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amending Regulation (EU) No 1178/2011, Implementing Regulation (EU) No 923/2012, Regulation (EU) No 965/2012 and Implementing Regulation (EU) 2017/373, as regards the establishment of requirements for the operation of manned aircraft with a vertical take-off and landing capability

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 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 ([1]), and in particular Article 23(1), Article 31(1) and Article 44(1) point (a) thereof,

Whereas:

(1) New air mobility concepts based on innovative technologies, such as manned aircraft with a vertical take-off and landing capability, have emerged in recent years and present different levels of maturity today. With advances in technology and changing transportation needs, more innovative concepts could emerge in the years to come.

(2) Operations with innovative aircraft designs present unique safety challenges due to their vertical take-off and landing capability and their ability to operate in congested urban environments. A dedicated, comprehensive regulatory framework should ensure that such operations are conducted safely and that the risk posed to passengers, crew, and the public is minimised.

(3) Manned aircraft with a vertical take-off and landing capability is a new emerging technology, and there is a need to establish clear procedures for certification and approval of their operations to ensure they meet safety and performance standards. A dedicated, comprehensive regulatory framework should provide a clear and transparent process as regards certification and approval aspects of operations with such aircraft, giving operators the necessary certainty and facilitating the development and commercialisation of these aircraft.

(4) Both commercial and non-commercial operations with aircraft with a vertical take-off and landing capability entail safety hazards that must be properly mitigated to ensure the safety of passengers and crew in the air and of people on the ground. The certification of operators of those aircraft is, therefore, a measure that can help mitigate known and potential safety risks stemming from the operation of these novel technologies and build an appropriate safety culture.

(5) As operations with manned aircraft with a vertical take-off and landing capability become more common, there is a need to ensure that they are integrated safely and efficiently into the existing airspace system. A dedicated, comprehensive regulatory framework should therefore establish clear rules and procedures for the integration of such operations into airspace, thus helping to minimise the risk of collision and other safety incidents.

([1]) OJ L 212, 22.8.2018, p. 1, ELI: http://data.europa.eu/eli/reg/2018/1139/oj.

(6) For the future integration of manned aircraft with a vertical take-off and landing capability into the transportation systems of the Member States, it is appropriate to apply the same regulatory framework available today for operations with aeroplanes and helicopters, with the necessary amendments considering the new air mobility concepts of operations with manned aircraft with a vertical take-off and landing capability, performance and operating limitations, and specific risks. Therefore, Commission Regulation (EU) No 1178/2011 ([2]), Commission Implementing Regulation (EU) No 923/2012 ([3]), Commission Regulation (EU) No 965/2012 ([4]), and Commission Implementing Regulation (EU) 2017/373 ([5]) should be amended accordingly.

(7) In particular, to ensure the availability of appropriately qualified pilots during the initial phase of operations with aircraft with a vertical take-off and landing capability, holders of commercial pilot licences for aeroplanes or helicopters should be given the possibility to add to their licence a type rating for manned aircraft with a vertical take-off and landing capability, including privileges to operate that aircraft under instrument flight rules, where necessary. Where such pilots also hold instructor or examiner certificates for aeroplanes or helicopters, they should also be given the possibility to obtain additional instructor or examiner privileges for that aircraft. Therefore, Regulation (EU) No 1178/2011 should be amended accordingly.

(8) Regulation (EU) No 923/2012 should also be amended to provide for a safe, orderly and efficient air traffic management of manned aircraft with a vertical take-off and landing capability and avoid mid-air collisions.

(9) Moreover, Regulation (EU) No 965/2012 should be amended accordingly to provide, inter alia, for a new Annex with detailed requirements to address the operations of manned aircraft with vertical take-off and landing capability. Annex I to Regulation (EU) No 965/2012 should be amended to include a new aircraft category, while precising existing definitions. Annex II and Annex III should be amended to enlarge the scope of existing certification requirements for commercial air transport and Annex V should include new provisions enabling emergency medical services and rescue operations with manned aircraft with vertical take-off and landing capability.

(10) Furthermore, the transport of dangerous goods by air should be conducted in accordance with international standards and recommended practices contained in Annex 18 to the Chicago Convention and the applicable Technical Instructions. The requirements for the operation of manned aircraft with a vertical take-off and landing capability should take into account the latest technological developments in aircraft design and operation, as well as international best practices and standards. Therefore, Regulation (EU) No 965/2012 should be amended accordingly.

(11) In order to provide stakeholders with sufficient time to ensure compliance with the new regulatory framework, this Regulation should apply from 1 May 2025.

([2]) Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 311, 25.11.2011, p. 1, ELI: http://data.europa.eu/eli/reg/2011/1178/oj).

([3]) 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, ELI: http://data.europa.eu/eli/reg_impl/2012/923/oj).

([4]) 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, ELI: http://data.europa.eu/eli/reg/2012/965/oj).

([5]) 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, ELI: http://data.europa.eu/eli/reg_impl/2017/373/oj).

(12) The requirements for the operation of manned aircraft with a vertical take-off and landing capability have been developed in consultation with relevant stakeholders, including aircraft manufacturers, operators, and regulatory bodies, to ensure they are appropriate and effective.

(13) The European Union Aviation Safety Agency prepared draft implementing rules and submitted them with Opinion No 03/2023 ([6]) in accordance with Article 75(2), points (b) and (c), and with Article 76(1) of Regulation (EU) 2018/1139.

(14) The measures provided for in this Regulation are in accordance with the opinion of the committee established by Article 127(1) of Regulation (EU) 2018/1139,

HAS ADOPTED THIS REGULATION:

Article 1

Amendments to Regulation (EU) No 1178/2011

Regulation (EU) No 1178/2011 is amended as follows:

(1) in Article 2, the following points are inserted:

'(8a) "rotorcraft" means a power-driven, heavier-than-air aircraft that depends principally for its support in flight on the lift generated by up to two rotors;

(8b) "vertical take-off and landing (VTOL)-capable aircraft (VCA)" means a power-driven, heavier-than-air aircraft, other than aeroplane or rotorcraft, capable of performing vertical take-off and landing by means of lift and thrust units used to provide lift during take-off and landing;';

(2) the following article is inserted:

'*Article 4f*

Type ratings for VCA

1. Applicants that hold a commercial pilot licence for aeroplanes (CPL(A)) or helicopters (CPL(H)) in accordance with Annex I (Part-FCL) shall be entitled to be issued with a type rating for a VCA and shall exercise the privileges of such a type rating, provided they comply with all the following:

(a) the prerequisites specified in the operational suitability data established in accordance with Annex I (Part 21) to Regulation (EU) No 748/2012;

(b) Section 1 of Subpart H of Annex I (Part-FCL) and the provisions of this Article.

2. The theoretical knowledge examination shall be written, and the number of multiple-choice questions shall depend on the complexity of the aircraft.

3. Type rating training, skill tests and proficiency checks for aircraft specified in paragraph 1 shall:

(a) comply with the following requirements of Appendix 9 to Annex I (Part-FCL):

(i) Section A;

(ii) Sections B, C or D, as determined and unless otherwise specified in the operational suitability data established in accordance with Annex I (Part 21) to Regulation (EU) No 748/2012; and

(b) under the conditions and to the extent specified in the operational suitability data established in accordance with Annex I (Part 21) to Regulation (EU) No 748/2012, include additional training and testing to allow applicants to obtain the competence to operate the relevant VCA.

([6]) Opinion No 03/2023 – Introduction of a regulatory framework for the operation of drones – Enabling innovative air mobility with MVCA, the initial airworthiness of UAS subject to certification, and the continuing airworthiness of those UAS operated in the 'specific' category, EASA (Opinion No 03/2023)

4. By way of derogation from the paragraphs above, applicants that hold a CPL(A) or a CPL(H) and that were involved in test flights for a particular type of VCA shall be issued with a type rating for that aircraft, provided they comply with all the following:

(a) they comply with the flight conditions for acting as test pilot in the relevant VCA type, as established in accordance with Annex I (Part 21) to Regulation (EU) No 748/2012;

(b) they have completed either 50 hours of total flight time or 10 hours of flight time as pilot-in-command on test flights in the relevant VCA type;

(c) they comply with the prerequisites referred to in paragraph 1(a).

5. The validity period of type ratings issued in accordance with this Article shall be 1 year. Holders shall do all the following:

(a) in order to revalidate the type rating:

(i) within the validity period of the rating, complete at least 2 hours of flight time as pilot of the relevant VCA type;

(ii) within the 3 months immediately preceding the expiry date of the rating and in the relevant VCA type or an FSTD representing that aircraft, pass a proficiency check in accordance with paragraph 3, the duration of which may be counted towards the flight time specified in paragraph (a)(i). If applicants choose to pass the proficiency check earlier than within these 3 months, the new validity period shall commence from the date of the proficiency check;

(b) in order to renew the type rating, comply with point FCL.740(b) of Annex I (Part-FCL).

6. Holders of a licence and a type rating as specified in paragraph 1 shall be entitled to operate the relevant VCA under instrument flight rules, provided they comply with all the following:

(a) they hold an IR(A) or an IR(H), as applicable;

(b) they have, in the relevant VCA type, completed the skill test or the proficiency check, as applicable, in accordance with paragraph 3 including the content relevant for instrument flight.

7. Notwithstanding point FCL.900(b) of Annex I (Part-FCL), applicants that hold an instructor certificate in accordance with Annex I (Part-FCL) with privileges to provide training for aeroplane or helicopter type ratings shall be issued with privileges to provide training for type ratings specified in paragraph 1, provided they:

(a) hold a type rating as per paragraph 1 for the relevant VCA type;

(b) unless otherwise specified in the operational suitability data established in accordance with Annex I (Part 21) to Regulation (EU) No 748/2012, have, within the 12 months preceding the application, completed at least 30 route sectors, including take-offs and landings, as pilot-in-command in the relevant VCA type, of which 15 route sectors may be completed in an FSTD representing that VCA type;

(c) have completed, at an ATO, theoretical and practical training for extending instructor privileges to that VCA type, including mandatory training elements as specified in the operational suitability data established in accordance with Annex I (Part 21) to Regulation (EU) No 748/2012;

(d) pass the relevant sections of the assessment of competence in accordance with point FCL.935 of Annex I (Part-FCL).

By way of derogation from paragraphs (b), (c) and (d), applicants that hold a TRI(A) certificate or a TRI(H) certificate and that were issued with a type rating for a VCA in accordance with paragraph 4, shall receive an extension of their TRI privileges to that VCA type.

8. Holders of instructor privileges referred to in paragraph 7 shall receive revalidation or renewal, as applicable, of these privileges when they comply with the relevant revalidation or renewal requirements of Subpart J of Annex I (Part-FCL), as applicable for the instructor certificate held, and additionally do either of the following:

(a) complete, at an ATO, instructor refresher training that focuses on the privileges as per paragraph 7;

(b) pass the relevant sections of the assessment of competence in accordance with point FCL.935 of Annex I (Part-FCL) in the relevant VCA type specified in paragraph 1 or an FSTD representing that type.

9. Notwithstanding point FCL.1000(b) of Annex I (Part-FCL), applicants that hold an examiner certificate in accordance with Annex I (Part-FCL) with privileges to act as an examiner for aeroplane or helicopter type ratings shall be issued with privileges to conduct skill tests and proficiency checks for an VCA type specified in paragraph 1, provided they hold instructor privileges as per paragraph 7 for the relevant VCA type and comply with all the following in the relevant VCA type or an FSTD representing that type:

(a) complete examiner standardisation in accordance with point FCL.1015 of Annex I (Part-FCL), including the conduct of at least one skill test or proficiency check;

(b) pass the relevant sections of the assessment of competence in accordance with point FCL.1020 of Annex I (Part-FCL).

10. Holders of examiner privileges referred to in paragraph 9 shall receive revalidation or renewal, as applicable, of these privileges when they comply with the relevant parts of point FCL.1025 of Annex I (Part-FCL) and additionally do either of the following:

(a) complete an examiner refresher course in accordance with point FCL.1025(b)(2) of Annex I (Part-FCL) that focuses on the privileges as per paragraph 9;

(b) pass the relevant sections of the assessment of competence in accordance with point FCL.1020 of Annex I (Part-FCL) in the relevant VCA type or an FSTD representing that type.';

(3) Annex I (Part-FCL) is amended in accordance with Annex I to this Regulation.

Article 2

Amendments to Implementing Regulation (EU) No 923/2012

Implementing Regulation (EU) No 923/2012 is amended as follows:

(1) Article 2 is amended as follows:

(a) point 85 is replaced by the following:

'(85) "rotorcraft" means a power-driven, heavier-than-air aircraft that depends principally for its support in flight on the lift generated by up to two rotors;';

(b) the following points are inserted:

'(85a) "helicopter" means a type of rotorcraft supported in flight chiefly by the reactions of the air on up to two power-driven rotors on substantially vertical axes;

(85b) "vertical take-off and landing (VTOL)-capable aircraft (VCA)" means a power-driven, heavier-than-air aircraft, other than aeroplane or rotorcraft, capable of performing vertical take-off and landing by means of lift and thrust units used to provide lift during take-off and landing;';

(c) the following point is inserted:

'(94a) "minimum fuel" means a term used to describe a situation in which an aircraft's fuel/energy supply has reached a state where the flight is committed to land at a specific aerodrome and no additional delay can be accepted;';

(2) the Annex is amended in accordance with Annex II to this Regulation.

Article 3

Amendments to Regulation (EU) No 965/2012

Regulation (EU) No 965/2012 is amended as follows:

(1) in Article 1, the following paragraph 1a is added:

'1a. This Regulation lays down detailed rules for innovative air mobility operations in accordance with visual flight rules by day conducted with the surface in sight with single pilot manned aircraft with a vertical take-off and landing capability referred to in points (b)(i) and (ii) of Article 2(1) of Regulation (EU) 2018/1139.';

(2) Article 2 is amended as follows:

(a) point (1a) is replaced by the following:

'(1a) "rotorcraft" means a power-driven, heavier-than-air aircraft that depends principally for its support in flight on the lift generated by up to two rotors;';

(b) the following point is inserted:

'(1aa) "helicopter" means a type of rotorcraft supported in flight chiefly by the reactions of the air on up to two power-driven rotors on substantially vertical axes;';

(c) the following points are inserted:

'(12) "innovative air mobility (IAM) operations" means any operation with vertical take-off and landing (VTOL)-capable aircraft in congested and non-congested areas;

(13) "vertical take-off and landing (VTOL)-capable aircraft" (VCA) means a power-driven, heavier-than-air aircraft other than aeroplane or rotorcraft, capable of performing vertical take-off and landing by means of lift and thrust units used to provide lift during the take-off and landing;

(14) " VEMS flight" means a flight with a VCA that operates under a VEMS approval, where immediate and rapid transportation is essential and the purpose of which is either to:

(a) facilitate emergency medical assistance by carrying one or more of the following:

(i) medical personnel;

(ii) medical supplies (equipment, blood, organs, drugs);

(iii) ill or injured persons and other persons directly involved,

or

(b) perform any operation where a person is at imminent or anticipated health risk from the environment and either:

(i) needs to be rescued or provided with supplies; or

(ii) persons, animals or equipment need to be transported to/from the VEMS operating site.';

(3) Article 5 is amended as follows:

(a) the following paragraph is inserted:

'1b. Operators shall only operate VCA in the context of IAM operations as specified in Annexes III and IX to this Regulation.';

(b) in paragraph 2, the following point is added:

'(h) VCA used for:

(i) the transport of dangerous goods (DGs);

(ii) VEMS.';

(c) in paragraph 5, the following point is added:

'(c) VCA in accordance with the requirements specified in Annex IX.';

(d) in paragraph 5, the following second subparagraph is added:

'In the case of points (a), (b) and (c) of the first subparagraph, the training organisations shall comply with the requirements laid down in Annex VII (Part-ORA) to Regulation (EU) No 1178/2011 instead of Annex III (Part-ORO) of this Regulation. Training for VCA shall only be provided by approved training organisations.';

(4) Article 8 is amended as follows:

(a) paragraph 1 is replaced by the following:

'1. CAT operations with aeroplanes and helicopters shall be subject to the requirements of Subpart FTL of Annex III.';

(b) the following paragraph is added:

'5. An IAM operator shall, as regards flight time limitations, comply with the requirements specified in the national law of the Member State in which the operator has its principal place of business, or, where the operator has no principal place of business, the place where the operator is established or resides.';

(5) Annex I to Regulation (EU) No 965/2012 is amended in accordance with Annex III to this Regulation;

(6) Annex II to Regulation (EU) No 965/2012 is amended in accordance with Annex IV to this Regulation;

(7) Annex III to Regulation (EU) No 965/2012 is amended in accordance with Annex V to this Regulation;

(8) Annex V to Regulation (EU) No 965/2012 is amended in accordance with Annex VI to this Regulation;

(9) Annex IX to Regulation (EU) No 965/2012 is added as laid down in Annex VII to this Regulation.

Article 4

Amendments to Implementing Regulation (EU) 2017/373

In point ATS.TR.305 of Annex IV to Implementing Regulation (EU) 2017/373, the following point (7a) is inserted to subpoint (a):

'(7a) information on unmanned aircraft;'.

Article 5

Entry into force and applicability

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

It shall apply from 1 May 2025.

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

Done at Brussels, 10 April 2024.

For the Commission
The President
Ursula VON DER LEYEN

ANNEX I

Annex I to Regulation (EU) No 1178/2011 is amended as follows:

(1) point FCL.010 is amended as follows:

(a) in the definition of 'Flight time', the third paragraph on 'airships' is replaced by the following:

'for airships, it means the total time from the moment an airship is released from the mast for the purpose of taking off until the moment the airship finally comes to rest at the end of the flight, and is secured on the mast;';

(b) in the definition of 'Flight time', the fourth paragraph on 'VTOL-capable aircraft' is added as follows:

'for VTOL-capable aircraft (VCA), it means the total time between the moment the lift and thrust units are powered on for the purpose of taking off until the moment the aircraft finally comes to rest at the end of the flight and the lift and thrust units are powered off.';

(c) the definition of 'Helicopter' is replaced by the following:

'"Helicopter" means a type of rotorcraft supported in flight chiefly by the reactions of the air on up to two power-driven rotors on substantially vertical axes.';

(2) in point FCL.060, the introductory phrase of point (b) is replaced by the following:

'(b) Aeroplanes, helicopters, powered-lift aircraft, airships and VTOL-capable aircraft (VCA).

