UK Air Operations Regulation

UK Regulation (EU) No. 965/2012

The text of the amendment is arranged to show deleted text, new or amended text as shown below:

(a) Text to be deleted is shown struck through;

(b) New text is highlighted in grey;

1. Operators shall only operate an aeroplane or a helicopter for the purpose of commercial air transport (hereinafter 'CAT') operations as specified in Annexes III and IV.

1a. Operators engaged in CAT operations starting and ending at the same aerodrome/operating site with Performance class B aeroplanes or non-complex helicopters shall comply with the relevant provisions of Annexes III and IV.

- 2. CAT Operators shall comply with the relevant provisions of Annex V when operating:
 - (a) aeroplanes and helicopters used for:
 - (i) operations using performance-based navigation (PBN);
 - (ii) operations in accordance with minimum navigation performance specifications (MNPS);
 - (iii) operations in airspace with reduced vertical separation minima (RVSM);
 - (iv) low-visibility operations (LVOs) or operations with operational credits;
 - (b) aeroplanes and helicopters used for the transport of dangerous goods (DG);

(c) two-engined aeroplanes used for extended range operations (ETOPS) in commercial air transport;

(d) helicopters used for commercial air transport operations with the aid of night vision imaging systems (NVIS);

(e) helicopters used for commercial air transport hoist operations (HHO); and

(f) helicopters used for commercial air transport emergency medical service operations (HEMS); and

(g) helicopters used for offshore operations (HOFO).

3. Operators of complex motor-powered aeroplanes and helicopters involved in noncommercial operations shall declare their capability and means to discharge their responsibilities associated with the operation of aircraft and operate the aircraft in accordance with the provisions specified in Annex III and Annex VI. Such operators when engaged in noncommercial specialised operations shall operate the aircraft in accordance with the provisions specified in Annex III and VII instead.

4. Operators of other-than-complex motor-powered aeroplanes and helicopters involved in non-commercial operations, including non-commercial specialised operations, shall operate the aircraft in accordance with the provisions set out in Annex VII.

5. Training organisations referred to in Article 10a of Regulation (EU) No 1178/2011 and having their principal place of business in [the United Kingdom] shall, when conducting flight training into, within or out of the [United Kingdom], operate:

(a) complex motor-powered aeroplanes and helicopters in accordance with the provisions specified in Annex VI;

(b) other aeroplanes and helicopters in accordance with the provisions specified in Annex VII.

6. Operators shall only operate an aeroplane or a helicopter for the purpose of commercial specialised operations in accordance with the requirements in Annexes III and VIII.

7. Flights taking place immediately before, during or immediately after specialised operations and directly connected to those operations shall be operated in accordance with paragraphs 3, 4 and 6, as applicable. Except for crew members, persons other than those indispensable to the mission shall not be carried on board.

Annex I DEFINITIONS

For the purpose of this Regulation, the following definitions shall apply:

(1) 'accelerate-stop distance available (ASDA)' means the length of the take-off run available plus the length of stopway, if such stopway is declared available by the State of the aerodrome and is capable of bearing the mass of the aeroplane under the prevailing operating conditions;

(2) 'acceptable means of compliance (AMC)' means non-binding standards adopted by the [CAA] to illustrate means to establish compliance with Regulation (EC) No 216/2008 and its Implementing Rules;

(3) 'acceptance checklist' means a document used to assist in carrying out a check on the external appearance of packages of dangerous goods and their associated documents to determine that all appropriate requirements have been met with;

(4) 'adequate aerodrome' means an aerodrome on which the aircraft can be operated, taking account of the applicable performance requirements and runway characteristics;

- (5) For the purpose of passenger classification:
 - (a) 'adult' means a person of an age of 12 years and above;

(b) 'child/children' means persons who are of an age of two years and above but who are less than 12 years of age;

