U-space airspaces that are in its area of competence.
6. The tracking service shall use an approved method or algorithm for identifying and fusing tracks collected from different sources representing the same unmanned aircraft.
7. The tracking service shall provide track reports of uncorrelated tracks.
8. The tracking service shall keep record of all available surveillance and data sources, as well as their coverage volumes.
9. The tracking service shall generate alerts of outages or of degradation of service.
10. Logs of all tracks and alerts shall be retained for a period of not less than 90 days. If the logs are used for accident and incident investigations, they shall be retained for a longer period until it is evident that they will no longer be required.

Article 15

Weather information service

1. When weather information service is provided, it shall:
 - (a) collect the minimum weather data to maintain safety, supporting operational decisions of other critical services;
 - (b) provide the UAS operator with forecast and actual weather information either before or during the flight; and
 - (c) collect and make available weather information provided by trusted sources.
2. The weather information shall include, as a minimum:
 - (a) wind direction measured clockwise through the true north and speed in metres per second, including gusts;
 - (b) the height of the lowest broken or overcast layer in hundreds of feet above ground level;
 - (c) visibility in metres and kilometres;
 - (d) temperature and dew point; and
 - (e) indicators of convective activity and precipitation.
3. The weather information shall be sufficiently reliable to support operational decision-making.
4. The weather information shall include the location and time of the observation, or the valid times and locations of the forecast.

Article 16

Conformance monitoring service

1. The conformance monitoring service shall monitor whether the UAS operators comply with the requirements in Article 6(1) and the information provided in the UAS flight authorisation request form as submitted and as modified by the flight authorisation service.

2. The conformance monitoring service shall alert the UAS operator when the flight authorisation deviation thresholds are to be violated and when the requirements in Article 6(1) are not complied with.
3. Where the service detects a deviation from the requirements to an extent depending on the complexity and density of the air traffic that can create a hazard to other aircraft operators, the conformance monitoring service shall alert the other aircraft operators operating in the vicinity of the UAS operators, other U-space service providers and relevant authorities in such time limits that the safety objectives set out in Article 2 of this Regulation are met.

CHAPTER V

CIS PROVIDERS AND U-SPACE SERVICE PROVIDERS CERTIFICATION

Article 17

Application for a CIS provider and U-space service provider certificate

1. CIS providers and U-space service providers are required to hold a certificate issued by the competent authority located in the Member State of their principal place of business or by the Agency, as applicable.
2. The certificate shall be issued in accordance with Appendix 2 for U-space service providers and Appendix 3 for CIS providers.
3. The certificate shall indicate the rights and privileges of its holder to provide certain services.
4. An application for a CIS provider or U-space service provider certificate or for an amendment to an existing certificate shall be made in a form and manner established by the competent authority located in the Member State of its principal place of business or by the Agency, as applicable.
5. In order to obtain the certificate, CIS providers and U-space service providers shall comply with the requirements set out in this Regulation.

Article 18

Conditions for obtaining a certificate

A CIS provider and a U-space service provider shall be granted a certificate by the competent authority of its principal place of business or by the Agency, as applicable, provided that it demonstrates that it:

1. is able to provide its services in a safe, efficient, continuous and sustainable manner, consistent with the level of service. To this end, it shall maintain adequate technical and operational capacity and expertise;
2. uses systems and equipment that guarantee the quality, accuracy and integrity of the U-space services in accordance with this Regulation;
3. has the appropriate net capital commensurate with the costs and risks associated with the provision of U-space services;

4. has a management system, established in accordance with Subpart B of Annex III to Commission Implementing Regulation (EU) 2017/373 ⁽¹³⁾ and complying with all the requirements of such Regulation;
5. has established an information security management system;
6. carries out a safety assessment to demonstrate compliance with the objectives set for the service provided in view of the intended operations in that U-space airspace; to that end, it shall provide assurance, with sufficient confidence, via a complete, documented and valid argument that its contribution to the objectives of Article 2 can be met;
7. has a robust business plan indicating that it can meet its actual obligations to provide its services in a continuous manner for a period of at least 12 months from the start of operations;
8. has the required liability and insurance cover appropriate to the risk of the service(s) provided; and
9. has an emergency management plan to assist the aircraft operator experiencing an emergency and a communication plan to inform those concerned.

Article 19

Validity of the certificate

1. A CIS provider and a U-space service provider certificate shall remain valid as long as the CIS provider and the U-space service provider comply with the requirements set out in this Regulation.
2. A CIS provider and a U-space service provider certificate shall not remain valid if the provider has:
 - (a) not started operations within 6 months after the certificate has been issued; or
 - (b) ceased operations for more than 9 consecutive months.
3. The competent authority or the Agency, as applicable, shall assess the operational or financial performance of a CIS provider or a U-space service provider under its jurisdiction.
4. The competent authority or the Agency, as applicable, may, based on the outcome of the assessment in (3) impose particular conditions to the certificate holder, suspend or revoke the certificate.