A pilot shall not operate an aircraft in commercial air transport or to carry passengers:'.

ANNEX II

The Annex to Implementing Regulation (EU) No 923/2012 is amended as follows:

(1) in point SERA.2010, point (b) is replaced by the following:

'(b) Pre-flight action

Before beginning a flight, the pilot-in-command of an aircraft shall become familiar with all available information appropriate to the intended operation. Pre-flight action for flights away from the vicinity of an aerodrome, and for all IFR flights, shall include a careful study of available current weather reports and forecasts, taking into consideration fuel/energy requirements and an alternative course of action if the flight cannot be completed as planned.';

(2) in point SERA.4005, point (12) of point (a) is replaced by the following:

'(12) Fuel/energy endurance';

(3) in point SERA.4015, point (b) is replaced by the following:

'(b) Information submitted prior to departure regarding fuel or energy endurance or total number of persons carried on board, if incorrect at time of departure, constitutes a significant change to the flight plan and as such shall be reported.';

(4) in point SERA.8015, point (4) of point (b) is replaced by the following:

'(4) *Potential reclearance in flight*. If, prior to departure, it is anticipated that, depending on fuel/energy endurance and subject to reclearance in flight, a decision may be taken to proceed to a revised destination aerodrome, the appropriate air traffic control units shall be so notified by the insertion in the flight plan of information concerning the revised route (where known) and the revised destination.';

(5) in point SERA.8020, points (d)(1) and (2) are replaced by the following:

'(d) *Weather deterioration below the VMC*. When it becomes evident that flight in VMC in accordance with its current flight plan will not be practicable, a VFR flight operated as a controlled flight shall:

(1) request an amended clearance enabling the aircraft to continue in VMC to destination or to an alternative aerodrome or operating site, or to leave the airspace within which an ATC clearance is required; or

(2) if no clearance in accordance with point (1) can be obtained, continue to operate in VMC and notify the appropriate ATC unit of the action being taken either to leave the airspace concerned or to land at the nearest suitable aerodrome or operating site; or';

(6) in point SERA.9005, the following point (7a) is inserted:

'(7a) information on unmanned aircraft;';

(7) in point SERA.11005, point (ab) is replaced by the following:

'(ab) If an aircraft is subjected to unlawful interference, the pilot-in-command shall attempt to land as soon as practicable at the nearest suitable aerodrome or operating site or at a dedicated aerodrome or operating site assigned by the competent authority, unless considerations aboard the aircraft dictate otherwise.';

(8) in point SERA.11012, points (a) and (b) are replaced by the following:

'(a) When a pilot reports a state of minimum fuel/energy, the controller shall inform the pilot as soon as practicable of any anticipated delays or that no delays are expected.

(b) When the level of fuel/energy renders declaring a situation of distress necessary, the pilot, in accordance with point SERA.14095, shall indicate that by using the radiotelephony distress signal (MAYDAY), preferably spoken three times, followed by the nature of the distress condition (FUEL).';

(9) point SERA.11015 is amended as follows:

(a) in Table S11-1, 'Series 3' is replaced by the following:

'3	DAY or NIGHT – Lowering landing gear (if fitted), showing steady landing lights and overflying runway in use or, if the intercepted aircraft is a helicopter / VTOL-capable aircraft, overflying the helicopter / VTOL-capable aircraft landing area. In the case of helicopters / VTOL-capable aircraft, the intercepting helicopter / VTOL-capable aircraft makes a landing approach, coming to hover near the landing area.	Land at this aerodrome.	DAY or NIGHT – Lowering landing gear, (if fitted), showing steady landing lights and following the intercepting aircraft and, if, after overflying the runway in use or helicopter / VTOL-capable aircraft landing area, landing is considered safe, proceeding to land.	Understood, will comply.'

(b) in Table S11-2, 'Series 4' is replaced by the following:

'4	DAY or NIGHT – Raising landing gear (if fitted) and flashing landing lights while passing over runway in use or helicopter / VTOL-capable aircraft landing area at a height exceeding 300 m (1 000 ft) but not exceeding 600 m (2 000 ft) (in the case of a helicopter, at a height exceeding 50 m (170 ft) but not exceeding 100 m (330 ft)) above the aerodrome level, and continuing to circle runway in use or helicopter / VTOL-capable aircraft landing area. If unable to flash landing lights, flash any other lights available.	Aerodrome you have designated is inadequate.	DAY or NIGHT – If it is desired that the intercepted aircraft follow the intercepting aircraft to an alternate aerodrome, the intercepting aircraft raises its landing gear (if fitted) and uses the Series 1 signals prescribed for intercepting aircraft. If it is decided to release the intercepted aircraft, the intercepting aircraft uses the Series 2 signals prescribed for intercepting aircraft.	Understood, follow me. Understood, you may proceed.'

(c) in Appendix 1 'Signals', point '4. MARSHALLING SIGNALS' is amended as follows:

(1) point (b) of point 4.1.1 is replaced by the following:

'(b) for helicopters /VTOL-capable aircraft, where the signalman/marshaller can best be seen by the pilot.';

(2) in points 16 to 20 of point 4.1.2, the text of footnotes 1 to 3 is replaced by the following:

'([1]) For use to hovering helicopters / VTOL-capable aircraft.

([2]) For use to hovering helicopters / VTOL-capable aircraft.

([3]) For use to hovering helicopters / VTOL-capable aircraft.';

(d) in Appendix 5 'Technical specifications related to aircraft observations and reports by voice communications', section 'A. REPORTING INSTRUCTIONS' is amended as follows:

in point 2 'DETAILED REPORTING INSTRUCTIONS', [Item 8] of Section 2 is replaced by the following:

'Item 8 – ENDURANCE. Report "ENDURANCE" followed by fuel/energy endurance in hours and minutes (4 numerics).'.

ANNEX III

Annex I to Regulation (EU) No 965/2012 is amended as follows:

(1) the title of Annex I is replaced by the following:

'Annex I – Definitions for terms used in Annexes II to IX';

(2) point 21 is replaced by the following:

'(21) "clearway" means a defined rectangular area on the ground or on water under the control of the appropriate authority, selected or prepared as a suitable area over which an aircraft may make a portion of its initial climb to a specified height;';

(3) point 26 is replaced by the following:

'(26) "contingency fuel/energy" means the fuel/energy required to compensate for unforeseen factors that could have an influence on the fuel/energy consumption to the destination aerodrome or vertiport;';

(4) point 31 is replaced by the following:

'(31) "critical phases of flight" means:

(a) for helicopters, taxiing, hovering, take-off, final approach, missed approach, landing and any other phases of flight as determined by the pilot-in-command or the commander;

(b) for VCA, ground taxiing with passengers for the purpose of flight or after landing, air taxiing, hovering, take-off, final approach, missed approach (go-around), landing and any other phase of flight as determined by the pilot-in-command;';

(5) point 39 is replaced by the following:

'(39) "distance DR" means the horizontal distance that the helicopter or the VCA has travelled from the end of the take-off distance available;';

(6) point 48 is replaced by the following:

'(48) "final approach and take-off area (FATO)" means a defined area for helicopter or VCA operations over which the final phase of the approach manoeuvre to hover or land is completed, and from which the take-off manoeuvre is commenced; in the case of helicopters operating in performance class 1 and VCA operating in the category Enhanced or equivalent, the defined area includes the rejected take-off area available;';

(7) point 50a is replaced by the following:

'(50a) "flight time" means:

(a) for aeroplanes, the total time from the moment an aeroplane first moves for the purpose of taking off until the moment the aeroplane finally comes to rest at the end of the flight;

(b) for helicopters, the total time between the moment a helicopter's rotor blades start turning for the purpose of taking off until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped;

(c) for VCA, the total time between the moment the lift and thrust units are powered on for the purpose of taking off until the moment the aircraft finally comes to rest at the end of the flight and the lift and thrust units are powered off;';

(8) point 53 is replaced by the following:

'(53) "ground emergency service personnel" means any ground emergency service personnel, such as police officers, firefighters, etc., involved in helicopter emergency medical services (HEMSs) or in emergency medical services with VCA (VEMSs) and whose tasks are to any extent pertinent to the operation;';

(9) in point 69, point (ii) of point (a) is replaced by the following:

'(ii) the helicopter occupants or VCA occupants cannot be adequately protected from the elements; or';

(10) point 70 is replaced by the following:

'(70) "landing decision point (LDP)" means:

(a) for helicopters, the point used to determine landing performance from which, an engine failure having been recognised at this point, the landing may be safely continued or a balked landing initiated;

(b) for VCA, the point used to determine landing performance from which the landing may be safely continued or a balked landing initiated, following a CFP;';

(11) point 71 is replaced by the following:

'(71) "landing distance available" means:

(a) for aeroplanes (LDAA), the length of the runway which is declared available by the State of the aerodrome and suitable for the ground run of an aeroplane landing;

(b) for helicopters (LDAH), the length of the FATO plus any additional area declared available by the State of the aerodrome and suitable for the helicopter to complete the landing manoeuvre from a defined height; and

(c) for VCA (LDAV), the length of the FATO plus any additional area declared available and suitable for the VCA to complete the landing manoeuvre from a defined height;';

(12) the following point 71a is inserted:

'(71a) "landing distance required (LDR)" means:

(a) for helicopters (LDRH), the horizontal distance required to land and come to a full stop from a point of 15 m (50 ft) above the landing surface; and

(b) for VCA (LDRV), the horizontal distance required to land and come to a full stop from a point of 15 m (50 ft) above the landing surface;';

(13) point 78 is replaced by the following:

'(78) "medical passenger" means a medical person carried in a helicopter during a HEMS flight or in a VCA during a VEMS flight, including but not limited to doctors, nurses and paramedics;';

(14) in point 82, point (b) is replaced by the following:

'(b) the helicopter occupants or the VCA occupants can be protected from the elements; and';

(15) point 96 is replaced by the following:

'(96) "pilot-in-command (PIC)" means the pilot designated as being in command and charged with the safe conduct of the flight; for the purpose of commercial air transport operations with aeroplanes and helicopters, the "pilot-in-command" shall be termed "commander";';

(16) point 102 is replaced by the following:

'(102) "rejected take-off distance available (RTODA)" means:

(a) for helicopters (RTODAH), the length of the final approach and take-off area declared available and suitable for helicopters operated in performance class 1 to complete a rejected take-off; or

(b) for VCA (RTODAV), the length of the final approach and take-off area declared available and suitable for VCA to complete a rejected take-off in accordance with the category in which they are operated;';

(17) point 103 is replaced by the following:

'(103) "rejected take-off distance required (RTODR)" means:

(a) for helicopters (RTODRH), the horizontal distance required from the start of the take-off to the point where the helicopter comes to a full stop following an engine failure and rejection of the take-off at the take-off decision point;

(b) for VCA (RTODRV), the horizontal distance required from the start of the take-off to the point where the VCA comes to a full stop by completing a rejected take-off following a CFP being recognised at the take-off decision point';

(18) point 104a is replaced by the following:

'(104a) "safe landing" means, in the context of the fuel/energy policy or fuel/energy schemes, a landing at an adequate aerodrome or operating site or at an adequate vertiport or diversion location with no less than the final reserve fuel/energy remaining and in compliance with the applicable operational procedures and aerodrome operating minima;'

(19) point 111 is replaced by the following:

'(111) "take-off decision point (TDP)" means:

(a) for helicopters, the point used to determine take-off performance from which, an engine failure having been recognised at this point, either a rejected take-off may be made or a take-off safely continued;

(b) for VCA, the first point defined by the combination of speed and height from which a continued take-off may be performed meeting the certified minimum performance (CMP) following a CFP and is the last point in the take-off path from which a rejected take-off is assured;';

(20) point 113 is replaced by the following:

'(113) "take-off distance available (TODA)" means:

(a) for helicopters (TODAH), the length of the final approach and take-off area plus, if provided, the length of the helicopter clearway declared available and suitable for the helicopter to complete the take-off;

(b) for VCA (TODAV), the length of the final approach and take-off area plus, if provided, the length of the clearway declared available and suitable for the VCA to complete the take-off;';

(21) point 114 is replaced by the following:

'(114) "take-off distance required (TODR)" means:

(a) for helicopters (TODRH), the horizontal distance required from the start of the take-off to the point at which the take-off safety speed (V_{TOSS}), the selected height and a positive climb gradient are achieved, following failure of the critical engine being recognised at the TDP, the remaining engines operating within approved operating limits;

(b) for VCA (TODRV), the horizontal distance required from the start of the take-off to the point at which the safe obstacle clearance and a positive climb gradient are achieved, following a critical failure for performance (CFP) recognised at the TDP;';

(22) point 115 is replaced by the following:

'(115) "take-off flight path" means:

(a) the vertical and horizontal path, with the critical engine inoperative, from a specified point in the take-off for aeroplanes to 1 500 ft above the surface, and for helicopters to 1 000 ft above the surface;

(b) for VCA, the vertical and horizontal path with a critical failure for performance (CFP), which extends from the take-off point to a point at which the VCA is at a height above the take-off elevation that is compatible with the en-route profile and not higher than 305 m (1 000 ft);';

(23) point 116 is replaced by the following:

'(116) "take-off mass" means the mass including everything and everyone carried on board at the commencement of the take-off for helicopters or for VCA, and during take-off run for aeroplanes;';

(24) point 118 is replaced by the following:

'(118) "technical crew member" means a crew member in commercial air transport HEMS, VEMS, HHO or NVIS operations other than a flight or cabin crew member, assigned by the operator to duties in the aircraft or on the ground for the purpose of assisting the pilot during HEMS, VEMS, HHO or NVIS operations, which may require the operation of specialised on-board equipment;';

(25) the following points 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142 and 143 are added:

'(130) "ground movement" means the movement of an aircraft on the movement area of an aerodrome or a vertiport with the aid of external equipment or accessory that is not powered by the aircraft;

(131) "ground personnel" means the personnel other than flight crew members or technical crew members that are assigned to tasks related to the ground movement of the VCA or any other ground assistance provided to aircraft, and have received training in the relevant operational and safety procedures;

(132) "category Enhanced" means a category for VCA certification and operation according to which the aircraft meets the requirements for continued safe flight and landing following a critical failure for performance (CFP);

(133) "certified minimum performance (CMP)" means, in relation to VCA, the set of performance data obtained by considering the effect of single failures and combinations of failures that are not extremely improbable on nominal performance parameters;

(134) "continued safe flight and landing (CSFL)" means, in relation to a VCA operated in the category Enhanced, that the aircraft is capable of continued controlled flight and landing at a vertiport, possibly using emergency procedures, without requiring exceptional piloting skills or strength;

(135) "critical failure for performance (CFP)" means, in relation to VCA, a failure or a combination of failures that results in the maximum degradation for a given flight phase and performance parameter; the set of critical failures for performance is used to establish the certified minimum performance (CMP);

(136) "limited overwater operation" means an IAM operation with a VCA that is conducted for a limited flight time over water;

(137) "VEMS technical crew member" means a technical crew member (TCM) that is assigned to a VEMS flight for the purpose of assisting the pilot during the flight operation and attending to any person in need of medical assistance;

(138) "VEMS operating base" means a vertiport at which the VCA, its flight crew and VEMS crew members are on standby for VEMS operations;

(139) "VEMS operating site" means an operating site selected by the pilot-in-command for VEMS operations, landings and take-offs;

(140) "vertiport" means an area of land, water, or structure used or intended to be used for the landing and take-off of VCA, and for the movement of VCA;

(141) "adequate vertiport" means a vertiport at which the VCA may be operated, taking account of the aircraft dimensions, weight, approach and departure paths, and which is provided with services and facilities necessary for the intended operation and is available at the expected time of use;

(142) "VTOL take-off safety speed (V_{TOSS})" means the minimum speed at which climb shall be achieved with a CFP recognised at the TDP in the case of VCA operated in the category Enhanced;

(143) "manned VCA" means a VCA piloted by at least one pilot on board;'.

ANNEX IV

Annex II (Part-ARO) to Regulation (EU) No 965/2012 is amended as follows:

(1) the title of Section I of Subpart OPS 'Air Operations' is replaced by the following:

'*SECTION I*

Certification of commercial air transport (CAT) operators and innovative air mobility (IAM) operators';

(2) in point ARO.OPS.200 point (b), point (1) is replaced by the following:

'(1) the operations specifications, as established in Appendix II, for commercial air transport operations with aeroplanes and helicopters and for innovative air mobility (IAM) operations with VCA; or';

(3) after point ARO.OPS.220, the following point ARO.OPS.224 is inserted:

'**ARO.OPS.224 Approval of fuel/energy schemes for IAM operations**

(a) The competent authority shall approve the fuel/energy scheme proposed by an IAM operator if that operator demonstrates compliance with the requirements of points UAM.OP.VCA.190, UAM.OP.VCA.191, UAM.OP.VCA.192 and UAM.OP.VCA.195 of Annex IX.

(b) In addition, the competent authority shall:

(1) assess whether the IAM operator's management system and safety risk management process can support the implementation of the proposed individual fuel/energy scheme; and

(2) establish an oversight plan to conduct periodic assessments of the IAM operator's current fuel/energy scheme to verify compliance of the scheme with the applicable requirements or decide whether the scheme should be amended or revoked.';

(4) the title of point ARO.OPS.225 is replaced by the following:

'**ARO.OPS.225 Approval of fuel/energy schemes – aeroplanes and helicopters**';

(5) Appendix I to Annex II (Part-ARO) is replaced by the following:

'*Appendix I*

AIR OPERATOR CERTIFICATE

(Approval schedule for air transport operators)

Types of operation:

Commercial air transport (CAT) ☐ Passengers; ☐ Cargo; ☐ Other ([1]): .....
Innovative air mobility (IAM) ☐ Passengers; ☐ Cargo; ☐ Other ([1]): .....