- (c) 'infant' means a person under the age of two years;
- (6) 'aerodrome operating minima' means the limits of usability of an aerodrome for:
 - (a) take-off, expressed in terms of runway visual range (RVR) and/or visibility and, if necessary, ceiling;
 - (b) landing in 2D instrument approach operations, expressed in terms of visibility and/or RVR, minimum descent altitude/height (MDA/H) and, if necessary, ceiling;
 - (c) landing in 3D instrument approach operations, expressed in terms of visibility and/or RVR and decision altitude/height (DA/H) as appropriate to the type and/or category of the operation'.
- (7) 'aided night vision imaging system (NVIS) flight' means, in the case of NVIS operations, that portion of a visual flight rules (VFR) flight performed at night when a crew member is using night vision goggles (NVG);
- (8) 'aircraft' means a machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface;
- (8a) 'aircraft tracking' means a ground based process that maintains and updates, at standardised intervals, a record of the four dimensional position of individual aircraft in flight;
- (8b) 'aircraft tracking system' means a system that relies on aircraft tracking in order to identify abnormal flight behaviour and provide alert;

- (8c) 'alternate aerodrome' means an adequate aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or land at the aerodrome of intended landing, where the necessary services and facilities are available, where aircraft performance requirements can be met, and which is operational at the expected time of use; 'alternate aerodrome' includes the following:
 - (a) 'take-off alternate aerodrome': an alternate aerodrome at which an aircraft would be able to land if it becomes necessary shortly after take-off and it is not possible to use the aerodrome of departure;
 - (b) 'en route alternate (ERA) aerodrome': an alternate aerodrome at which an aircraft would be able to land if a diversion becomes necessary while en route;
 - (c) 'fuel/energy en route alternate (fuel/energy ERA) aerodrome' means an ERA aerodrome that is required at the planning stage for use in the calculation of fuel/energy;
 - (d) 'destination alternate aerodrome': an alternate aerodrome at which an aircraft would be able to land if it becomes either impossible or inadvisable to land at the aerodrome of intended landing;
- (9) 'alternative means of compliance' means those means that propose an alternative to an existing acceptable means of compliance or those that propose new means to establish compliance with Regulation (EC) No 216/2008 and its Implementing Rules for which no associated AMC have been adopted by the [CAA];
- (10) 'anti-icing', in the case of ground procedures, means a procedure that provides protection against the formation of frost or ice and accumulation of snow on treated surfaces of the aircraft for a limited period of time (hold-over time);
- (11) 'approach procedure with vertical guidance (APV) operation' means an instrument approach which utilises lateral and vertical guidance, but does not meet the requirements established for precision approach and landing operations, with a decision height (DH) not lower than 250 ft and a runway visual range (RVR) of not less than 600 m;
- (11a) ...
- (12) 'cabin crew member' means an appropriately qualified crew member, other than a flight crew or technical crew member, who is assigned by an operator to perform duties related to the safety of passengers and flight during operations;
- (13) 'category I (CAT I) approach operation' means a precision instrument approach and landing using an instrument landing system (ILS), microwave landing system (MLS), GLS (groundbased augmented global navigation satellite system (GNSS/GBAS) landing system), precision approach radar (PAR) or GNSS using a satellite based augmentation system (SBAS) with a decision height (DH) not lower than 200 ft and with a runway visual range (RVR) not less than 550 m for aeroplanes and 500 m for helicopters;
- (14) 'category II (CAT II) operation' means a precision instrument approach and landing operation using ILS or MLS with:
 - (a) DH below 200 ft but not lower than 100 ft; and
 - (b) RVR of not less than 300 m;

- (15) 'category IIIA (CAT IIIA) operation' means a precision instrument approach and landing operation using ILS or MLS with:
 - (a) DH lower than 100 ft; and
 - (b) RVR not less than 200 m;
- (16) 'category IIIB (CAT IIIB) operation' means a precision instrument approach and landing operation using ILS or MLS with:
 - (a) DH lower than 100 ft, or no DH; and
 - (b) RVR lower than 200 m but not less than 75 m;
- (17) 'category A with respect to helicopters' means a multi-engined helicopter designed with engine and system isolation features specified in the applicable certification specification and capable of operations using take-off and landing data scheduled under a critical engine failure concept that assures adequate designated surface area and adequate performance capability for continued safe flight or safe rejected take-off in the event of engine failure;
- (18) 'category B with respect to helicopters' means a single-engined or multi-engined helicopter that does not meet category A standards. Category B helicopters have no guaranteed capability to continue safe flight in the event of an engine failure, and unscheduled landing is assumed;
- (18a) 'ceiling' means the height above the ground or water of the base of the lowest layer of cloud below 6 000 m (20 000 ft) covering more than half the sky;'
- (19) 'certification specifications' (CS) means technical standards adopted by the CAA indicating means to show compliance with Regulation (EC) No 216/2008 and its Implementing Rules and which can be used by an organisation for the purpose of certification;
- (20) <u>'circling' means the visual phase of an instrument approach to bring an aircraft into position</u> for landing on a runway/FATO that is not suitably located for a straight-in approach;