CHAPTER VI

COMPETENT AUTHORITIES

¹³ Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1).

Article 20

Competent authority

1. Member States shall designate one or more competent authorities to implement this Regulation.
2. The competent authority shall:
 - (a) have a suitable organisational structure, appropriately documented procedures, and adequate resources; and
 - (b) employ or have access to personnel with sufficient knowledge, professional integrity, as well as experience and training to perform their allocated tasks.
3. Competent authorities shall ensure that their personnel do not perform activities related to this Regulation when there is evidence that this could result, directly or indirectly, in a conflict of interest.
4. The Agency shall act as the competent authority for U-space service providers intending to provide or providing U-space services in more than one Member State and for U-space service providers established outside the EU and intending to provide or providing services within its territory, in accordance with Article 80(1)(a) of Regulation (EU) 2018/1139.

Article 21

Tasks of the competent authorities

1. The designated competent authorities shall:
 - (a) establish, maintain and make publicly available a registration system for certified U-space service providers;
 - (b) determine what traffic data U-space service providers and air navigation service providers shall make available to authorised legal and natural persons, including the required frequency and the quality level;
 - (c) determine the secure open communication protocol and the level of access to the information to the different users of the CIS;
 - (d) ensure that data exchange is made through the appropriate interfaces;
 - (e) define the manner for legal and natural persons to apply for a U-space service provider certificate in accordance with Chapter V;
 - (f) establish a mechanism to coordinate with local authorities the designation of U-space airspace, the establishment of airspace restrictions for unmanned aircraft and the determination of the U-space services to be provided in the designated U-space airspace;
 - (g) establish a certification and continuous risk-based oversight programme, including the monitoring of the operational and financial performance, which is commensurate with the risk associated with the services being provided by the U-space service providers under their oversight responsibility;
 - (h) require the U-space service providers to make available all necessary information to ensure that the provision of U-space services contribute to safe, secure and environmental friendly operations of aircraft;
 - (i) establish an information security management system;

- (j) be allowed to enter any premises of the U-space service providers under their oversight; and
 - (k) carry out audits, assessments, investigations and inspections of those U-space service providers as established in the oversight programme.
2. The competent authorities and the Agency shall take or initiate any appropriate enforcement measure necessary to ensure that the U-space service providers under their oversight, comply and continue to comply with the requirements of this Regulation.

Article 22

Exchange of safety information and safety measures

1. The competent authorities and the Agency shall cooperate on safety matters, and establish procedures for an efficient exchange of safety information.
2. The competent authorities and the Agency shall collect, analyse and disseminate safety information concerning operations in the U-space airspace in the territory to which the Treaties apply, in accordance with this Regulation.
3. Upon receiving safety information, the competent authorities or the Agency, as applicable, shall take appropriate measures to address any arising or latent safety issues in accordance with the respective terms of mandate and competencies.
4. Such measures shall immediately be notified to all persons or organisations that need to comply with such measures under Regulation (EU) 2018/1139 and its implementing rules. The competent authorities shall also notify those measures to the Agency.

CHAPTER VII

PRICING OF CIS

Article 23

Pricing of common information service

1. The price for the common information service shall be set by the competent authority concerned.
2. The price referred to in paragraph 1 shall be cost-based and allow an appropriate risk-return trade-off.

CHAPTER VIII

FINAL PROVISIONS

Article 24

Amendments to Commission Implementing Regulation (EU) 2017/373

1. Annex I (Part-Definitions) is amended as follows:

The following definitions are added:

- (xx) ‘U-space airspace’ means a geographical zone, defined in accordance with Commission Implementing Regulation (EU) 2019/947, designated by Member States, where U-space services are required.
- (xx) ‘U-space service provider’ means any organisation providing or intending to provide U-space services as listed and defined in Chapter V of Commission Implementing Regulation (EU) 2020/xxx.

2. Annex IV (Part-ATS) is amended as follows:

In Section 1 of Subpart A, the following point ATS.OR.127 is added:

“ATS.OR.127 Coordination between U-space service providers and air traffic services providers

- (a) When U-space airspace is established in the area of responsibility of an air traffic services provider, the latter shall, upon request in accordance with Article 8(4)(e) of Regulation (EU) .../... (U-space Regulation), establish arrangements with the U-space service providers which intend to provide services in that U-space airspace.
- (b) The arrangements in (a) shall ensure adequate coordination of activities, as well as the dynamic reconfiguration of the airspace within the designated U-space airspace in accordance with Article 4(3)(a) and exchange of relevant data and information.”

Article 25

Entry into force and applicability

- 1. This Regulation shall enter into force on the twentieth day following that of its publication in the Official Journal of the European Union.
- 2. This Regulation shall be binding in its entirety and directly applicable in all Member States. It shall apply one year following the day it enters into force.

Done at Brussels,

For the Commission
The President
[...]