([4])	State of the Operator ([2]) Issuing Authority ([3])	([5])
AOC # ([6]): 	Operator Name ([7]) Dba Trading Name ([8]) Operator postal address ([10]): Telephone ([11]): Fax Email:	Operational Points of Contact: ([9]) Contact details at which operational management can be contacted without undue delay, are listed in ..... ([12]).

☐ This is to certify that ..... ([13]) is authorised to conduct commercial air transport (CAT) operations, as defined in the attached operations specifications, in accordance with the operations manual and with Annex V to Regulation (EU) 2018/1139 and its delegated and implementing acts.

☐ This is to certify that ..... ([13]) is authorised to conduct innovative air mobility (IAM) operations, as defined in the attached operations specifications, in accordance with the operations manual and with Annex V to Regulation (EU) 2018/1139 and its delegated and implementing acts.

Date of issue ([14]):	Name and Signature ([15]): Title:

([1]) Other type of transportation to be specified.
([2]) Replaced by the name of the State of the operator.
([3]) Replaced by the identification of the issuing competent authority.
([4]) For use by the competent authority.
([5]) For use by the competent authority.
([6]) Approval reference, as issued by the competent authority.
([7]) Replaced by the operator's registered name.
([8]) Operator's trading name, if different. Insert "Dba" (for "Doing business as") before the trading name.
([9]) The contact details include the telephone and fax numbers, including the country code, and the email address (if available) at which operational management can be contacted without undue delay for issues related to flight operations, airworthiness, flight and cabin crew members' competency, dangerous goods and other matters as appropriate.
([10]) Operator's address of principal place of business.
([11]) Operator's principal place of business telephone and fax details, including the country code. Email to be provided if available.
([12]) Insertion of the controlled document, carried on board, in which the contact details are listed, with the appropriate paragraph or page reference. E.g.: "Contact details … are listed in the operations manual, gen/basic, Chapter 1, 1.1"; or "… are listed in the operations specifications, page 1"; or "… are listed in an attachment to this document".
([13]) Operator's registered name.
([14]) Issue date of the AOC (dd-mm-yyyy).
([15]) Title, name and signature of the competent authority's representative. In addition, an official stamp may be applied on the AOC.

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(6) Appendix II to Annex II (Part-ARO) is replaced by the following:

'*Appendix II*

<table>
<tr><td colspan="6">OPERATIONS SPECIFICATIONS
(subject to the approved conditions in the operations manual)</td></tr>
<tr><td colspan="6">Issuing authority contact details
Telephone (1): _____; Fax _____;
Email: _____</td></tr>
<tr><td>AOC (2):</td><td colspan="2">Operator name (3):</td><td>Date (4):</td><td colspan="2">Signature:</td></tr>
<tr><td></td><td colspan="5">Dba trading name</td></tr>
<tr><td colspan="6">Operations specifications #:</td></tr>
<tr><td colspan="6">Aircraft model (5):
Registration marks (6):</td></tr>
<tr><td colspan="6">Types of operation:
Commercial air transport (CAT) ☐ Passengers ☐ Cargo ☐ Other (7): _____
Innovative air mobility (IAM) ☐ Passengers ☐ Cargo ☐ Other (7): _____</td></tr>
<tr><td colspan="6">Area of operation (8):</td></tr>
<tr><td colspan="6">Special limitations (9):</td></tr>
<tr><td colspan="2">Specific approvals:</td><td>Yes</td><td>No</td><td>Specification (10)</td><td>Remarks</td></tr>
<tr><td colspan="2">Dangerous goods</td><td>☐</td><td>☐</td><td></td><td></td></tr>
<tr><td colspan="2">Low-visibility operations</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Take-off</td><td>☐</td><td>☐</td><td>RVR (11): ... m</td><td></td></tr>
<tr><td colspan="2">Approach and landing</td><td>☐</td><td>☐</td><td>CAT (12) .... DA/H: ...ft, RVR: ...m</td><td></td></tr>
<tr><td colspan="2">Operational credits</td><td>☐</td><td>☐</td><td>CAT (13) …. DA/H: ...ft, RVR: ...m</td><td></td></tr>
<tr><td>RVSM (14)</td><td>☐ N/A</td><td>☐</td><td>☐</td><td></td><td></td></tr>
<tr><td>ETOPS (15)</td><td>☐ N/A</td><td>☐</td><td>☐</td><td>Maximum diversion time (16):… minutes</td><td></td></tr>
<tr><td colspan="2">Complex navigation specifications for PBN operations (17)</td><td>☐</td><td>☐</td><td></td><td>(18)</td></tr>
<tr><td colspan="2">Minimum navigation performance specification</td><td>☐</td><td>☐</td><td></td><td></td></tr>
<tr><td colspan="2">Operations with single-engined turbine aeroplane at night or in IMC (SET-IMC)</td><td>☐</td><td>☐</td><td>(19)</td><td></td></tr>
<tr><td colspan="2">Helicopter operations with the aid of night-vision imaging systems</td><td>☐</td><td>☐</td><td></td><td></td></tr>
<tr><td colspan="2">Helicopter hoist operations</td><td>☐</td><td>☐</td><td></td><td></td></tr>
<tr><td colspan="2">Helicopter emergency medical service operations</td><td>☐</td><td>☐</td><td></td><td></td></tr>
<tr><td colspan="2">Helicopter offshore operations</td><td>☐</td><td>☐</td><td></td><td></td></tr>
</table>

VTOL-capable aircraft emergency medical service operations (VEMS)	☐	☐		
Cabin crew training ([20])	☐	☐		
Issue of CC attestation ([21])	☐	☐		
Use of type B EFB applications	☐	☐	([22])	
Continuing airworthiness	☐	☐	([23])	
Others ([24])				

([1]) Telephone contact details of the competent authority, including the country code. Email address to be provided, as well as fax if available.
([2]) Insertion of associated air operator certificate (AOC) number.
([3]) Insertion of the operator's registered name and the operator's trading name, if different. Insert "Dba" (for "Doing business as") before the trading name.
([4]) Issue date of the operations specifications (dd-mm-yyyy) and signature of the competent authority representative.
([5]) Insertion of ICAO designation of the aircraft make, model and series, or master series, if a series has been designated (e.g. Boeing-737-3K2 or Boeing-777-232) or insertion of the VTOL-capable aircraft make, model and series, as applicable.
([6]) The registration marks are listed either in the operations specifications or in the operations manual. In the latter case, the related operations specifications must make a reference to the related page in the operations manual. In case not all specific approvals apply to the aircraft model, the registration marks of the aircraft may be entered in the "Remarks" column to the related specific approval.
([7]) Other type of transportation (e.g. emergency medical service) to be specified.
([8]) Listing of geographical area(s) of authorised operation (by geographical coordinates or specific routes, flight information region or national or regional boundaries).
([9]) Listing of applicable special limitations (e.g. VFR only, Day only, etc.).
([10]) List in this column the most permissive criteria for each approval or the approval type (with appropriate criteria).
([11]) Insertion of approved minimum take-off RVR in metres. One line per approval may be used if different approvals are granted.
([12]) Insertion of applicable precision approach category: CAT II or CAT III. Insertion of minimum RVR in metres and DH in feet. One line is used per listed approach category.
([13]) Insertion of applicable operational credit: SA CAT I, SA CAT II, EFVS, etc. Insertion of minimum RVR in metres and DH in feet. One line is used per listed operational credit.
([14]) The "Not Applicable" (N/A) box may be checked only if the aircraft maximum ceiling is below FL290.
([15]) Extended range operations (ETOPS) currently applies only to two-engined aircraft. Therefore, the "Not Applicable" (N/A) box may be checked if the aircraft model has fewer or more than two engines.
([16]) The threshold distance may also be listed (in NM), as well as the engine type.
([17]) Performance-based navigation (PBN): one line is used for each complex PBN-specific approval (e.g. RNP AR APCH), with appropriate limitations listed in the "Specifications" or "Remarks" columns, or in both. Procedure-specific approvals of specific RNP AR APCH procedures may be listed in the operations specifications or in the operations manual. In the latter case, the related operations specifications must have a reference to the related page in the operations manual.
([18]) Specify if the specific approval is limited to certain runway ends or aerodromes, or both.
([19]) Insertion of the particular airframe or engine combination.
([20]) Approval to conduct the training course and examination to be completed by applicants for a cabin crew attestation as specified in Annex V (Part-CC) to Regulation (EU) No 1178/2011.
([21]) Approval to issue cabin crew attestations as specified in Annex V (Part-CC) to Regulation (EU) No 1178/2011.
([22]) Insertion of the list of type B EFB applications together with the reference of the EFB hardware (for portable EFBs). This list is contained either in the operations specifications or in the operations manual. In the latter case, the related operations specifications must make a reference to the related page in the operations manual.
([23]) The approval reference of the organisation responsible for managing the continuing airworthiness of the aircraft and a reference to the relevant regulation (e.g. Annex Vc (Part-CAMO) to Regulation (EU) No 1321/2014).
([24]) Other approvals or data may be entered here, using one line (or one multi-line block) per authorisation (e.g. short-landing operations, steep-approach operations, reduced required landing distance, helicopter operations to or from a public interest site, helicopter operations over a hostile environment located outside a congested area, helicopter operations without a safe forced landing capability, operations with increased bank angles, maximum distance from an adequate aerodrome for two-engined aeroplanes without an ETOPS approval).

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ANNEX V

Annex III (Part-ORO) to Regulation (EU) No 965/2012 is amended as follows:

(1) point ORO.GEN.005 is replaced by the following:

'**ORO.GEN.005 Scope**

This Annex establishes the requirements to be met by an air operator that conducts:

(a) commercial air transport (CAT) operations;

(b) commercial specialised operations;

(c) non-commercial operations with complex motor-powered aircraft;

(d) non-commercial specialised operations with complex motor-powered aircraft;

(e) innovative air mobility (IAM) operations.';

(2) in point ORO.GEN.140, point (b) is replaced by the following:

'(b) Access to the aircraft referred to in point (a) shall:

(i) for CAT operations with aeroplanes and helicopters, include the possibility to enter and remain in the aircraft during flight operations unless otherwise decided by the commander for the flight crew compartment in accordance with point CAT.GEN.MPA.135 in the interest of safety;

(ii) for IAM operations with VCA, include the possibility to enter and remain in the aircraft during flight operations unless otherwise decided by the pilot-in-command in accordance with point IAM.GEN.MVCA.135 in the interest of safety.';

(3) point ORO.GEN.310 is replaced by the following:

'**ORO.GEN.310 Use of aeroplanes or helicopters listed on an AOC for non-commercial operations and specialised operations**

(a) An aeroplane or a helicopter listed on an operator's AOC may remain on the AOC if it is operated in any of the following situations:

(1) by the AOC holder itself, for specialised operations in accordance with Annex VIII (Part-SPO);

(2) by other operators, for non-commercial operations with motor-powered aircraft or for specialised operations conducted in accordance with Annex VI (Part-NCC), Annex VII (Part-NCO) or Annex VIII (Part-SPO), provided that the aircraft is used for a continuous period not exceeding 30 days.

(b) When an aeroplane or a helicopter is used in accordance with point (a)(2), the AOC holder that provides the aeroplane or helicopter and the operator that uses the aeroplane or helicopter shall establish a procedure:

(1) clearly identifying which operator is responsible for the operational control of each flight, and to describe how the operational control is transferred between them;

(2) describing the handover procedure of the aeroplane or helicopter upon its return to the AOC holder.

That procedure shall be included in the operations manual of each operator or in a contract concluded between the AOC holder and the operator that uses the aeroplane or the helicopter in accordance with point (a)(2). The AOC holder shall establish a template for such a contract. Point ORO.GEN.220 shall apply to those contracts.

The AOC holder and the operator that uses the aeroplane or the helicopter in accordance with point (a)(2) shall ensure that the procedure is communicated to the relevant personnel.

(c) The AOC holder shall submit to the competent authority the procedure referred to in point (b) for prior approval. The AOC holder shall agree with the competent authority on the means and on the frequency of providing it with information about transfers of operational control in accordance with point ORO.GEN.130 (c).

(d) The continuing airworthiness of the aeroplane or the helicopter used in accordance with point (a) shall be managed by the organisation responsible for the continuing airworthiness of the aeroplane or helicopter included in the AOC, in accordance with Regulation (EU) No 1321/2014.

(e) The AOC holder that provides the aeroplane or the helicopter in accordance with point (a) shall:

(1) indicate in its operations manual the registration marks of the aeroplane or helicopter provided, and the type of operations conducted with that aeroplane or helicopter;

(2) remain informed at all times and keep record of each operator that holds the operational control of the aeroplane or helicopter at any given moment until the aeroplane or helicopter is returned to the AOC holder;

(3) ensure that the hazard identification, risk assessment and mitigation measures it has put in place address all the operations conducted with that aeroplane or helicopter.

(f) For operations conducted under Annex VI (Part-NCC) and Annex VIII (Part-SPO), the operator that uses the aeroplane or the helicopter in accordance with point (a) shall ensure all the following:

(1) that every flight conducted under its operational control is recorded in the aeroplane's or helicopter's technical log system;

(2) that no changes are made to the aeroplane's or helicopter's systems or its configuration;

(3) that any defect or technical malfunction occurring while the aeroplane or helicopter is under its operational control is reported to the organisation referred to in point (d);

(4) that the AOC holder receives a copy of any occurrence report related to the flights conducted with the aeroplane or helicopter, completed in accordance with Regulation (EU) No 376/2014 and Implementing Regulation (EU) 2015/1018 (*).

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(*) Commission Implementing Regulation (EU) 2015/1018 of 29 June 2015 laying down a list classifying occurrences in civil aviation to be mandatorily reported according to Regulation (EU) No 376/2014 of the European Parliament and of the Council (OJ L 163, 30.6.2015, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2015/1018/oj).';

(4) point ORO.AOC.100 is replaced by the following:

'**ORO.AOC.100 Application for an air operator certificate (AOC)**

(a) Without prejudice to Regulation (EC) No 1008/2008 of the European Parliament and of the Council (*), prior to commencing CAT operations with aeroplanes or helicopters or IAM operations with VCA, the operator shall apply for and obtain an AOC issued by the competent authority.

(b) The operator shall provide the following information to the competent authority:

(1) the official name and business name, address and mailing address of the applicant;

(2) a description of the proposed operation, including the type(s) and number of aircraft to be operated;

(3) a description of the management system, including organisational structure;

(4) the name of the accountable manager;

(5) the names of the nominated persons as required under point ORO.AOC.135(a), together with their qualifications and experience;

(6) a copy of the operations manual as required under point ORO.MLR.100;

(7) 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.

(c) Applicants shall demonstrate to the competent authority that:

(1) the CAT operations with aeroplanes and helicopters comply with the essential requirements of Annex V to Regulation (EU) 2018/1139, this Annex (Part-ORO), Annex IV (Part-CAT) and Annex V (Part-SPA) to this Regulation, and Annex I (Part-26) to Regulation (EU) 2015/640 (**);

(1a) for IAM operations with VCA, they comply with the essential requirements of Annex V to Regulation (EU) 2018/1139, this Annex III (Part-ORO), Annex V (Part-SPA) and Annex IX (Part-IAM) to this Regulation, and with Annex I (Part-26) to Regulation (EU) 2015/640;

(2) all aircraft operated have been issued with a certificate of airworthiness (CofA) in accordance with Regulation (EU) No 748/2012 or are dry-leased in accordance with point ORO.AOC.110(d); and

(3) their organisation and management is suitable and properly matched to the scale and scope of the intended operation.

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(*) Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community (OJ L 293, 31.10.2008, p. 3, ELI: http://data.europa.eu/eli/reg/2008/1008/oj).

(**) Commission Regulation (EU) 2015/640 of 23 April 2015 on additional airworthiness specifications for a given type of operations and amending Regulation (EU) No 965/2012 (OJ L 106, 24.4.2015, p. 18, ELI: http://data.europa.eu/eli/reg/2015/640/oj).';

(5) point ORO.AOC.125 is replaced by the following:

'**ORO.AOC.125 Non-commercial operations of an AOC holder with aeroplanes or helicopters listed on its AOC**

(a) The AOC holder may conduct non-commercial operations in accordance with Annex VI (Part-NCC) or Annex VII (Part-NCO) with aeroplanes or helicopters listed in the operations specifications of its AOC or in its operations manual, provided that the AOC holder describes such operations in detail in the operations manual, including the following:

(1) an identification of the applicable requirements;

(2) a description of any differences between the operating procedures used when conducting CAT operations and non-commercial operations;

(3) means of ensuring that all personnel involved in the operations are fully familiar with the associated procedures.

(b) An AOC holder shall comply with:

(1) Annex VIII (Part-SPO) when conducting maintenance check flights with complex motor-powered aircraft;

(2) Annex VII (Part-NCO) when conducting maintenance check flights with other than complex motor-powered aircraft.

(c) An AOC holder that conducts operations referred to in points (a) and (b) shall not be required to submit a declaration in accordance with this Annex.