'circling' means the visual phase of a circling approach operation;'

- (20a) 'Circling approach' means an extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing.
- (21) 'clearway' means a defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height;
- (22) 'cloud base' means the height of the base of the lowest observed or forecast cloud element in the vicinity of an aerodrome or operating site or within a specified area of operations, normally measured above aerodrome elevation or, in the case of offshore operations, above mean sea level;
- (22a) 'cockpit voice recorder (CVR)' means a crash-protected flight recorder that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the flight crew compartment and communications to, from and between the flight crew members;

- (23) 'code share' means an arrangement under which an operator places its designator code on a flight operated by another operator, and sells and issues tickets for that flight;
- (23a) 'competency' means a dimension of human performance that is used to reliably predict successful performance on the job and which is manifested and observed through behaviours that mobilise the relevant knowledge, skills and attitudes to carry out activities or tasks under specified conditions;
- (23b) 'competency-based training' means assessment and training programmes that are characterised by a performance orientation, emphasis on standards of performance and their measurement and the development of training to the specified performance standards;
- (23c) 'competency framework' means a complete set of identified competencies that are developed, trained and assessed in the operator's evidence-based training programme utilising scenarios that are relevant to operations and which is wide enough to prepare the pilot for both foreseen and unforeseen threats and errors;
- (24) 'congested area' means in relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes;
- (25) 'contaminated runway' means a runway of which a significant portion of its surface area (whether in isolated areas or not) within the length and width being used is covered by one or more of the substances listed under the runway surface condition descriptors;
- (26) <u>'contingency fuel' means the fuel required to compensate for unforeseen factors that</u> could have an influence on the fuel consumption to the destination aerodrome;

'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;

(27) 'continuous descent final approach (CDFA)' means a technique, consistent with stabilised approach procedures, for flying the final-approach segment of a non-precision instrument approach procedure as a continuous descent, without level-off, from an altitude/height at or above the final approach fix altitude/height to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare manoeuvre shall begin for the type of aircraft flown;

'continuous descent final approach (CDFA)' means a technique, consistent with stabilised approach procedures, for flying the final approach segment (FAS) of an instrument nonprecision approach (NPA) procedure as a continuous descent, without level-off, from an altitude/height at or above the final approach fix altitude/height:

- (a) for straight-in approach operations, to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare manoeuvre begins; or
- (b) for circling approach, until MDA/H or visual flight manoeuvre altitude/height is reached;'
- (28) 'converted meteorological visibility (CMV)' means a value, equivalent to an RVR, which is derived from the reported meteorological visibility;
- (29) 'crew member' means a person assigned by an operator to perform duties on board an aircraft;

- (30) 'critical phases of flight' in the case of aeroplanes means the take-off run, the take-off flight path, the final approach, the missed approach, the landing, including the landing roll, and any other phases of flight as determined by the pilot-in-command or commander;
- (31) 'critical phases of flight' in the case of helicopters means taxiing, hovering, take-off, final approach, missed approach, the landing and any other phases of flight as determined by the pi-lot-in-command or commander;

(31a) 'current fuel/energy scheme' means the approved fuel/energy scheme that is currently used by the operator;

- (32) ...
- (33) 'dangerous goods (DG)' means articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the technical instructions or which are classified according to those instructions;
- (34) 'dangerous goods accident' means an occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property damage;
- (35) 'dangerous goods incident' means:
- (a) an occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained;
- (b) any occurrence relating to the transport of dangerous goods which seriously jeopardises an aircraft or its occupants;

(35a) 'decision altitude (DA) or decision height (DH)' means a specified altitude or height in a 3D instrument approach operation at which a missed approach procedure must be initiated if the required visual reference to continue the approach has not been established;

(36) 'de-icing', in the case of ground procedures, means a procedure by which frost, ice, snow or slush is removed from an aircraft in order to provide uncontaminated surfaces;

(37) 'defined point after take-off (DPATO)' means the point, within the take-off and initial climb phase, before which the helicopter's ability to continue the flight safely, with the critical engine inoperative, is not assured and a forced landing may be required;