(d) The AOC holder shall specify the type of flight, as listed in its operations manual, in the flight-related documents (operational flight plan, load sheet and other relevant documents).';

(6) in point ORO.MLR.100, point (b) is replaced by the following:

'(b) The content of the OM shall reflect the requirements set out in this Annex, in Annex IV (Part-CAT), Annex V (Part-SPA), Annex VI (Part-NCC), Annex VIII (Part-SPO) and Annex IX (Part-IAM), as applicable, and shall not contravene the conditions contained in the operations specifications to the air operator certificate (AOC), the SPO authorisation or the declaration and the list of specific approvals, as applicable.';

(7) point ORO.MLR.101 is replaced by the following:

'**ORO.MLR.101 Operations manual – structure for CAT and IAM operations**

Except for operations with single-engined propeller-driven aeroplanes with an MOPSC of 5 or less or single-engined non-complex helicopters with an MOPSC of 5 or less, taking off and landing at the same aerodrome or operating site, under VFR by day, the main structure of the operations manual (OM) shall be as follows:

(a) Part A: General/Basic, comprising all non-type-related operational policies, instructions and procedures;

(b) Part B: Aircraft operating matters, comprising all type-related instructions and procedures, taking into account differences between types/classes, variants or individual aircraft used by the operator;

(c) Part C: CAT operations with aeroplanes and helicopters, comprising route/role/area and aerodrome / operating site instructions and information or, IAM operations with VCA, comprising route/role/area and vertiport / diversion location / operating site instructions and information;

(d) Part D: Training, comprising all training instructions for personnel required to ensure safe operations.';

(8) in point ORO.MLR.115, point (a) is replaced by the following:

'(a) The following records shall be stored for at least 5 years:

(1) for CAT operators of airplanes and helicopters and IAM operators of VCA, records of the activities referred to in point ORO.GEN.200;

(2) for declared operators, a copy of the operator's declaration, details of approvals held and operations manual;

(3) for SPO authorisation holders, in addition to point (a)(2), records related to the risk assessment conducted in accordance with point SPO.OP.230 and related standard operating procedures.';

(9) point ORO.FC.005 is replaced by the following:

'**ORO.FC.005 Scope**

This Subpart establishes the requirements for flight crew training, experience and qualifications to be met by an air operator, and comprises:

(a) SECTION 1, specifying common requirements.

(b) SECTION 2, specifying additional requirements applicable to CAT operations with aeroplanes and helicopters, with the exception of CAT operations with passengers conducted under VFR by day, starting and ending at the same aerodrome or operating site and within a local area specified by the competent authority, with:

(1) single-engined propeller-driven aeroplanes that have an MCTOM of 5 700 kg or less and an MOPSC of 5 or less; or

(2) other-than-complex motor-powered helicopters, single-engined, with an MOPSC of 5 or less.

(c) SECTION 3, specifying additional requirements for commercial specialised operations and for those operations referred to in points (b)(1) and (2).

(d) SECTION 4, specifying additional requirements for IAM operations with manned VTOL-capable aircraft (VCA).';

(10) point ORO.FC.105 is replaced by the following:

'**ORO.FC.105 Designation as pilot-in-command/commander**

(a) In accordance with point 8.6 of Annex V to Regulation (EU) 2018/1139, one pilot amongst the flight crew, qualified as pilot-in-command in accordance with Annex I (Part-FCL) to Regulation (EU) No 1178/2011, shall be designated by the operator as pilot-in-command or, for CAT operations with aeroplanes and helicopters, as commander.

(b) The operator shall only designate a flight crew member to act as pilot-in-command or commander if all the following apply:

(1) the flight crew member has the minimum level of experience specified in the operations manual;

(2) the flight crew member has adequate knowledge of the route or area to be flown and of the aerodromes, including alternate aerodromes, vertiports, facilities and procedures to be used;

(3) for multi-crew operations, the flight crew member has completed an operator's command course if promoted from co-pilot to pilot-in-command/commander.

(c) For both commercial operations with aeroplanes and helicopters and IAM operations with VCA, the pilot-in-command or commander or the pilot to whom the conduct of the flight may be delegated shall have received initial familiarisation training in the route or area to be flown and in the aerodromes, vertiports, diversion locations, facilities and procedures to be used, and shall maintain this knowledge as follows:

(1) aerodrome or vertiport knowledge shall be maintained by operating at least once at an aerodrome or a vertiport within a 12-calendar-month period;

(2) route or area knowledge or diversion location knowledge shall be maintained by operating at least once on a route or an area or at a diversion location within a 36-calendar-month period; in addition, refresher training is required regarding route or area knowledge if not operating on a route or an area for 12 months within the 36-calendar-month period.

(d) Notwithstanding point (c), for operations conducted under VFR by day with performance class B and C aeroplanes and helicopters, familiarisation training in routes and aerodromes may be replaced by area familiarisation training.';

(11) in point ORO.FC.120, point (a) is replaced by the following:

'(a) The flight crew member shall complete the operator conversion training course before commencing unsupervised line flying:

(1) when changing to an aircraft for which a new type or class rating is required;

(2) each time the flight crew member joins an operator.';

(12) in point ORO.FC.140, point (d) is replaced by the following:

'(d) For operations with more than one helicopter type or variant or VCA type or variant used for conducting sufficiently similar operations, if line checks rotate between types or variants, each line check shall revalidate the line check for the other helicopter types or variants or VCA types or variants.';

(13) in point ORO.FC.145, point (c) is replaced by the following:

'(c) For both CAT operations with airplanes and helicopters and IAM operations with VCA, the training and checking programmes, including the syllabi and means to deliver the programme such as individual flight simulation training devices (FSTDs) and other training solutions, shall be approved by the competent authority.';

(14) in point ORO.FC.146, point (e) is replaced by the following:

'(e) Notwithstanding point (b), the aircraft/FSTD training and the operator proficiency check may be conducted by a suitably qualified commander, or pilot-in-command for IAM operations, that holds an FI/TRI/SFI certificate and is nominated by the operator for any of the following operations:

(1) CAT operations with helicopters that meet the criteria defined in point ORO.FC.005(b)(2);

(2) CAT operations with other than complex motor-powered helicopters by day and over routes navigated by reference to visual landmarks;

(3) CAT operations with performance class B aeroplanes that do not meet the criteria defined in point ORO.FC.005(b)(1);

(4) IAM operations with VCA by day and over routes navigated by reference to visual landmarks.';

(15) in Subpart FC – Flight Crew, [Section 4] is added as follows:

'SECTION 4

Additional requirements for IAM operations with manned VTOL-capable aircraft (VCA)

ORO.FC.400 Flight crew composition

The minimum flight crew composition for IAM operations with manned VTOL-capable aircraft (VCA) shall correspond to that specified in the operations manual, considering the minimum number specified in the flight manual or in other documents associated with the certificate of airworthiness (CofA) of the particular aircraft.

ORO.FC.415 Initial operator's crew resource management (CRM) training

(a) The flight crew member shall complete an initial CRM training course before commencing unsupervised line flying.

(b) The initial CRM training course shall be conducted by at least one suitably qualified CRM trainer who may be assisted by experts in order to address specific training areas.

ORO.FC.420 Operator conversion training and checking

(a) CRM training shall be integrated into the operator conversion training course.

(b) Once an IAM operator conversion training course starts, the flight crew member shall not be assigned to flying duties on another type or class of aircraft until the training course is completed or terminated.

(c) The amount of training required by the flight crew member for the IAM operator's conversion course shall be determined in accordance with the standards of qualification and experience specified in the operations manual, taking into account the flight crew member's previous training and experience.

(d) The flight crew member shall complete:

(1) the IAM operator proficiency check and the emergency and safety equipment training and checking before commencing line flying under supervision (LIFUS); and

(2) the line check upon completion of LIFUS.

(e) If operational circumstances, such as applying for a new AOC or adding a new aircraft type or class to the fleet, do not allow the IAM operator to comply with the requirements in point (d), that operator may develop a specific conversion course to be used temporarily for a limited number of flight crew members.

ORO.FC.430 Recurrent training and checking

(a) Each flight crew member shall complete recurrent training and checking relevant to the VCA type or variant on which they operate, and to associated equipment.

(b) IAM operator proficiency check

(1) Each flight crew member shall complete the IAM operator proficiency checks as part of the normal crew complement to demonstrate their competence in applying normal, abnormal and emergency procedures, covering the relevant aspects associated with the tasks described in the operations manual.

(2) Reserved.

(3) The validity period of the IAM operator proficiency check shall be 6 calendar months.

(c) Line check

Each flight crew member shall complete a line check on the VCA. The validity period of the line check shall be 12 calendar months.

(d) Emergency and safety equipment training and checking

Each flight crew member shall complete recurrent training and checking with regard to the location and use of all emergency and safety equipment carried on board the aircraft. The validity period of an emergency and safety equipment check shall be 12 calendar months.

(e) CRM training

(1) CRM training elements shall be integrated into all appropriate phases of the recurrent training.

(2) Each flight crew member shall receive specific modular CRM training. All major topics of the CRM training shall be covered by distributing modular training sessions as evenly as possible over each 3-year period.

(f) Each flight crew member shall receive ground training and flight training in an FSTD or a VCA, or a combination of FSTD and VCA training, at least every 12 calendar months.

ORO.FC.440 Conducting operations on more than one type or variant

(a) The procedures or operational restrictions for conducting operations on more than one type or variant established in the operations manual and approved by the competent authority shall cover:

(1) the flight crew members' minimum experience required;

(2) the minimum experience required for a given type or variant before commencing training in and operation on another type or variant;

(3) the process whereby flight crew members qualified on one type or variant will be trained in and qualify for another type or variant; and

(4) all applicable recent experience requirements for each type or variant.

(b) Flight crew members should not operate more than three aircraft types or groups of types, including at least one VCA.';

(16) point ORO.TC.100 is replaced by the following:

'**ORO.TC.100 Scope**

This Subpart establishes the requirements to be met by an air operator when operating an aircraft with technical crew members in commercial air transport helicopter emergency medical service (HEMS) operations, emergency medical service operations with VCA (VEMS), night-vision imaging system (NVIS) operations, or helicopter hoist operations (HHO).';

(17) in point ORO.TC.105, point (a) is replaced by the following:

'(a) Technical crew members involved in commercial air transport HEMS, VEMS, HHO or NVIS operations shall only be assigned duties provided they:

(1) are at least 18 years of age;

(2) are physically and mentally fit to safely discharge their assigned duties and responsibilities;

(3) have completed all applicable training required by this Subpart to perform their assigned duties;

(4) have been checked and found to be proficient to perform all their assigned duties in accordance with the procedures specified in the operations manual.';

(18) in point ORO.TC.110, point (d) is replaced by the following:

'(d) The checks that follow the operator conversion training and any required familiarisation flights shall take place prior to operating as a required technical crew member in HEMS, VEMS, HHO or NVIS operations.';

(19) in point ORO.TC.120, point (b) is replaced by the following:

'(b) The operator conversion training shall include:

(1) the location and use of all safety and survival equipment carried on board the aircraft;

(2) all normal and emergency procedures;

(3) on-board equipment used to perform duties in the aircraft or on the ground for the purpose of assisting the pilot during HEMS, VEMS, HHO or NVIS operations.';

(20) point ORO.FTL.100 is replaced by the following:

'**ORO.FTL.100 Scope**

This Subpart establishes the requirements to be met by an air operator and its flight and cabin crew (aircrew) members with regard to flight and duty time limitations and rest requirements for aircrew assigned to commercial air transport (CAT) operations with aeroplanes.'.

ANNEX VI

Annex V (Part-SPA) to Regulation (EU) No 965/2012 is amended as follows:

(1) point SPA.GEN.100 is replaced by the following:

'**SPA.GEN.100 Competent authority**

(a) The competent authority for the issuing of a specific approval shall be:

(1) for a commercial operator of aeroplanes or helicopters, the authority of the Member State where the operator has its principal place of business;

(2) for a non-commercial operator of aeroplanes or helicopters, the authority of the Member State where the operator has its principal place of business, is established or resides;

(3) for an IAM operator of VTOL-capable aircraft (VCA), the authority of the Member State where the operator has its principal place of business or resides.

(b) Notwithstanding point (a)(2), for a non-commercial operator that uses an aeroplane or a helicopter registered in a third country, the applicable requirements under this Annex for the approval of the following operations shall not apply if that approval is issued by a third-country State of Registry:

(1) performance-based navigation (PBN);

(2) minimum navigation performance specifications (MNPS);

(3) reduced vertical separation minima (RVSM) airspace;

(4) low-visibility operations (LVOs).';

(2) point SPA.MNPS.100 is replaced by the following:

'**SPA.MNPS.100 MNPS operations**

Aeroplanes and helicopters shall only be operated in designated minimum navigation performance specifications (MNPS) airspace in accordance with regional supplementary procedures, where MNPS are established, if the operator has been granted an approval by the competent authority to conduct such operations.';

(3) point SPA.RVSM.100 is replaced by the following:

'**SPA.RVSM.100 RVSM operations**

Aeroplanes and helicopters shall only be operated in designated airspace where a reduced vertical separation minimum of 300 m (1 000 ft) applies between flight level (FL) 290 and FL 410, inclusive, if the operator has been granted an approval by the competent authority to conduct such operations.';

(4) point SPA.LVO.100 is replaced by the following:

'**SPA.LVO.100 Low-visibility operations and operations with operational credits**

An operator of aeroplanes or helicopters shall conduct the following operations only if they are approved by the competent authority:

(a) take-off operations with visibility conditions of less than 400 m RVR;

(b) instrument approach operations in low-visibility conditions; and

(c) operations with operational credits, except for EFVS 200 operations, which shall not be subject to a specific approval.';

(5) point SPA.DG.100 is replaced by the following:

'**SPA.DG.100 Transport of dangerous goods**

Except as provided for in Annex IV (Part-CAT), Annex VI (Part-NCC), Annex VII (Part-NCO), Annex VIII (Part-SPO) and Annex IX (Part-IAM) to this Regulation, the operator shall only transport dangerous goods by air if it has been approved by the competent authority.';

(6) in point SPA.EFB.100, point (a) is replaced by the following:

'(a) A commercial air transport operator of aeroplanes or helicopters or an IAM operator shall only use a type B EFB application if the operator has been granted an approval by the competent authority for such use.';

(7) The following [Subpart O] is added:

'SUBPART O

EMERGENCY MEDICAL SERVICE OPERATIONS WITH MANNED VTOL-CAPABLE AIRCRAFT (VEMS)

SPA.VEMS.100 Emergency medical service operations with manned VTOL-capable aircraft (VEMS)

(a) An IAM operator shall only conduct emergency medical service operations with manned VTOL-capable aircraft (VEMS) if the operator has been granted an approval by the competent authority for such operations.

(b) To obtain such approval by the competent authority, the IAM operator shall:

(1) hold an AOC in accordance with Annex III (Part-ORO);

(2) conduct operations in accordance with the relevant requirements of Annex IX (Part-IAM); and

(3) demonstrate to the competent authority compliance with the requirements contained in this Subpart.

(c) The IAM operator shall use adequate vertiports for its VEMS operating base and hospital sites unless approved by the competent authority to use a public interest site (PIS) at a hospital site.

(d) The IAM operator may use adequate operating sites for the purpose of VEMS missions or VEMS training flights taking into account:

(1) the aircraft performance requirements applicable for take-off and landing;

(2) operating site characteristics, including dimensions, obstacles, and surface condition;

(3) the safe separation of VTOL-capable aircraft (VCA) from people on the ground; and

(4) privacy, data protection, liability, insurance, security, and environmental protection requirements.

SPA.VEMS.110 Equipment requirements for VEMS operations

(a) The installation on a VTOL-capable aircraft (VCA) of all dedicated medical equipment and any subsequent modifications to that installation and, where appropriate, its operation, shall be approved in accordance with Regulation (EU) No 748/2012.

(b) For VFR flights by day over routes or areas navigated by reference to visual landmarks, the VCA shall be equipped with tools providing own-ship position and obstacles on a moving map display. The map and obstacle database(s) shall be kept up to date.

(c) For VFR flights by day, the VCA shall be equipped with a means of measuring and displaying to the pilot the attitude and the stabilised heading or with other equivalent tools to mitigate pilot disorientation in case of reduced visual cues.

(d) Any VCA used in VEMS missions shall be equipped with tools having an ADS-B Out capability.

(e) Instruments and equipment required under point (f) shall be certified in accordance with the applicable airworthiness requirements.

(f) The IAM operator shall ensure that all relevant information is documented in the minimum equipment list (MEL).

SPA.VEMS.115 Communication

In addition to the requirements for instruments and equipment applicable to VCA in manned configuration, VCA used for VEMS flights shall have communication equipment capable of conducting two-way communication with the organisation for which the VEMS flight is conducted and, where possible, to communicate with ground emergency service personnel at the scene of the operation.

SPA.VEMS.120 Visibility and distance from cloud minima

The minima for the dispatch and en-route phase of the VEMS flight shall be those established in accordance with point SERA.5001. If during the en-route phase the weather conditions fall below the applicable minima:

(a) VCA certified for flights only under VFR by day shall land as soon as practicable or return to the VEMS base.

(b) Reserved.

SPA.VEMS.125 Performance requirements for VEMS operations

VCA used for VEMS operations shall be operated in accordance with the applicable performance requirements established in point UAM.POL.VCA.100.

SPA.VEMS.130 Crew requirements

(a) *Selection*. The IAM operator shall establish criteria for the selection of flight crew members for VEMS operations, taking their prior experience into account.

(b) *Operational training*. Crew members shall successfully complete operational training in accordance with the VEMS procedures contained in the operations manual.

(c) Reserved.

(d) *Crew composition*

(1) *Day flight*. The minimum crew composition at dispatch for a VEMS flight under VFR day shall be two pilots or one pilot and one VEMS technical crew member.

After landing at the VEMS operating site, subsequent flights may be conducted by one pilot:

(i) if there is a need for additional medical supplies, refuel /battery recharge or reposition while the VEMS technical crew member provides medical assistance on the ground; or

(ii) if the VEMS technical crew member provides medical assistance to the medical patient in flight or during transport in another vehicle.

(2) *Reserved*.

(3) The IAM operator shall ensure that the continuity of the crew concept is maintained throughout the VEMS mission.

(e) *Flight and technical crew training and checking*

(1) Training and checking shall be conducted by suitably qualified personnel in accordance with a syllabus included in the operations manual and approved by the competent authority.

(2) Crew members

(i) All relevant elements of the crew training programme shall improve crew knowledge of the VEMS working environment and equipment, improve crew coordination, and include measures to minimise the risks associated with an en-route transit to low-visibility conditions, the selection of VEMS operating sites, and approach and departure profiles.

(ii) The measures referred to in point (i) shall be assessed during both of the following:

(A) VMC day proficiency checks;

(B) line checks.

(iii) The VEMS components of the proficiency checks and line checks referred to in point (ii) shall have a validity period of 6 and 12 calendar months respectively.

SPA.VEMS.135 Briefing of medical passengers and of other personnel

(a) *Medical passengers*. Prior to any VEMS flight, or series of VEMS flights, medical passengers shall be briefed to ensure they are familiar with the VEMS working environment and equipment, can operate on-board emergency equipment, and can take part in normal and emergency entry and exit procedures.

(b) *Ground emergency service personnel*. Where ground emergency service personnel are employed, the IAM operator shall take all necessary measures to ensure that such personnel are familiar with the VEMS working environment and equipment, and the risks associated with ground operations at a VEMS operating site.

(c) *Medical patients*. Notwithstanding point UAM.OP.MVCA.170 of Annex IX (Part-IAM), a briefing shall be held only if the medical condition of the medical patient renders it practicable.

SPA.VEMS.140 Information, procedures and documentation

(a) The IAM operator shall assess, mitigate and minimise the risks associated with the VEMS environment as part of its risk analysis and management process. The IAM operator shall describe its mitigating measures, including operating procedures, in the operations manual.

(b) The IAM operator shall ensure that the pilot-in-command (PIC) assesses specific risks associated with a particular VEMS flight.

(c) Relevant extracts from the operations manual shall be made available to the organisation for which the VEMS operation is being provided.

SPA.VEMS.145 Facilities at the VEMS operating base

(a) If crew members are required to be on standby with a reaction time of less than 45 minutes, dedicated suitable accommodation shall be provided close to each VEMS operating base.

(b) At each VEMS operating base, the flight crew shall be granted access to facilities for obtaining current and forecast weather information and shall be provided with adequate communications with the appropriate air traffic service (ATS) units. Adequate facilities shall be available for the planning of all related tasks.

SPA.VEMS.150 Fuelling /defuelling / battery charging / battery swapping while passengers are embarking, on board, or disembarking

Refuelling /defuelling /battery charging or battery swapping procedures with either lift and thrust units powered on or off shall only be performed in accordance with point UAM.OP.MVCA.200 or point UAM.OP.MVCA.205 as applicable.

SPA.VEMS.155 Aircraft tracking system

The IAM operator shall establish and maintain a monitored aircraft tracking system for VEMS operations for the entire duration of the VEMS flight.'.

ANNEX VII

The following Annex IX is added to Regulation (EU) No 965/2012:

'*ANNEX IX*

INNOVATIVE AIR MOBILITY OPERATIONS

(PART-IAM)

SUBPART A

GENERAL REQUIREMENTS

IAM.GEN.050 Scope

This Annex shall apply to IAM operations with manned VTOL-capable aircraft (VCA) in accordance with VFR by day.

IAM.GEN.055 Competent authority

The competent authority of the IAM operator shall be the authority designated by the Member State where that operator has its principal place of business or its place of residence, or the Agency in accordance with Article 65 of Regulation (EU) 2018/1139.

SECTION 1

VTOL-capable aircraft (VCA)

IAM.GEN.VCA.050 Scope

This Section contains general requirements for the operation of VCA.

IAM.GEN.VCA.100 Crew responsibilities

(a) Pilots and other crew members shall be responsible for the proper execution of their duties that are:

(1) related to the safety of the VCA and its occupants; and

(2) specified in the operations manual (OM) of the VCA operator.

(b) Pilots and other crew members shall comply with all of the following:

(1) report, if not already reported, to the pilot-in-command (PIC) any fault, failure, malfunction or defect which they believe may affect the airworthiness or safe operation of the VCA, including emergency systems;

(2) report, if not already reported, to the PIC any incident that has endangered, or could have endangered, the safety of the operation of the VCA;

(3) comply with the relevant requirements of the operator's occurrence-reporting scheme;

(4) comply with the flight time, duty time and rest requirements applicable to their activities;

(5) not disable or switch off the recorders during flight, or intentionally erase their recordings.

(c) Pilots and other crew members shall not perform duties related to the operation of VCA if they are in any of the following situations:

(1) when they are under the influence of psychoactive substances or when they are unfit due to injury, fatigue, medication, sickness or other similar causes;

(2) when they do not fulfil applicable medical requirements;

(3) when they are in any doubt as to being able to accomplish their assigned duties;

(4) when they know or suspect they suffer from fatigue as referred to in point 7.5 of Annex V to Regulation (EU) 2018/1139 or otherwise feel unfit to the extent that the safety of the flight may be endangered.

IAM.GEN.VCA.105 Responsibilities of the pilot-in-command (PIC)

(a) In addition to complying with point IAM.GEN.VCA.100, the PIC shall, as soon as they assume the command functions at the assigned station and until they hand over the command functions or leave the assigned station at the end of the flight, comply with all of the following:

(1) be responsible for the safety of all crew members, passengers and cargo on board the VCA;

(2) be responsible for the operation and safety of the VCA when the lift and thrust units are powered on;

(3) be responsible for the initiation, continuation, termination or diversion of a flight in the interest of safety;

(4) have the authority to give all commands and take any appropriate actions for the purpose of ensuring the safety of the VCA and of the persons and/or property carried in it;

(5) ensure that all passengers are briefed on the location of emergency exits, and on the location and use of relevant safety and emergency equipment, as applicable;

(6) ensure that all passengers are briefed on when and how to communicate with the flight crew member(s) during the flight;

(7) ensure that all operational procedures and checklists are complied with in accordance with the operations manual (OM) of the VCA operator;

(8) not permit any crew member to perform any activity during critical phases of flight, except for duties required for the safe operation of the VCA;

(9) ensure that the recorders are not disabled or switched off during the flight, and that their recordings are not intentionally erased;

(10) decide on the acceptance of a VCA with unserviceability in accordance with the VCA configuration deviation list (CDL) or the minimum equipment list (MEL), and the VCA technical logbook;

(11) ensure that the pre-flight inspection has been carried out in accordance with the applicable continuing airworthiness requirements;

(12) be satisfied that the relevant emergency equipment remains easily accessible for immediate use;

(13) record, at the termination of the flight, in accordance with the continuing airworthiness record system requirements, utilisation data and all known or suspected defects of the VCA to ensure continued flight safety.

(b) The PIC shall, in an emergency situation that requires immediate decision and action, take any action they consider necessary under the circumstances. In such cases, the PIC may deviate from rules, operational procedures and methods in the interest of safety.

(c) The PIC shall, as soon as practicable, report to the appropriate air traffic services (ATS) unit any hazardous weather or flight conditions encountered during the flight that are likely to affect the safety of other VCA operations.

IAM.GEN.VCA.110 Authority of the pilot-in-command

The IAM operator shall take all reasonable measures to ensure that all persons carried on board VCA obey all lawful commands given by the PIC for the purpose of ensuring the safety of the VCA and of the persons or property carried in it.

IAM.GEN.VCA.120 Common language

The IAM operator shall ensure that all crew members can communicate with each other in a common language.

IAM.GEN.VCA.130 Powering-on of lift and thrust units

The VCA's lift and thrust units shall only be powered on for the purpose of flight by a qualified pilot at the VCA controls.

IAM.GEN.VCA.140 Portable electronic devices (PEDs)

The IAM operator shall not permit any person to use a PED on board an aircraft that could adversely affect the performance of the VCA's systems and equipment, and shall take all reasonable measures to prevent such use.

IAM.GEN.VCA.141 Use of electronic flight bags (EFBs)

(a) When an EFB is used on board an aircraft, the IAM operator shall ensure that it does not adversely affect the performance of the VCA's systems or equipment, or the ability of the flight crew member to operate the VCA.

(b) The IAM operator shall not use a type B EFB application unless it is approved in accordance with Subpart M of Annex V (Part-SPA).

IAM.GEN.VCA.145 Information on emergency and survival equipment carried on board VCA

The IAM operator shall at all times have available for immediate communication to rescue coordination centres (RCCs) lists containing information on the emergency and survival equipment carried on board any of its VCA.

IAM.GEN.VCA.155 Carriage of weapons of war and munitions of war

The IAM operator shall not accept weapons of war or munitions of war for carriage by air in the VCA.

IAM.GEN.VCA.160 Carriage of sporting weapons and ammunition

(a) The IAM operator shall not accept sporting weapons for carriage by air in the VCA unless:

(1) they can be stowed in the VCA in a place that is inaccessible to passengers during the flight; and

(2) all ammunition is unloaded and carried separately from the sporting weapons.

IAM.GEN.VCA.165 Method of carriage of persons

The IAM operator shall take all reasonable measures to ensure that no person is located in any part of the VCA in flight which is not designed or designated for the accommodation of persons, except when a person takes an action that is necessary for the safety of the VCA or of any person, animal or goods carried in the VCA.

IAM.GEN.VCA.170 Psychoactive substances

(a) The IAM operator shall take all reasonable measures to ensure that no person enters or is aboard the VCA when under the influence of psychoactive substances to the extent that the safety of the VCA or its occupants is likely to be endangered.

(b) The IAM operator shall develop and implement an objective, transparent and non-discriminatory policy and procedure on the prevention and detection of misuse of psychoactive substances by the pilots and other safety-sensitive personnel under the IAM operator's direct control, in order to ensure that the safety of the VCA and its occupants is not endangered.

(c) If pilots or other safety-sensitive personnel are tested positive to psychoactive substances, the IAM operator shall inform its competent authority and the authority that is responsible for the pilots and the personnel concerned.

IAM.GEN.VCA.175 Endangering safety

(a) The IAM operator shall take all reasonable measures to ensure that no person recklessly, intentionally or negligently acts, or omits to act, so as to:

(1) endanger the safety of the VCA or the safety of the persons in it; or

(2) cause or permit the VCA to endanger any person or property.

(b) The IAM operator shall ensure that pilots undergo a psychological assessment before commencing flight operations in order to:

(1) identify the pilots' psychological attributes and suitability in respect of their work environment; and

(2) reduce the likelihood of pilots negatively interfering with the safe operation of the VCA.

IAM.GEN.VCA.176 Pilot support programme

(a) The IAM operator shall enable, facilitate and ensure access to a proactive and non-punitive support programme that will assist and support pilots in recognising, coping with, and overcoming any problem which might negatively affect their ability to safely exercise the privileges of their licence.

(b) Without prejudice to applicable Union law on the protection of individuals with regard to the processing of personal data and on the free movement of such data, the protection of the confidentiality of personal data shall be a precondition for an effective pilot support programme.

IAM.GEN.VCA.185 Information to be preserved on the ground

(a) The IAM operator shall ensure that for the duration of each flight, or series of flights, information that is relevant to the flight, or series of flights, and appropriate for the type of operation:

(1) is preserved on the ground; and

(2) is retained until it has been duplicated at the place at which it will be stored; or, if this is impracticable,

(3) is carried in a fireproof container in the VCA.

(b) The information referred to in point (a) shall include all the following:

(1) a copy of the operational flight plan;

(2) copies of the relevant part(s) of the aircraft continuing airworthiness records;

(3) route-specific NOTAM documentation, if specifically edited by the IAM operator;

(4) mass and balance documentation;

(5) special loads notification.

IAM.GEN.VCA.190 Provision of documentation and records

The PIC shall, within a reasonable time of being requested to do so by a person authorised by an authority, provide that person with the documentation required to be carried on board, in paper or digital media.

IAM.GEN.VCA.195 Preservation, production, protection and use of recorder recordings

(a) Following an accident, a serious incident or an occurrence identified by the investigating authority, the IAM operator shall preserve the original recorded data of the recorder, carried in the VCA in accordance with Subpart D of this Annex, for a period of 60 days or until otherwise directed by the investigating authority.

(b) The IAM operator shall conduct operational checks and evaluations of the recordings to ensure the continued serviceability of the recorder.

(c) The IAM operator shall ensure that the recordings of flight parameters required to be recorded on a recorder are preserved. For the purpose of testing and maintaining the recorder, up to 1 hour of the oldest recorded material at the time of testing may be erased.

(d) The IAM operator shall keep and maintain up to date the documentation that contains the necessary information to convert raw flight data into flight parameters expressed in engineering units.

(e) The IAM operator shall make available any recording of the recorder that has been preserved, if so determined by the competent authority.

(f) Without prejudice to Regulation (EU) No 996/2010 (*) and Regulation (EU) 2016/679 (**):

(1) except for ensuring the serviceability of a recorder, audio recordings shall not be disclosed or used unless all the following conditions are fulfilled:

(i) a procedure related to the handling of such audio recordings and of their transcript is in place;

(ii) all pilots and maintenance personnel concerned have given their prior consent;

(iii) such audio recordings are used only for maintaining or improving safety;

(2) when inspecting the audio recordings of a recorder to ensure the serviceability of that recorder, the IAM operator shall protect the privacy of those audio recordings and make sure that they are not disclosed or used for purposes other than for ensuring the serviceability of the recorder;

(3) flight parameters recorded by a recorder shall not be used for purposes other than for the investigation of an accident or an incident which is subject to mandatory reporting, unless such recordings meet any of the following conditions:

(i) are used by the IAM operator for airworthiness or maintenance purposes only;

(ii) are de-identified;

(iii) are disclosed under secure procedures;

(4) except for ensuring the serviceability of a recorder, recorded images of the flight crew compartment shall not be disclosed or used unless all the following conditions are fulfilled:

(i) a procedure related to the handling of such image recordings is in place;

(ii) all pilots and maintenance personnel concerned have given their prior consent;

(iii) such image recordings are used only for maintaining or improving safety;

(5) when images of the flight crew compartment, recorded by a recorder, are inspected for ensuring the serviceability of that recorder, then:

(i) those images shall not be disclosed or used for purposes other than for ensuring the serviceability of the recorder;

(ii) if body parts of pilots or passengers are likely to be visible on the images, the operator shall ensure the privacy of those images.

IAM.GEN.VCA.200 Transport of dangerous goods under a specific approval

(a) The transport of dangerous goods by air shall be conducted at least in accordance with Annex 18 to the Chicago Convention and applicable technical instructions (TI).

(b) The IAM operator shall be approved for the carriage of dangerous goods by air as cargo in accordance with Subpart G of Annex V (Part-SPA).

(c) The IAM operator shall establish procedures to ensure that all reasonable measures are taken to prevent undeclared or misdeclared dangerous goods from being carried on board inadvertently.

(d) The IAM operator shall ensure that all personnel, including third-party personnel, involved in the acceptance, handling, loading and unloading of cargo are informed of the operator's operational approval and limitations with regard to the transport of dangerous goods by air, and are provided with the necessary information enabling them to carry out their responsibilities, as required by the TI.

(e) The IAM operator shall, in accordance with TI, ensure that passengers are provided with information about the carriage of dangerous goods on board.

(*) Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (OJ L 295, 12.11.2010, p. 35).

(**) 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).

(f) The IAM operator shall, in accordance with TI, report without delay to the competent authority and the appropriate authority of the State of occurrence in the event of:

(1) any accidents or incidents involving dangerous goods;

(2) the discovery of undeclared or misdeclared dangerous goods in cargo or mail; or

(3) the finding of dangerous goods carried by passengers or crew members, or in their baggage, when not in accordance with Part 8 of TI.

(g) The IAM operator shall ensure that notices giving information about the transport of dangerous goods are provided at acceptance points for cargo as required by the TI.

IAM.GEN.VCA.205 Transport of dangerous goods without a specific approval

(a) The transport of dangerous goods by air shall be conducted at least in accordance with Annex 18 to the Chicago Convention and applicable TI.

(b) Dangerous goods shall be carried by operators on board VCA without the specific approval required under Subpart G of Annex V (Part-SPA) if:

(1) they are not subject to the TI in accordance with Part 1 thereof; or

(2) they are carried by passengers or crew, or are in baggage, in accordance with Part 8 of TI.

(c) IAM operators not approved in accordance with Subpart G of Annex V (Part-SPA), shall establish a dangerous goods training programme that meets the requirements of Annex 18 of Chicago Convention and the applicable TI.

(d) The IAM operator shall ensure that passengers are provided with information about the carriage of dangerous goods in accordance with the Technical Instructions.

(e) The IAM operator shall establish procedures to ensure that all reasonable measures are taken to prevent undeclared dangerous goods from being carried on board inadvertently.

(f) The IAM operator shall, in accordance with the TI, report without delay to the competent authority and the appropriate authority of the State of occurrence in the event of:

(1) any accidents or incidents involving dangerous goods;

(2) the discovery of undeclared dangerous goods in cargo or mail; or

(3) the finding of dangerous goods carried by passengers or crew members, or in their baggage, when not in accordance with Part 8 of the TI.

SECTION 2

Manned VTOL-capable aircraft (MVCA)

IAM.GEN.MVCA.050 Scope

This Section establishes additional requirements for IAM operations with manned VTOL-capable aircraft (MVCA).

IAM.GEN.MVCA.135 Admission to the flight crew compartment

(a) The IAM operator shall ensure that no person, other than the pilot assigned to a flight, is admitted to, or carried in, the flight crew compartment unless that person is:

(1) an operating crew member;

(2) a representative of the competent authority or inspecting authority, if this is required for the performance of their official duties; or

(3) permitted by and carried in accordance with the operator's OM.

(b) The pilot-in-command shall ensure that:

(1) admission to the flight crew compartment does not cause distraction or interference with the conduct of the flight; and

(2) all persons carried in the flight crew compartment are made familiar with the relevant safety procedures.

(c) The pilot-in-command shall make the final decision regarding admission to the flight crew compartment in the VCA.