(38) 'defined point before landing (DPBL)' means the point within the approach and landing phase, after which the helicopter's ability to continue the flight safely, with the critical engine inoperative, is not assured and a forced landing may be required;

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

(40) 'dry lease agreement' means an agreement between undertakings pursuant to which the aircraft is operated under the air operator certificate (AOC) of the lessee or, in the case of commercial operations other than CAT, under the responsibility of the lessee;

(41) 'dry operating mass' means the total mass of the aircraft ready for a specific type of operation, excluding usable fuel and traffic load;

(42) 'dry runway' means a runway whose surface is free of visible moisture and not contaminated within the area intended to be used;

(42a) 'EFB application' means a software application installed on an EFB host platform that provides one or more specific operational functions which support flight operations;

(42b) 'EFB host platform' means the hardware equipment in which the computing capabilities and basic software reside, including the operating system and the input/output software;

(42c) 'EFB system' means the hardware equipment (including any battery, connectivity provisions, input/output components) and software (including databases and the operating system) needed to support the intended EFB application(s);

(42d) 'EBT module' means a combination of sessions in a qualified flight simulation training device as part of the 3-year period of recurrent assessment and training;

(43) 'ELA1 aircraft' means the following manned European Light Aircraft:

(a) an aeroplane with a Maximum Take-off Mass (MTOM) of 1 200 kg or less that is not classified as complex motor-powered aircraft;

(b) a sailplane or powered sailplane of 1 200 kg MTOM or less;

(c) a balloon with a maximum design lifting gas or hot air volume of not more than 3 400 m3 for hot air balloons, 1 050 m3 for gas balloons, 300 m3 for tethered gas balloons;

(44) 'ELA2 aircraft' means the following manned European Light Aircraft:

(a) an aeroplane with a Maximum Take-off Mass (MTOM) of 2 000 kg or less that is not classified as complex motor-powered aircraft;

(b) a sailplane or powered sailplane of 2 000 kg MTOM or less;

(c) a balloon;

(d) a Very Light Rotorcraft with a MTOM not exceeding 600 kg which is of a simple design, designed to carry not more than two occupants, not powered by turbine and/or rocket engines; restricted to VFR day operations;

- (44a) 'electronic flight bag (EFB)' means an electronic information system, comprised of equipment and applications for flight crew, which allows for the storing, updating, displaying and processing of EFB functions to support flight operations or duties;
- (45) 'elevated final approach and take-off area (elevated FATO)' means a FATO that is at least 3 m above the surrounding surface;
- (45a) 'emergency exit' means an installed exit-type egress point from the aircraft that allows maximum opportunity for cabin and flight crew compartment evacuation within an appropriate time period and includes floor level door, window exit or any other type of exit, for instance hatch in the flight crew compartment and tail cone exit;
- (46) 'en-route alternate (ERA) aerodrome' means an adequate aerodrome along the route,

which may be required at the planning stage; 'enhanced flight vision system (EFVS)' is an electronic means to provide the flight crew with a real-time sensor-derived or enhanced display of the external scene topography (the natural or man-made features of a place or region especially in a way to show their relative positions and elevation) through the use of imaging sensors; an EFVS is integrated with a flight guidance system and is implemented on a head-up display or an equivalent display system; if an EFVS is certified according to the applicable airworthiness requirements and an operator holds the necessary specific approval (when required), then it may be used for EFVS operations and may allow operations with operational credits;'