IAM.GEN.MVCA.180 Documents, manuals and information to be carried on board each flight

(a) The following documents, manuals and information, in paper or digital media, shall be carried on each flight with a VCA and shall be easily accessible for inspection purposes:

(1) the aircraft flight manual (AFM), or equivalent document(s);

(2) the original certificate of registration of the aircraft;

(3) the original certificate of airworthiness (CofA);

(4) the noise certificate, including an English translation where one has been provided by the authority that is responsible for issuing the noise certificate;

(5) a certified true copy of the air operator certificate (AOC), including an English translation when the AOC has been issued in another language;

(6) the operations specifications relevant to the aircraft type, issued with the AOC, including an English translation when the operations specifications have been issued in another language;

(7) the original aircraft radio licence, if applicable;

(8) the third-party liability insurance certificate(s);

(9) the journey log, or equivalent, for the aircraft;

(10) the continuing airworthiness records, as applicable;

(11) details of the filed ATS flight plan, if applicable;

(12) current and suitable aeronautical charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;

(13) procedures and information on visual signals for use by intercepting and intercepted aircraft;

(14) information concerning search and rescue services for the area of the intended flight, which shall be easily accessible in the aircraft;

(15) the current parts of the OM that are relevant to the duties of the pilots, which shall be easily accessible to those pilots;

(16) the MEL;

(17) appropriate notices to airmen (NOTAMs) and aeronautical information service (AIS) briefing documentation;

(18) appropriate meteorological information;

(19) cargo and/or passenger manifests;

(20) mass and balance documentation;

(21) the operational flight plan, where required;

(22) notification about special categories of passenger (SCPs), if applicable; and

(23) any other documentation that may be pertinent to the flight or is required by the States concerned with the flight.

(b) The documents, manuals, and information carried on each flight shall be accessible to authorised persons, usable, and reliable.

(c) Notwithstanding point (a), in case of loss or theft of the documents specified in points (a)(2) to (8), the operation may continue until the flight reaches its destination or a place where replacement documents can be provided.

IAM.GEN.MVCA.181 Documents and information that may not be carried on board

(a) Notwithstanding point IAM.GEN.MVCA.180, for IAM operations in accordance with VFR by day, taking off and landing at the same vertiport within 24 hours, or remaining within a local area specified in the OM, the following documents and information may be retained at the vertiport instead of being carried on board each flight:

(1) noise certificate;

(2) aircraft radio licence;

(3) journey log, or equivalent;

(4) continuing airworthiness records;

(5) notices to airmen (NOTAMs) and aeronautical information service (AIS) briefing documentation;

(6) meteorological information;

(7) notification about special categories of passengers (SCPs), if applicable; and

(8) mass and balance documentation.

SUBPART B

OPERATING PROCEDURES

SECTION 1

VTOL-capable aircraft (VCA)

UAM.OP.VCA.050 Scope

This Section establishes the requirements for IAM operations with VTOL-capable aircraft (VCA).

UAM.OP.VCA.101 Altimeter check and altimeter settings

(a) The IAM operator shall establish procedures for altimeter checking before each departure.

(b) The IAM operator shall establish procedures for altimeter settings for all phases of flight, which shall take into account the procedures established by the State of the vertiport or, if applicable, by the State of the airspace flown.

UAM.OP.VCA.125 Taxiing and ground movement

(a) The IAM operator shall establish standard and contingency procedures for the taxiing of VCA (in the air and on the ground) and for the movement of VCA on the ground in order to ensure the safe operation of the VCA at the vertiport, diversion location or VEMS operating site. In particular, the IAM operator shall consider the risk of collision between a taxiing VCA or a VCA being moved and another aircraft or other objects, as well as the risk of injuries to ground personnel. The IAM operator's procedures shall be coordinated with the operator of the vertiport, the diversion location or the operating site, as applicable.

(b) The VCA shall be taxied on the movement area of a vertiport, diversion location or VEMS operating site:

(1) by an appropriately qualified pilot at the controls of the VCA; or

(2) in the case of ground taxiing without passengers for a purpose other than taking off, by a person at the controls of the VCA, designated by the IAM operator, after having received appropriate training and instructions.

(c) The IAM operator shall ensure that the ground movement of a VCA on the movement area of a vertiport, diversion location or VEMS operating site is carried out or supervised by personnel that have received appropriate training and instructions.

UAM.OP.VCA.130 Noise-abatement procedures

(a) When developing operating procedures, the IAM operator shall take into account the need to minimise the effect of noise and any published noise-abatement procedures.

(b) The IAM operator's procedures shall:

(1) ensure that safety has priority over noise abatement; and

(2) be simple and safe to implement by not significantly increasing flight crew workload during critical phases of flight.

UAM.OP.VCA.135 Routes and areas of operation

(a) The IAM operator shall ensure that operations are only conducted along routes or within areas for which:

(1) space-based facilities, ground facilities and services, and meteorological services, adequate for the planned operation, are provided;

(2) adequate vertiports, diversion locations or VEMS operating sites are available that permit a landing to be executed in the case of critical failure for performance (CFP) of the VCA;

(3) the performance of the VCA is adequate to comply with minimum flight altitude requirements;

(4) the equipment of the VCA meets the minimum requirements for the planned operation; and

(5) appropriate maps and charts are available.

(b) The IAM operator shall ensure that operations are conducted in accordance with any restriction on the routes or the areas of operation specified by the competent authority.

UAM.OP.VCA.145 Establishment of minimum flight altitudes

(a) For all route segments to be flown, the IAM operator shall establish:

(1) minimum flight altitudes that provide the required vertical clearance from terrain and obstacles, taking into account the relevant requirements of Subpart C of this Annex and the minima established by the State where the operation takes place; and

(2) a method for the pilot to determine the altitudes referred to in point (1).

(b) The method for establishing minimum flight altitudes shall be approved by the competent authority.

(c) Where the minimum flight altitudes established by the IAM operator and the State where the operation takes place differ, the higher values shall apply.

UAM.OP.VCA.190 Fuel/energy scheme – general

(a) The IAM operator shall establish, implement and maintain a fuel/energy scheme that comprises policies and procedures for:

(1) fuel/energy planning and fuel/energy in-flight replanning;

(2) selection of vertiports, diversion locations or VEMS operating sites; and

(3) in-flight fuel/energy management.

(b) The fuel/energy scheme shall:

(1) be appropriate for the intended operation; and

(2) correspond to the capacity of the IAM operator to support its implementation.

(c) The fuel/energy scheme shall be included in the operations manual.

(d) The fuel/energy scheme and any changes to it shall require the prior approval of the competent authority.

UAM.OP.VCA.191 Fuel/energy scheme – fuel/energy planning and fuel/energy in-flight replanning

The IAM operator shall ensure that:

(a) the VCA carries a sufficient amount of usable fuel/energy and reserves to safely complete the planned flight and to allow for deviations from the planned operation;

(b) the planned amount of usable fuel/energy for the intended flight is based on all the following:

(1) fuel/energy consumption data provided in the AFM or current aircraft-specific data derived from a fuel/energy consumption monitoring system;

(2) the conditions under which the flight is to be operated, including but not limited to:

(i) performance required for the intended flight to the destination, including vertiports, diversion locations or operating sites, selected along the route;

(ii) anticipated masses;

(iii) NOTAMs;

(iv) anticipated meteorological conditions;

(v) the effects of deferred maintenance items in accordance with the IAM operator's MEL and/or of configuration deviations in accordance with the IAM operator's CDL;

(vi) the expected departure and arrival routing, and anticipated delays;

(3) the efficiency and capacity of energy storage devices for the planned operating conditions, considering degradation of those energy storage devices as appropriate;

(c) the pre-flight calculation of the usable fuel/energy and reserves for a flight includes:

(1) taxi fuel/energy that shall not be less than the amount expected to be used prior to take-off;

(2) trip fuel/energy that shall be the amount of fuel/energy that is needed to enable the aircraft to fly from take-off, or from the point of in-flight replanning, to landing at the destination vertiport, diversion location or operating site, taking into account the operating conditions of point (b)(2);

(3) contingency fuel/energy that shall be the amount of fuel/energy needed to compensate for unforeseen factors that could have an influence on the fuel/energy consumption to the destination vertiport, diversion location or operating site;

(4) final reserve fuel/energy that shall be determined based on all the following:

(i) a representative time provided in the AFM to perform a go-around from a landing decision point (LDP) and back to that LDP taking into account the certified minimum performance (CMP) of the VCA;

(ii) conservative ambient conditions from the point of view of fuel/energy consumption;

(iii) an appropriate configuration/speed to perform the go-around and approach procedures;

(iv) a conservative fuel/energy consumption;

(5) additional fuel/energy that shall be the amount of fuel/energy to enable the VCA to perform a safe landing at a vertiport, diversion location or operating site, selected along the route, taking into account the CMP of the VCA at any point of the route; this additional fuel/energy is required only if the amount of fuel/energy that is calculated according to points (c)(2) and (c)(3) is not sufficient for such event;

(6) extra fuel/energy to take into account anticipated delays or specific operational constraints; and

(7) discretionary fuel/energy, if required by the PIC;

(d) if a flight must proceed along a route or to a destination vertiport, diversion location or operating site other than that originally planned, in-flight replanning procedures for calculating the required usable fuel/energy include those referred to in point (b)(2) and in points (c)(2) to (6).

UAM.OP.VCA.195 Fuel/energy scheme – in-flight fuel/energy management

(a) The IAM operator shall establish policies and procedures ensuring that in-flight fuel/energy checks and fuel/energy management are performed.

(b) The PIC shall monitor the amount of usable fuel/energy remaining in the VCA to ensure that it is protected and not less than the fuel/energy required to proceed to the selected destination vertiport, diversion location or VEMS operating site where a safe landing can be performed.

(c) When a change to the clearance to proceed to a specific vertiport, diversion location or VEMS operating site at which the PIC has committed to land may result in landing with less than the planned final reserve fuel/energy, they shall advise air traffic control (ATC) of a "minimum fuel / energy" state by declaring "MINIMUM FUEL".

(d) The PIC shall declare a situation of "fuel/energy emergency" by broadcasting "MAYDAY MAYDAY MAYDAY FUEL" when the usable fuel/energy that is calculated to be available upon landing at the nearest vertiport, diversion location or VEMS operating site where a safe landing can be performed is less than the planned final reserve fuel/energy.

UAM.OP.VCA.210 Pilots at their assigned stations

(a) During take-off and landing, the pilot required to be on duty shall be at their assigned station.

(b) During all other phases of flight, the pilot required to be on duty shall remain at their assigned station, unless absence is necessary for the performance of duties in connection with the operation or for physiological needs. Where absence is necessary for the above-mentioned reasons, the control of the VCA shall be handed over to another suitably qualified pilot.

(c) During all phases of flight, the pilot required to be on duty shall remain alert. If the pilot realises a lack of alertness, appropriate countermeasures shall be taken.

UAM.OP.VCA.245 Meteorological conditions

The IAM operator shall ensure that the aircraft is operated within the weather operating limitations it is certified for, and considering current and forecast weather conditions for the entire duration of the flight.

UAM.OP.VCA.250 Ice and other contaminants – ground procedures

(a) The IAM operator shall establish procedures to be followed when ground de-icing and anti-icing treatment and related inspections of the VCA are necessary for its safe operation.

(b) The PIC shall commence take-off only if the VCA is clear of any deposit that might adversely affect its performance or controllability in accordance with its AFM.

UAM.OP.VCA.255 Ice and other contaminants – flight procedures

(a) The IAM operator shall establish procedures for flights in expected or actual icing conditions.

(b) The PIC shall commence the flight or intentionally fly into expected or actual icing conditions only if the VCA is certified and equipped to operate in such conditions.

(c) If actual icing exceeds the intensity of icing for which the aircraft is certified, or if an aircraft not certified for flight in known icing conditions encounters icing, the PIC shall exit the icing conditions without delay and, if necessary, declare an emergency to ATS.

UAM.OP.VCA.260 Oil supply

Where applicable, the PIC shall commence a flight, or continue in the event of in-flight replanning, only when satisfied that the VCA carries at least the planned amount of oil to complete the flight safely, taking into account expected operating conditions.

UAM.OP.VCA.265 Take-off conditions

Before commencing take-off, the PIC shall be satisfied that:

(a) the meteorological conditions at the vertiport, diversion location or VEMS operating site and the condition of the surface for take-off intended to be used will not prevent the PIC from conducting a safe take-off and departure; and

(b) the established operating minima for the vertiport, diversion location or VEMS operating site, as applicable, will be complied with.

UAM.OP.VCA.270 Minimum flight altitudes

The PIC shall not fly below specified minimum flight altitudes except:

(a) when it is necessary for taking off or landing; or

(b) when descending in accordance with procedures approved by the competent authority.

UAM.OP.VCA.275 Simulated abnormal or emergency situations in flight

When carrying passengers or cargo, the PIC shall not simulate abnormal or emergency situations that require the application of abnormal or emergency procedures.

UAM.OP.VCA.290 Proximity detection

When undue proximity to the ground and/or obstacles located horizontally in relation to the VCA is detected by the PIC or by a proximity warning system, the PIC shall immediately take corrective action to establish safe flight conditions.

UAM.OP.VCA.300 Approach and landing conditions

Before commencing an approach operation, the PIC shall be satisfied that:

(a) the meteorological conditions at the vertiport, diversion location or VEMS operating site will not prevent the PIC from conducting a safe approach, landing or go-around, considering the performance information contained in the operations manual (OM); and

(b) the established vertiport operating minima, or visibility and distance from cloud minima for flights conducted in accordance with VFR by day, shall be complied with.

UAM.OP.VCA.315 Flight hours – reporting

The IAM operator shall make available to the competent authority the amount of hours flown for each VCA operated during the previous calendar year.

SECTION 2

Manned VTOL-capable aircraft (MVCA)

UAM.OP.MVCA.050 Scope

This Section establishes additional requirements for IAM operations with manned VTOL-capable aircraft (MVCA).

UAM.OP.MVCA.100 Use of air traffic services (ATS)

The IAM operator shall ensure that:

(a) ATS appropriate to the airspace in which the operation is conducted and to the applicable rules of the air are used, whenever available;

(b) in-flight operational instructions involving a change to the ATS flight plan are coordinated with the appropriate ATS unit before transmission to the VCA;

(c) search and rescue service arrangements can be maintained whenever the use of ATS in the airspace in which the operation is conducted is not mandated for VFR flights by day;

(d) for operations in airspace designated by the competent authority as U-space airspace and not provided with air traffic control (ATC) services by an air navigation service provider (ANSP), the VCA continuously makes itself electronically conspicuous to U-space service providers.

UAM.OP. MVCA.107 Adequate vertiport and adequate diversion location

(a) The IAM operator shall use adequate vertiports for its normal operations and for diversion from the planned route as necessary.

(b) Notwithstanding point (a), the IAM operator may use one or more adequate diversion locations while en-route to divert from the planned route as necessary.

(c) A vertiport is considered adequate if at the expected time of use it is:

(1) compatible with the dimensions and weight of the VCA;

(2) compatible with the VCA approach and departure paths;

(3) provided with rescue and firefighting services (RFFS) and other services and facilities necessary for the intended operation; and

(4) available.

(d) A diversion location is considered adequate if at the expected time of use:

(1) its characteristics, including dimensions, obstacles, and surface condition, are compatible with the VCA and allow for landing in accordance with an approved landing profile;

(2) it can be reached within the CMP of the VCA taking wind limitations into account;

(3) it has an acceptable level of RFFS protection;

(4) it is pre-surveyed; and

(5) it is available.

UAM.OP.MVCA.111 Visibility and distance from cloud minima – VFR flights

(a) The IAM operator shall establish visibility minima and distance from cloud minima for flights to be conducted in accordance with VFR by day. These minima shall not be lower than those specified in point SERA.5001 of the Annex (Part-SERA) to Regulation (EU) No 923/2012 for the airspace class being flown, except when permitted to operate as a special VFR flight.

(b) Where necessary, the IAM operator may specify in the OM additional conditions for the applicability of such minima taking into account factors such as radio coverage, terrain, nature of sites, flight conditions and ATS capacity.

(c) The flights shall be conducted with the surface in sight.

UAM.OP.MVCA.127 Take-off and landing – VFR flights by day

(a) When conducting a flight in accordance with VFR by day, the PIC should not take off or land at a vertiport or diversion location unless the reported weather conditions at that vertiport or diversion location are equal to or better than those specified in point SERA.5001 or point SERA.5005 of the Annex (Part-SERA) to Regulation (EU) No 923/2012 for the airspace class being flown.

(b) When the reported weather conditions are below those required for take-off, a take-off shall be commenced only if the PIC can determine that the visibility and distance from cloud minima along the take-off area are equal to or better than the required minimum.

(c) When no reported weather conditions are available, a take-off shall be commenced only if the PIC can determine that the visibility and distance from cloud minima along the take-off area are equal to or better than the required minimum.

UAM.OP.MVCA.155 Carriage of special categories of passengers (SCPs)

(a) SCPs shall be carried on board under such conditions that ensure the safety of the VCA and its occupants according to procedures established by the VCA operator.

(b) SCPs shall not be allocated to, nor occupy, seats that permit direct access to emergency exits or where their presence could:

(1) impede crew members' duties;

(2) obstruct access to emergency equipment; or

(3) impede the emergency evacuation of passengers.

(c) The PIC shall be notified in advance when SCPs are to be carried on board.

UAM.OP.MVCA.160 Stowage of baggage and cargo

The IAM operator shall establish procedures to ensure that:

(a) only baggage that can be appropriately and securely stowed is taken into the passenger compartment; and

(b) all baggage and cargo on board the aircraft which might cause injury or damage, or obstruct aisles and exits if displaced, is stowed to prevent them from moving.

UAM.OP.MVCA.165 Passenger seating

With regard to potential emergency evacuation, the IAM operator shall establish procedures for passenger seating to ensure that passengers are seated where they will be able to assist the evacuation, and not impede it.

UAM.OP.MVCA.170 Passenger briefing

The IAM operator shall ensure that passengers are:

(a) given safety briefings and safety demonstrations in a manner that facilitates the execution of the applicable procedures in the event of an emergency; and

(b) provided with safety briefing material on which picture-type instructions indicate the operation of emergency equipment and emergency exits likely to be used by passengers.

UAM.OP.MVCA.175 Flight preparation

(a) An operational flight plan (OFP) shall be completed for each intended flight, taking into account the airspace in which the flight is to be conducted and the applicable rules of the air, aircraft performance, operating limitations, and relevant expected conditions along the route to be flown and at the vertiport or diversion location to be used.

(b) The flight shall not be commenced unless the PIC is satisfied that:

(1) all items stipulated in point 2.c of Annex V to Regulation (EU) 2018/1139 concerning the airworthiness and registration of the aircraft, instrument and equipment, mass and centre of gravity (CG) location, baggage and cargo, and aircraft operating limitations can be complied with;

(2) the aircraft is not operated against the requirements of the configuration deviation list (CDL);

(3) the parts of the operations manual (OM) that are required for the conduct of the planned flight are available;

(4) the documents, additional information and forms required to be available by point IAM.GEN.MVCA.110 are on board, unless permitted to be kept on the ground in accordance with point IAM.GEN.MVCA.115;

(5) current maps, charts and associated documentation or equivalent data are available for the intended operation of the aircraft, including any diversion that may reasonably be expected;

(6) space-based facilities, ground facilities and services that are required for the planned flight are available and adequate;

(7) the applicable requirements specified in the OM in respect of fuel/energy, oil, oxygen, minimum flight altitudes, vertiport operating minima, visibility and distance from cloud minima for VFR flights by day and the selection of adequate vertiports and diversion locations can be complied with for the planned flight;

(8) Reserved;

(9) any additional operational limitations can be complied with;

(10) any load carried is properly distributed and safely secured;

(11) an air traffic service (ATS) flight plan has been approved and flight clearance has been granted in accordance with the applicable rules of the air and the class(es) of airspace in which the operation will be conducted.

UAM.OP.MVCA.177 Submission of an air traffic services (ATS) flight plan

(a) The IAM operator shall submit an ATS flight plan as required by the applicable rules of the air for the class(es) of airspace in which the operation will be conducted.

(b) If the submission of an ATS flight plan is not required by the applicable rules of the air for the class(es) of airspace in which the operation will be conducted, the IAM operator shall ensure that adequate information is deposited with the appropriate ATS unit to permit alerting services to be activated if necessary.

(c) If the submission of an ATS flight plan is required but it is impossible to submit it from the site where the operation starts, the ATS flight plan shall be transmitted as soon as possible after take-off by the PIC or the IAM operator.

UAM.OP.MVCA.192 Fuel/energy scheme – selection of vertiports and diversion locations

(a) The PIC shall select and specify in the operational flight plan and, if so required, in the ATS flight plan, for normal operations, including training, and for the purpose of diversion:

(1) at least two safe landing options at the destination, which may be reached from the point of commitment for landing; and

(2) one or more vertiports or diversion locations to ensure safe landing in case a diversion is necessary following a CFP at any moment during the flight.

(b) For the purpose of selecting vertiports and diversion locations in accordance with point (a), the PIC shall consider whether:

(1) the actual and forecast weather conditions indicate that at the estimated time of use the conditions at the selected vertiports and diversion locations will be at or above the applicable minima established in accordance with point UAM.OP.MVCA.111;

(2) the CMP of the VCA allows for safe landing at the selected vertiports or diversion locations;

(3) any required additional operational approvals are held.

(c) The PIC shall apply appropriate safety margins to flight planning to take possible deterioration of the meteorological conditions into account at the estimated time of landing compared to the available forecast.

UAM.OP.MVCA.193 Safe landing options at the destination

The PIC shall commit to land at one of the safe landing options in accordance with point UAM.OP.MVCA.192, when the current assessment of the meteorological conditions, traffic, and other operational conditions indicate that a safe landing can be performed at the committed landing site at the estimated time of use.

UAM.OP.MVCA.200 Special refuelling or defuelling of VCA

(a) Special refuelling or defuelling shall be performed only if the IAM operator has:

(1) developed standard operating procedures on the basis of a risk assessment; and

(2) established a training programme for its personnel involved in such operations.

(b) Special refuelling or defuelling applies to:

(1) refuelling with lift and thrust units powered on;

(2) refuelling/defuelling with passengers embarking, on board, or disembarking; and

(3) refuelling/defuelling with wide-cut fuel.

(c) Refuelling procedures with lift and thrust units powered on, and any change to those procedures, shall require the prior approval of the competent authority.

UAM.OP.MVCA.205 Charging or swapping of VCA batteries while passengers embark, are on board, or disembark

(a) The charging or swapping of VCA batteries while passengers embark, are on board, or disembark shall be performed only if the IAM operator has:

(1) developed standard operating procedures on the basis of a risk assessment; and

(2) established a training programme for its personnel involved in such operations.

UAM.OP.MVCA.216 Use of headsets

(a) Each pilot required to be on duty at their assigned station shall wear a headset with boom microphone or equivalent. The headset shall be used as the primary device for voice communications with ATS units.

(b) The position of the boom microphone or equivalent in the cockpit shall allow its use for two-way radio communications when the VCA is taxiing under its own power and whenever deemed necessary by the PIC.

UAM.OP.MVCA.220 Emergency evacuation assisting means

The IAM operator shall establish procedures to ensure that before taxiing or ground movement, take-off and landing, and when safe and practicable to do so, all emergency evacuation assisting means that deploy automatically are armed.

UAM.OP.MVCA.225 Seats, safety belts and restraint systems

(a) *Pilots*

During take-off and landing, and whenever deemed necessary by the PIC in the interest of safety, each pilot shall be properly secured by all safety belts and restraint systems provided on their seats.

(b) *Passengers*

(1) Before take-off and landing, and during taxiing or ground movement, and whenever deemed necessary in the interest of safety, the PIC shall be satisfied that each passenger on board occupies a seat with their safety belt or restraint system properly secured.

(2) The IAM operator shall make provisions for multiple occupancy of aircraft seats that is only allowed on specified seats. The PIC shall be satisfied that aircraft seats are not used for multiple occupancy other than by one adult and one infant, with the latter being properly secured by a supplementary loop belt or other restraint device.

UAM.OP.MVCA.230 Securing of passenger compartment

(a) The IAM operator shall establish procedures to ensure that before taxiing or ground movement, take-off and landing, all exits and escape paths are unobstructed.

(b) The PIC shall ensure that before take-off and landing, and whenever deemed necessary in the interest of safety, all equipment and baggage is properly stowed and secured.

UAM.OP.MVCA.235 Life jackets

The IAM operator shall establish procedures to ensure that, when operating a VCA over water, the duration of the flight and the conditions to be encountered during the flight are duly considered when deciding whether life jackets are to be worn by all aircraft occupants.

UAM.OP.MVCA.240 Smoking on board

The PIC shall not allow smoking on board at any time.

UAM.OP.MVCA.245 Meteorological conditions

(a) The PIC shall:

(1) commence the flight; or

(2) if applicable, continue beyond the point from which a revised ATS flight plan applies in the event of in-flight replanning;

(3) continue towards the planned destination vertiport,

only when the current meteorological reports or a combination of current reports and forecasts indicate that the expected meteorological conditions at the departure vertiport, along the route to be flown, and at the destination vertiport, at the time of arrival, are at or above the planning minima established in accordance with point UAM.OP.MVCA.111.

UAM.OP.MVCA.285 Use of supplemental oxygen

The PIC shall ensure that all pilots engaged in the performance of duties essential to the safe operation of the VCA during flight use supplemental oxygen continuously whenever the cabin altitude exceeds 10 000 ft for a period of more than 30 minutes and whenever the cabin altitude exceeds 13 000 ft.

UAM.OP.MVCA.295 Use of airborne collision avoidance system (ACAS)

The IAM operator shall establish operational procedures and training programmes when an ACAS is installed and serviceable so that the flight crew is appropriately trained in the avoidance of collisions and competent in the use of ACAS II equipment.

SUBPART C

VTOL-CAPABLE AIRCRAFT (VCA) PERFORMANCE AND OPERATING LIMITATIONS

UAM.POL.VCA.050 Scope

This Subpart establishes performance requirements and operating limitations for IAM operations with VTOL-capable aircraft (VCA).

UAM.POL.VCA.100 Type of operation

VCA shall be operated in accordance with the applicable performance requirements for the intended type of operation to be conducted.

UAM.POL.VCA.105 VTOL-capable aircraft (VCA) performance data

VCA shall be operated in accordance with the certified performance data and limitations contained in the AFM.

UAM.POL.VCA.110 General performance requirements

(a) The mass of the VCA:

(1) at the start of the take-off; or

(2) in the event of in-flight replanning, at the point from which the revised operational flight plan applies;

shall not be greater than the mass at which the requirements of this Subpart can be complied with for the flight to be conducted, considering expected reductions in mass as the flight proceeds and such fuel jettisoning as applicable.

(b) The approved performance data contained in the AFM shall be used to determine compliance with the requirements of this Subpart, supplemented as necessary with other data as prescribed in the relevant requirement. The IAM operator shall specify such other data in the operations manual (OM). When applying the factors prescribed in this Subpart, any operational factors already incorporated in the performance data contained in the AFM shall be considered to avoid double application of factors.

(c) When showing compliance with the requirements of this Subpart, the following parameters shall be taken into account:

(1) the mass of the VCA;

(2) the configuration of the VCA;

(3) the environmental conditions, in particular:

(i) density altitude;

(ii) wind:

(A) except as provided in point (C), for take-off, take-off flight path and landing, the correction for wind shall not be more than 50 % of any reported steady headwind component of 5 kt or greater;

(B) when take-off and landing with a tailwind component is permitted in the AFM, and in all cases for the take-off flight path, the correction for tailwind shall not be less than 150 % of any reported wind component;

(C) when precise wind-measuring equipment enables the accurate measurement of wind velocity over the point of take-off and landing, wind components in excess of 50 % may be taken into account by the IAM operator, provided that the IAM operator demonstrates to the competent authority that the proximity to the FATO and accuracy enhancements of the wind-measuring equipment provide an equivalent level of safety;

(4) the operating techniques; and

(5) the operation of any systems that have an adverse effect on the VCA performance.

UAM.POL.VCA.115 Obstacle accountability

For operations to/from final approach and take-off areas (FATO), the IAM operator shall, during pre-fight planning and for the purpose of obstacle-clearance calculations:

(a) consider an obstacle located beyond the FATO, in the take-off flight path or the missed approach flight path, if its lateral distance to the nearest point on the surface below the intended flight path is not farther than the following:

(1) for flights to be conducted in accordance with VFR:

(i) "0,75 × D";

(ii) plus the greater of "0,25 × D" or "3 m";

(iii) plus:

(A) 0,10 × distance DR for operations under VFR by day; or

(B) Reserved;

(b) consider an obstacle located in the backup or lateral transition area for take-offs using a backup or a lateral transition procedure, if its lateral distance from the nearest point on the surface below the intended flight path is not farther than:

(1) "0,75 × D";

(2) plus the greater of "0,25 × D" or "3 m";

(3) plus:

(i) 0,10 × distance DR for operations under VFR by day; or

(ii) reserved;

(c) disregard obstacles situated beyond the FATO in the take-off flight path or the missed approach flight path if their lateral distance to the nearest point on the surface below the intended flight path is farther than the following:

(1) 3 × D for VFR day operations if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;

(2) reserved.

UAM.POL.VCA.120 Take-off

(a) The take-off mass of the VCA shall not exceed the maximum take-off mass specified in the AFM for the certified take-off procedure or procedures to be used.

(b) The IAM operator shall take into account:

(1) the appropriate parameters of point UAM.POL.VCA.110(c); and

(2) the obstacles identified in accordance with point UAM.POL.VCA.115.

(c) In addition, for VCA operations from a FATO:

(1) the take-off mass shall be such that:

(i) it is possible to reject the take-off and land on the FATO if a CFP has been recognised at or before the take-off decision point (TDP);

(ii) the rejected take-off distance required (RTODRV) does not exceed the rejected take-off distance available (RTODAV); and

(iii) the TODRV does not exceed the TODAV, unless the VCA with a CFP recognised at or before the TDP can, when continuing the take-off, clear all obstacles to the end of the TODRV by a vertical margin of not less than 10,7 m (35 ft).

(2) That part of the take-off up to and including TDP shall be conducted in sight of the surface such that a rejected take-off can be conducted safely.

(d) For take-offs using a backup or lateral transition procedure, with a CFP recognised at or before the TDP, all obstacles in the backup or lateral transition area shall be cleared by an adequate margin.

UAM.POL.VCA.125 Take-off flight path

(a) From the end of the take-off distance required for VCA (TODRV), following a CFP being recognised at or after the take-off decision point (TDP):

(1) the take-off mass shall be such that the take-off flight path provides vertical clearance, above all obstacles located in the climb path, of not less than 10,7 m (35 ft) for operations under VFR by day;

(2) when a change of direction of more than 15° is made, allowance shall be made for the ability to maintain the climb gradient to comply with the obstacle-clearance requirements in accordance with the AFM; this change of direction is not to be initiated before reaching a height of 61 m (200 ft) above the take-off surface unless it is part of an approved take-off procedure in the AFM.

(b) When showing compliance with point (a), the relevant parameters of point UAM.POL.VCA.110(c) shall be considered at the vertiport, diversion location or operating site of departure.

UAM.POL.VCA.130 En route

(a) The mass of the VCA and the flight path at all points along the route following a critical failure for performance (CFP), and taking into account the meteorological conditions expected for the flight, shall permit compliance with the following:

(1) Reserved.

(2) Reserved.

(3) The mass of the VCA shall permit its operation at or above the minimum level established in accordance with point SERA.5005(f) of the Annex (Part-SERA) to Regulation (EU) No 923/2012 and a descent from the cruising altitude to the landing decision point (LDP) above the vertiport, diversion location or operating site where the landing can be conducted in accordance with point UAM.POL.VCA.135.

(b) When showing compliance with point (a), all the following shall apply:

(1) the CFP is assumed to occur at the most critical point along the route;

(2) the effects of winds on the flight path are considered;

(3) fuel jettisoning, if applicable, is planned to be performed only to an extent consistent with reaching the vertiport, diversion location or operating site with the required fuel/energy reserves and using a safe procedure; and

(4) fuel jettisoning, if applicable, is not planned below 300 m (1 000 ft) above terrain.

UAM.POL.VCA.135 Landing

(a) The landing mass of the VCA at the estimated time of landing shall not exceed the maximum mass specified in the AFM for the certified landing procedure to be used.

(b) The IAM operator shall take into account:

(1) the relevant parameters of point UAM.POL.VCA.110(c); and

(2) the obstacles identified in accordance with point UAM.POL.VCA.115.

(c) If a critical failure for performance (CFP) is recognised at any point at or before the landing decision point (LDP), it is possible either to land and stop within the runway or FATO, or perform a balked landing by clearing all obstacles in the flight path by a vertical margin of 10,7 m (35 ft).

(d) If a CFP is recognised at any point at or after the LDP, it is possible to land and stop within the runway or FATO by clearing all obstacles in the approach path.

UAM.POL.VCA.140 Mass and balance, and loading

(a) During any phase of the operation, the loading, mass, and centre of gravity (CG) of the VCA shall comply with the limitations specified in the AFM, or the operations manual (OM), if more restrictive.

(b) The IAM operator shall establish the mass and the CG of any aircraft it operates by actual weighing prior to initial entry into service and thereafter at intervals of 4 years if individual VCA masses are used, or at intervals of 9 years if fleet masses are used. The accumulated effects of modifications and repairs on the mass and balance of the aircraft shall be considered and properly documented. The VCA shall be reweighed if the effect of modifications on its mass and balance is not accurately known.

(c) The weighing shall be accomplished by the manufacturer of the aircraft or by an approved maintenance organisation.

(d) The IAM operator shall determine the mass of all operating items and crew members (pilots and, if applicable, technical crew), included in the VCA dry operating mass, by actual weighing or by using standard masses. The influence of their position on the aircraft's CG shall be determined.

(e) The IAM operator shall establish the mass of the traffic load, including any ballast, by actual weighing or by determining the mass of the traffic load in accordance with standard passenger and, if applicable, baggage masses.

(f) The IAM operator can use standard masses for other load items if it demonstrates to the competent authority that these items have the same mass or that their masses are within specified tolerances.

(g) The IAM operator shall determine the mass of the fuel load and/or of the energy storage unit as follows:

(1) for the *fuel load*, by using the actual density or, if not known, the density calculated in accordance with a method specified in the operations manual (OM);

(2) for the *energy storage unit*, by weighing or by using standard masses specified in the OM.

(h) The IAM operator shall ensure that the loading of:

(1) the VCA is performed under the supervision of qualified personnel; and

(2) the traffic load is consistent with the data used for the calculation of the aircraft mass and balance.

(i) The IAM operator shall comply with additional structural limits such as the floor strength limitations, the maximum load per running metre, the maximum mass per cargo compartment, and the maximum seating limit.

(j) The IAM operator shall specify in the OM the principles and methods applied for the loading and in the mass and balance system that meet the requirements of points (a) to (i). That system shall cover all types of the operator's intended operations.

UAM.POL.VCA.145 Mass and balance data, and mass and balance documentation

(a) The IAM operator shall establish mass and balance data and shall produce mass and balance documentation prior to each flight, specifying the load and its distribution. The mass and balance documentation shall enable the PIC to determine that the load and its distribution is such that the mass and balance limits of the aircraft are not exceeded. The mass and balance documentation shall contain the following information:

(1) VCA registration and type;

(2) flight identification, number and date;

(3) full name of the PIC;

(4) full name of the person that has prepared the documentation;

(5) dry operating mass and the corresponding CG of the aircraft:

(6) mass of the fuel or energy storage unit at take-off, and the mass of trip fuel;

(7) mass of consumables other than fuel, if applicable;

(8) traffic load components, including passengers, baggage, freight and ballast;

(9) take-off mass, landing mass, and zero fuel mass;

(10) applicable aircraft CG positions; and

(11) the limiting mass and CG values.

The information above shall be available in flight-planning documents or in mass and balance systems.

(b) When mass and balance data and mass and balance documentation are generated by a computerised mass and balance system, the operator shall:

(1) verify the integrity of the output data to ensure that the data is within the AFM limitations; and

(2) specify the instructions and procedures for its use in its operations manual (OM).

(c) The person that supervises the loading of the aircraft shall confirm by handwritten signature or equivalent that the load and its distribution are in accordance with the mass and balance documentation given to the PIC. The PIC shall indicate their acceptance by handwritten signature or equivalent.