- (46a) 'EFVS operation' means an operation in which visibility conditions require an EFVS to be used instead of natural vision in order to perform an approach or landing, identify the required visual references or conduct a roll-out;
- (46b) 'EFVS 200 operation' means an operation with an operational credit in which visibility conditions require an EFVS to be used down to 200 ft above the FATO or runway threshold. From that point to land, natural vision is used. The RVR shall not be less than 550 m;'
- (47) enhanced vision system (EVS)' means a system to display electronic real-time images of the external scene achieved through the use of imaging sensors; 'enhanced vision system (EVS)' is an electronic means to provide the flight crew with a real-time image of the actual external scene topography (the natural or man-made features of a place or region especially in a way to show their relative positions and elevation) through the use of imaging sensors;
- (47a) 'enrolment' means the administrative action carried out by the operator where a pilot participates in the operator's EBT programme;
- (47b) 'enrolled pilot' means the pilot that participates in the EBT recurrent training programme;
- (47c) 'equivalency of approaches means all the approaches that place an additional demand on a proficient crew regardless of whether they are used or not in the EBT modules;
- (47d) 'equivalency of malfunctions' means all the malfunctions that put a significant demand on a proficient crew regardless of whether they are used or not in the EBT modules;
- (47e) 'evaluation phase' means one of the phases of an EBT modulewhich is a lineorientated flight scenario, representative of the operator's environment during which there are one or more occurrences to evaluate key elements of the defined competency framework;
- (47f) 'evidence-based training (EBT)' means assessment and training based on operational data that is characterised by developing and assessing the overall capability of a pilot across a range of competencies (competency framework) rather than by measuring the performance in individual events or manoeuvres;
- (48) 'final approach and take-off area (FATO)' means a defined area for helicopter 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, the defined area includes the rejected takeoff area available;
- (48a) 'flight crew member' means a licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period;

(48b) 'final approach segment (FAS)' means that segment of an instrument approach procedure (IAP) in which alignment and descent for landing are accomplished;

(49) 'flight data monitoring (FDM)' means the proactive and non-punitive use of digital flight data from routine operations to improve aviation safety;

(49a) 'flight operations officer' or 'flight dispatcher' means a person designated by the operator to engage in the control and supervision of flight operations, who is suitably qualified, who supports, briefs or assists, or both, the pilot-in-command in the safe conduct of the flight;

(49b) 'flight data recorder (FDR)' means a crash-protected flight recorder that uses a combination of data sources to collect and record parameters that reflect the state and performance of the aircraft;

(49c) 'flight recorder' means any type of recorder that is installed on the aircraft for the purpose of facilitating accident or incident safety investigations;

(49d) 'flight following' means the recording in real time of departure and arrival messages by operational personnel to ensure that a flight is operating and has arrived at the destination aerodrome or an alternate aerodrome;

(49e) 'flight monitoring' means, in addition to the requirements defined for flight following:

- (a) operational monitoring of flights by suitably qualified operational-control personnel from departure throughout all phases of the flight;
- (b) communication of all available and relevant safety information between the operational-control personnel on the ground and the flight crew; and
- (c) critical assistance to the flight crew in the event of an in-flight emergency or security issue, or at the request of the flight crew;
 - (50) 'flight simulation training device (FSTD)' means a training device which is:
- (a) in the case of aeroplanes, a full flight simulator (FFS), a flight training device (FTD), a flight and navigation procedures trainer (FNPT), or a basic instrument training device (BITD);
- (b) in the case of helicopters, a full flight simulator (FFS), a flight training device (FTD) or a flight and navigation procedures trainer (FNPT);

(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;
- (50b) 'flight watch' means, in addition to all elements defined for 'flight monitoring', the active tracking of a flight by suitably qualified operational-control personnel throughout all phases of the flight

to ensure that the flight is following its prescribed route without unplanned deviations, diversions or delays;

- 51) 'fuel ERA aerodrome' means an ERA aerodrome selected for the purpose of reducing contingency fuel;
- (52) 'GBAS landing system (GLS)' means an approach landing system using ground based augmented global navigation satellite system (GNSS/GBAS) information to provide guidance to the aircraft based on its lateral and vertical GNSS position. It uses geometric altitude reference for its final approach slope;
- (52a) 'go-around' means a transition from an approach operation to a stabilised climb. This includes manoeuvres conducted at or above the MDA/H or DA/H, or below the DA/H (balked landings);
- (53) 'ground emergency service personnel' means any ground emergency service personnel (such as policemen, firemen, etc.) involved with helicopter emergency medical services (HEMSs) and whose tasks are to any extent pertinent to helicopter operations;
- (54) 'grounding' means the formal prohibition of an aircraft to take-off and the taking of such steps as are necessary to detain it;
- (55) head-up display (HUD)' means a display system which presents flight information to the pilot's forward external field of view and which does not significantly restrict the external view;

'head-up display landing system (HUDLS)' means the total airborne system which provides head-up guidance to the pilot to enable the pilot to either manually control the flightpath of the aircraft or to monitor the autopilot during take-off (if applicable), approach and landing (and roll-out if applicable), or go-around. It includes all the sensors, computers, power supplies, indications and controls;