(d) The IAM operator shall specify procedures for last-minute changes to the load to ensure that:

(1) any last-minute change following the completion of the mass and balance documentation is brought to the attention of the PIC and entered in the flight-planning documents containing the mass and balance documentation;

(2) the maximum last-minute change allowed in passenger numbers or hold load is specified; and

(3) new mass and balance documentation is prepared if the maximum passenger number is exceeded.

SUBPART D

INSTRUMENTS, DATA AND EQUIPMENT

SECTION 1

VTOL-capable aircraft (VCA)

UAM.IDE.VCA.050 Scope

This Section establishes the requirements for IAM operations with VTOL-capable aircraft (VCA).

UAM.IDE.VCA.100 Instruments and equipment

(a) The instruments, data and equipment required by this Subpart, as well as by the type-certification requirements and airspace requirements, shall be installed on or carried in the VCA according to the conditions under which the operation is to be conducted.

Instruments and equipment required by this Subpart, as well as by the type-certification requirements and airspace requirements, shall be approved in accordance with the applicable airworthiness requirements, except for the following items:

(1) first-aid kits;

(2) survival and signalling equipment;

(3) sea anchors and equipment for mooring; and

(4) child restraint devices.

(b) Instruments and equipment not required by this Annex, as well as any other equipment which is not required pursuant to this Regulation, but carried on a flight, shall comply with the following:

(1) the information provided by these instruments, equipment or accessories shall not be used by the pilot to comply with Annex II and with point 2.1 of Annex IX to Regulation (EU) 2018/1139 or with points UAM.IDE.MVCA.330, UAM.IDE.MVCA.335 and UAM.IDE.MVCA.345 of this Annex; and

(2) the instruments and equipment shall not affect the airworthiness of the aircraft, even in the case of failure or malfunction.

(c) If equipment is to be used by the pilot at their assigned station during the flight, it shall be installed so as to be easily operable from that station. When a single item of equipment is to be used by more than one person at their assigned stations, it shall be installed so as to be readily operable from any station.

(d) Those instruments that are used by the pilot shall be so arranged as to permit the pilot to see the indications readily from their assigned station with the minimum practicable deviation from the position and line of vision that the pilot normally assumes when looking forward along the flight path.

(e) All required emergency equipment shall be easily accessible for immediate use.

UAM.IDE.VCA.105 Minimum equipment required for a flight

A flight shall not commence when any of the aircraft instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless:

(a) the aircraft is operated in accordance with the operator's minimum equipment list (MEL); or

(b) the operator is approved by the competent authority to operate the aircraft within the constraints of the master minimum equipment list (MMEL) in accordance with point ORO.MLR.105(j) of Annex III.

SECTION 2

Manned VTOL-capable aircraft (MVCA)

UAM.IDE.MVCA.050 Scope

This Section establishes additional requirements for IAM operations with manned VTOL-capable aircraft (MVCA).

UAM.IDE.MVCA.115 Operating lights

A VCA operated under VFR by day shall be equipped with anti-collision lights.

UAM.IDE.MVCA.125 Flight instruments and associated equipment

(a) The VCA shall be equipped with the flight instruments and equipment specified in its type-certification approval for flights to be conducted in accordance with VFR by day.

(b) Additional flight instruments and equipment shall be installed on or carried in the VCA, as necessary, according to the expected operating conditions and crew workload.

UAM.IDE.MVCA.140 Fuel/energy measuring and displaying equipment

(a) The VCA shall be equipped with means of measuring and displaying to the pilot in flight the remaining usable amount of fuel/energy.

(b) A conservative estimate of the amount of fuel/energy necessary to complete the remaining part of the flight shall be displayed to the pilot in flight unless provided by other means as per point UAM.OP.VCA.195(a).

UAM.IDE.MVCA.145 Height-determination equipment

(a) The VCA shall, for flights over water, be equipped with a means to determine the height of the aircraft in relation to the water surface, capable of emitting an audio warning below a preset value and a visual warning at a height selectable by the pilot, when operating:

(1) at a distance from land corresponding to more than 3 minutes flying time at normal cruising speed;

(2) reserved;

(3) reserved;

(4) out of sight of the land.

UAM.IDE.MVCA.170 Crew interphone system

For operations with more than one crew member, the VCA shall be equipped with an interphone system, including headsets and microphones, for use by all the crew members.

UAM.IDE.MVCA.180 Public address system (PAS)

The VCA shall be equipped with a PAS, unless the IAM operator is able to demonstrate that when in flight, the pilot's voice is audible and intelligible at all passengers' seats.

UAM.IDE.MVCA.185 Cockpit voice recorder (CVR)

(a) A VCA with an MCTOM of more than 5 700 kg shall be equipped with a CVR.

(b) The CVR shall be capable of retaining the data recorded during at least the preceding 2 hours.

(c) The CVR shall record with reference to a timescale on means other than magnetic tape or magnetic wire:

(1) voice communications transmitted from or received in the flight crew compartment by radio;

(2) crew members' voice communications using the interphone system and the public address system (PAS), if installed;

(3) the aural environment of the flight crew compartment, including the audio signals received from the flight crew microphone;

(4) voice or audio signals identifying navigation or approach aids introduced into a headset or a speaker.

(d) The CVR shall, depending on the availability of electrical power, record as early as possible during the cockpit checks at the beginning of the flight prior to the VCA being capable of moving under its own power until the cockpit checks immediately following lift and thrust units powering off at the end of the flight. In any case, the CVR shall automatically start to record prior to the aircraft moving under its own power and shall continue to record until the termination of the flight.

(e) A function to modify CVR recordings shall be at the disposal of the PIC so that recordings made prior to the operation of that function cannot be retrieved using normal replay or copying techniques.

(f) If the CVR is not deployable, it shall have a device to assist in locating it under water with a minimum underwater transmission time of 90 days. If the CVR is deployable, it shall have an automatic emergency locator transmitter (ELT).

UAM.IDE.MVCA.190 Flight data recorder (FDR)

(a) A VCA with an MCTOM of more than 5 700 kg shall be equipped with a FDR that uses a digital method of recording and storing data, and for which a method of readily retrieving that data from the storage medium is available.

(b) The FDR shall record the parameters required to determine accurately the flight path, speed, attitude, engine(s) power, operation, configuration, and any parameter that has been established during the type certification of the VCA and shall be capable of retaining the data recorded during at least the preceding 25 hours.

(c) Data shall be obtained from the VCA sources that enable accurate correlation with information displayed to the pilot(s).

(d) The FDR shall automatically start to record the data not later than the VCA is capable of moving under its own power and shall stop automatically following lift and thrust units powering off at the end of the flight.

(e) If the FDR is not deployable, it shall have a device to assist in locating it under water with a minimum underwater transmission time of 90 days. If the FDR is deployable, it shall have an automatic ELT.

UAM.IDE.MVCA.191 Flight recorder

(a) A VCA with an MCTOM of 5 700 kg or less shall be equipped with a flight recorder.

(b) The flight recorder shall record by means of flight data and/or images information that is sufficient to determine the flight path and aircraft speed, as well as:

(1) audio from the flight crew compartment in multi-crew and VEMS operations; or

(2) radio communications with air traffic service (ATS) units, where applicable.

(c) The flight recorder shall be capable of retaining the flight data and/or images, as well as audio, recorded during at least the preceding 5 hours.

(d) The flight recorder shall automatically start to record prior to the VCA being capable of moving under its own power and shall stop automatically following lift and thrust units powering off at the end of the flight.

(e) If the flight recorder records images or audio of the flight crew compartment, a function to modify image and audio recordings shall be at the disposal of the PIC, so that the recordings made prior to the operation of that function cannot be retrieved using normal replay or copying techniques.

(f) As an alternative to points (b) and (c), some flight data, images or audio may be transmitted and recorded remotely if approved as part of the aircraft type certification.

UAM.IDE.MVCA.200 Flight data and cockpit voice combination recorder

Compliance with the CVR and FDR requirements may be achieved by the carriage of one combination recorder.

UAM.IDE.MVCA.205 Seats, seat safety belts, restraint systems, and child restraint devices (CRDs)

(a) The VCA shall be equipped with:

(1) a seat or berth for each person on board that is aged 24 months or older;

(2) a seat belt with an upper-torso restraint system for use on each passenger seat and restraining belts on each berth;

(3) a child restraint device (CRD) for each person on board that is younger than 24 months; and

(4) a four-point upper-torso restraint system that includes a seat belt with two shoulder straps, on each pilot seat.

(b) A seat belt with upper-torso restraint system shall:

(1) have a single-point release; and

(2) on the pilot seat, incorporate a device that will automatically restrain the occupant's torso in the event of rapid deceleration.

UAM.IDE.MVCA.210 "FASTEN SEAT BELT" and "NO SMOKING" signs

The VCA shall be equipped with a means of indicating to all persons on board when seat belts shall be fastened, and that smoking is not allowed at any time.

UAM.IDE.MVCA.220 First-aid kits

(a) The VCA shall be equipped with at least one first-aid kit.

(b) First-aid kits shall be:

(1) readily accessible for use;

(2) kept up to date.

UAM.IDE.MVCA.240 Supplemental oxygen – non-pressurised aircraft

Non-pressurised VCA operated at pressure altitudes above 10 000 ft shall be equipped with supplemental oxygen equipment capable of storing and dispensing oxygen in accordance with the following table:

Table

Minimum requirements regarding supplemental oxygen in non-pressurised aircraft

Supply for:	Flight duration and cabin pressure altitude
person(s) piloting the aircraft	For the entire flying time at pressure altitudes above 13 000 ft and for any period that exceeds 30 minutes at pressure altitudes above 10 000 ft but not exceeding 13 000 ft.
100 % of passengers ([1])	For the entire flying time at pressure altitudes above 13 000 ft.
10 % of passengers ([1])	For the entire flying time beyond 30 minutes at pressure altitudes above 10 000 ft but not exceeding 13 000 ft.

([1]) Passenger percentages in this table refer to passengers carried on board, including persons younger than 24 months of age.

UAM.IDE.MVCA.250 Handheld fire extinguishers

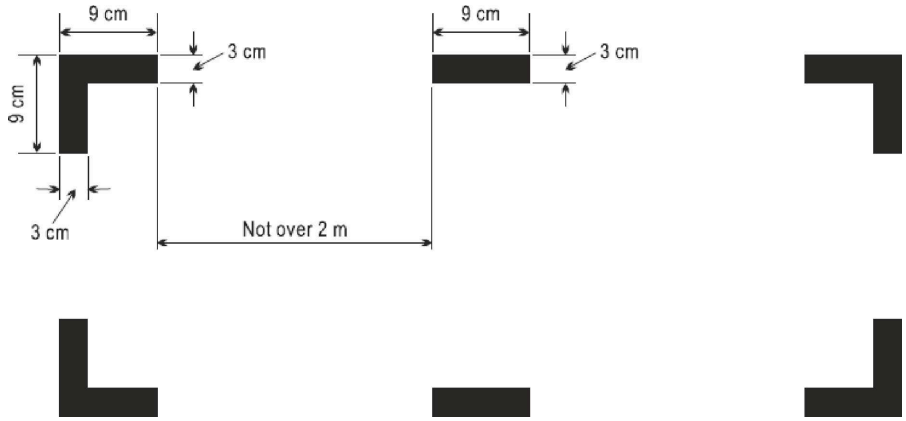
(a) The VCA shall be equipped with at least one handheld fire extinguisher in the flight crew compartment, which shall be readily accessible for use.

(b) At least one handheld fire extinguisher shall be located in the passenger compartment if the handheld fire extinguisher located in the flight crew compartment cannot be easily accessed by the passengers.

(c) The type and quantity of the fire-extinguishing agent of the handheld fire extinguishers shall be suitable for the type of fire likely to occur in the compartment where the handheld fire extinguisher is intended to be used and to minimise the hazard of toxic gas concentration in compartments occupied by persons.

UAM.IDE.MVCA.260 Marking of break-in points

If areas on the VCA's fuselage that are suitable for break-in by rescue crews in an emergency are marked, such areas shall be marked as shown in the figure below.



UAM.IDE.MVCA.275 Emergency lighting and marking

The VCA shall be equipped with:

(a) an emergency lighting system independent of the VCA normal electric power supply to facilitate the evacuation of passengers from the aircraft; and

(b) emergency-exit marking and locating signs visible in daylight, in the dark and in a smoke filled cabin.

UAM.IDE.MVCA.280 Emergency locator transmitters (ELTs)

The VCA shall be equipped (fitted) with at least one approved automatic ELT or, alternatively, with such other approved automatic aircraft tracking device in combination with a locator beacon that shall enable rescue services to be alerted, to reach the accident site and to accurately locate survivors.

UAM.IDE.MVCA.300 Flights over water

(a) A VCA that carries passengers shall be certified:

(1) for ditching, when operated over water in a hostile sea at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed;

(2) for ditching or emergency flotation, when operated over water in a non-hostile sea at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed;

(3) for limited overwater operations, if not meeting the criteria referred to in point (a)(1) or (a)(2), and when one or more of the following conditions apply:

(i) the total flying time over water is longer than 3 minutes;

(ii) the landing or take-off is performed over water.

(b) A VCA that does not carry passengers shall be certified:

(1) for ditching or emergency flotation, when operated over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed;

(2) for limited overwater operations, if not meeting the criteria referred to in point (b)(1) and when one or more of the following conditions apply:

(i) the total flying time over water is longer than 3 minutes;

(ii) the landing or take-off is performed over water.

(c) A VCA that operates on water shall be certified for operations on water in addition to meeting the criteria referred to in point (a) or (b).

(d) A VCA that operates on floating surfaces shall be certified for operations on floating surfaces in addition to meeting the criteria referred to in point (a) or (b).

(e) The VCA shall carry a survival ELT (ELT(S)) that is buoyant and can be automatically activated for flights over water, except for limited overwater operations.

UAM.IDE.MVCA.305 Life jackets and other equipment

(a) Except as specified in point (c) for flights over water as defined in point UAM.IDE.MVCA.300, the VCA shall be equipped as a minimum with a life jacket for each person on board, stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided, with the restrain system fastened. If it is not possible to have the life jackets readily accessible with the restrain system fastened, each person shall wear a life jacket on or, if that person is younger than 24 months, an equivalent flotation device.

(b) Each life jacket or equivalent individual flotation device shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons in the water.

(c) For flights over water in a hostile sea at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed, for the purpose of support to activities related to non-renewable and renewable-energy sources and support to vessels:

(1) each person on board shall wear a life jacket during the entire operation unless integrated survival suits that meet the combined requirement of the survival suit and life jacket are worn;

(2) each person on board shall wear a survival suit as appropriate with regard to the water temperature and estimated rescue time; the level of insulation provided shall be sufficient for the prevailing conditions and not excessive;

(3) each person on board shall carry an emergency breathing system (EBS) and shall be instructed in its use.

UAM.IDE.MVCA.310 Life rafts

(a) The VCA shall equipped with one or more life rafts for flights over water in a hostile sea area at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed or shall carry at least one life raft stowed so as to facilitate its ready use in an emergency for flights over water in a non-hostile sea at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed. The life rafts shall have sufficient capacity, separately or together, to accommodate all persons carried on board the VCA.

(b) All required life rafts shall allow for their ready use in an emergency.

(c) Each required life raft shall contain at least one ELT(S).

(d) Each required life raft shall be usable in the sea conditions in which the VCA's ditching, flotation, and trim characteristics have been evaluated for the purpose of certification.

(e) Each required life raft shall contain life-saving equipment, including means of sustaining life, as appropriate to the flight to be undertaken.

UAM.IDE.MVCA.311 Survival equipment

(a) A VCA operated over areas where search and rescue would be particularly difficult shall be equipped with:

(1) signalling equipment to make distress signals;

(2) at least one ELT(S); and

(3) additional survival equipment for the route to be flown taking into account the number of persons on board.

UAM.IDE.MVCA.315 Equipment for on-water operations

(a) A VCA certified for operating on water shall be equipped with:

(1) a sea anchor and other equipment necessary to facilitate mooring, anchoring or manoeuvring the VCA on water, appropriate to its size, weight and handling characteristics; and

(2) equipment for making the sound signals prescribed in the International Regulations for Preventing Collisions at Sea, where applicable.

UAM.IDE.MVCA.325 Headsets

The VCA shall be equipped with a headset with boom microphone or equivalent and a transmit button on the flight controls for each pilot of the VCA at their assigned station.

UAM.IDE.MVCA.330 Radio communication equipment

(a) The VCA shall be equipped with at least one radio communication system connected to the aircraft's primary power supply and as many more radio communication systems as necessary for the type of operation to be conducted and the class(es) of airspace in which the operation shall take place.

(b) The radio communication equipment shall allow flight crews under normal operating conditions to:

(1) communicate with appropriate ground stations from any point on the route, including diversions;

(2) communicate with appropriate ATC stations from any point in controlled airspace within which flights are intended to be operated; and

(3) receive meteorological information.

(c) The radio communication equipment shall allow for communication on the 121,5 MHz aeronautical emergency frequency.

UAM.IDE.MVCA.345 Navigation equipment

(a) The VCA shall be equipped with navigation equipment for flights in accordance with VFR by day and in accordance with the applicable airspace requirements.

(b) The VCA shall be equipped with sufficient navigation equipment to ensure that, in the event of failure of one item of equipment at any phase of the flight, the remaining equipment shall allow for safe navigation in accordance with the flight plan.

UAM.IDE.MVCA.350 Transponders

When required by the class of airspace being flown, the VCA operated under VFR by day shall be equipped with a secondary surveillance radar (SSR) transponder with all the required capabilities.

UAM.IDE.MVCA.355 Management of aeronautical databases

(a) The IAM operator shall:

(1) ensure that the aeronautical databases to be used on certified aircraft system applications meet the data quality requirements that are adequate for the intended use of the data;

(2) ensure the timely distribution and update of current and unaltered aeronautical databases to all aircraft that require them;

(3) report to the database provider instances of erroneous, inconsistent or missing data that might be reasonably expected to constitute a hazard to flight, notwithstanding any other occurrence-reporting requirements as defined in Regulation (EU) No 376/2014. In such cases, the IAM operator shall inform all personnel concerned, and shall ensure that the affected data is not used.'