- (56) head-up guidance landing system (HUDLS)' means the total airborne system that provides head-up guidance to the pilot during the approach and landing and/or missedapproach procedure. It includes all sensors, computers, power supplies, indications and controls;
- (57) ...
- (58) 'helicopter hoist operation (HHO) crew member' means a technical crew member who performs assigned duties relating to the operation of a hoist;
- (59) 'helideck' means a FATO located on a floating or fixed offshore structure;
- (60) 'HEMS crew member' means a technical crew member who is assigned to a HEMS flight for the purpose of attending to any person in need of medical assistance carried in the helicopter and assisting the pilot during the mission;
- (61) 'HEMS flight' means a flight by a helicopter operating under a HEMS approval, the purpose of which is to facilitate emergency medical assistance, where immediate and rapid transportation is essential, by carrying:
 - (a) medical personnel;
 - (b) medical supplies (equipment, blood, organs, drugs); or

- (c) ill or injured persons and other persons directly involved;
- (62) 'HEMS operating base' means an aerodrome at which the HEMS crew members and the HEMS helicopter may be on stand-by for HEMS operations;
- (63) 'HEMS operating site' means a site selected by the commander during a HEMS flight for helicopter hoist operations, landing and take-off;
- (64) 'HHO flight' means a flight by a helicopter operating under an HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist;
- (65) 'HHO offshore' means a flight by a helicopter operating under an HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist from or to a vessel or structure in a sea area or to the sea itself;
- (66) 'HHO passenger' means a person who is to be transferred by means of a helicopter hoist;
- (67) 'HHO site' means a specified area at which a helicopter performs a hoist transfer;
- (68) 'hold-over time (HoT)' means the estimated time the anti-icing fluid will prevent the formation of ice and frost and the accumulation of snow on the protected (treated) surfaces of an aeroplane;
- (69) 'hostile environment' means:
 - (a) an area in which:
 - (i) a safe forced landing cannot be accomplished because the surface is inadequate; or
 - (ii) the helicopter occupants cannot be adequately protected from the elements; or

(iii) search and rescue response/capability are not provided consistent with anticipated exposure; or

- (iv) there is an unacceptable risk of endangering persons or property on the ground;
- (b) in any case, the following areas:

(i) for overwater operations, the open sea area north of 45 N and south of 45 S, unless any part is designated as non-hostile by the responsible authority of the State in which the operations take place; and

- (ii) those parts of a congested area without adequate safe forced landing areas;
- (69a) 'human-machine interface (HMI)' means a component of certain devices that is capable of handling human-machine interactions. The interface consists of hardware and software that allow user inputs to be interpreted and processed by machines or systems that, in turn, provide the required results to the user;
- (69b) 'in-seat instruction' means a technique used in the manoeuvres training phase or the scenario-based training phase, where the instructors can:
 - (a) provide simple instructions to one pilot; or

(b) perform predetermined exercises acting, in a pilot seat, as pilot flying (PF) or pilot monitoring (PM) for:

- (1) the demonstration of techniques; and/or
- (2) triggering the other pilot to intervene or interact;
- (69c) 'instructor concordance' means the consistency or stability of scores between different EBT instructors which gives a score (or scores) of how much homogeneity, or consensus, there is in the ratings given by instructors (raters);
- 69d) 'instrument approach operation' means an approach and landing using instruments for navigation guidance based on an instrument approach procedure (IAP). There are two methods for executing instrument approach operations:
 - (a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and
 - (b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance;
- (69e) 'instrument approach procedure (IAP)' means a series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix or, where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. IAPs are classified as follows:
 - (a) non-precision approach (NPA) procedure, which means an IAP designed for 2D instrument approach operations Type A;

Notes – Non precision approach procedures may be flown using a continuous descent final approach (CDFA) technique. CDFAs with advisory guidance calculated by on-board equipment (See PANS-OPS Doc1688 Volume 1) are considered 3D instrument approach operations. CDFAs with manual calculation guidance of the required rate of descent or with advisory vertical are considered 2D instrument approach operations.

- (b) approach procedure with vertical guidance (APV) means a performance-based navigation (PBN) IAP designed for 3D instrument approach operations Type A;
- (c) precision approach (PA) procedure means an IAP based on navigation systems designed for 3D instrument approach operations Type A or B;'

(70) 'landing decision point (LDP)' means the point used in determining landing performance from which, an engine failure having been recognised at this point, the landing may be safely continued or a balked landing initiated;

(70a) 'landing distance at time of arrival (LDTA)' means a landing distance that is achievable in normal operations based on landing performance data and associated procedures determined for the prevailing conditions at the time of landing;

(71) 'landing distance available (LDA)' means 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;

(72) 'landplane' means a fixed wing aircraft which is designed for taking off and landing on land and includes amphibians operated as landplanes;

(72a) 'line-orientated flight scenario' means the assessment and training involving a realistic, 'real-time', full mission simulation of scenarios that are representative of line operations;

- (72b) 'line check' means a check conducted by the operator and completed by the pilot or the technical crew member to demonstrate competence in carrying out normal line operations described in the operations manual;
- (73) 'local helicopter operation (LHO)' means a commercial air transport operation of helicopters with a maximum certified take-off mass (MCTOM) over 3 175kg and a maximum operational passenger seating configuration (MOPSC) of nine or less, by day, over routes navigated by reference to visual landmarks, conducted within a local and defined geographical area specified in the operations manual;
- (74) low visibility procedures (LVP)' means procedures applied at an aerodrome for the purpose of ensuring safe operations during lower than standard category I, other than standard category II, category II and III approaches and low visibility take offs

'low-visibility operations (LVOs)' means approach or take-off operations on a runway with a runway visual range less than 550 m or with a decision height less than 200 ft;

(75) 'low visibility take-off (LVTO)' means a take-off with an RVR lower than 400 m but not less than 75 m;

'low-visibility take-off (LVTO)' means a take-off with an RVR less than 550 m;'

- (76) 'lower than standard category I (LTS CAT I) operation' means a category I instrumentapproach and landing operation using category I DH, with an RVR lower than would normally be associated with the applicable DH but not lower than 400 m;
- (76a) 'maintenance check flight ("MCF")' means a flight of an aircraft with an airworthiness certificate or with a permit to fly which is carried out for troubleshooting purposes or to check the functioning of one or more systems, parts or appliances after maintenance, if the functioning of the systems, parts or appliances cannot be established during ground checks and which is carried out in any of the following situations:

(a) as required by the aircraft maintenance manual ('AMM') or any other maintenance data issued by a design approval holder being responsible for the continuing airworthiness of the aircraft;

(b) after maintenance, as required by the operator or proposed by the organisation responsible for the continuing airworthiness of the aircraft;

(c) as requested by the maintenance organisation for verification of a successful defect rectification;

- (d) to assist with fault isolation or troubleshooting;
- (76b) 'manoeuvres training phase' means a phase of an EBT module during which, according to aircraft generation, crews have time to practise and improve performance in largely psychomotor skill-based exercises by achieving a prescribed flight path or performing a prescribed event to a prescribed outcome;
- (76c) 'mixed EBT programme' means an operator's recurrent training and checking programme as per ORO.FC.230, a portion of which is dedicated to the application of EBT

but which does not replace proficiency checks as per Appendix 9 to Annex I (Part-FCL) to <u>Regulation (EU) No 1178/2011;</u>

- (77) 'maximum operational passenger seating configuration (MOPSC)' means the maximum passenger seating capacity of an individual aircraft, excluding crew seats, established for operational purposes and specified in the operations manual. Taking as a baseline the maximum passenger seating configuration established during the certification process conducted for the type certificate (TC), supplemental type certificate (STC) or change to the TC or STC as relevant to the individual aircraft, the MOPSC may establish an equal or lower number of seats, depending on the operational constraints;
- (78) 'medical passenger' means a medical person carried in a helicopter during a HEMS flight, including but not limited to doctors, nurses and paramedics;
- (78a) 'minor failure condition' means a failure condition that would not significantly reduce aircraft safety, and which involves flight crew actions that are well within their capabilities;
- (78b) 'misuse of substances' means the use of one or more psychoactive substances by flight crew, cabin crew members and other safety-sensitive personnel in a way that:

(a) constitutes a direct hazard to the user or endangers the lives, health or welfare of others; and/or

- (b) causes or worsens an occupational, social, mental or physical problem or disorder;
- (78c) 'minimum descent altitude (MDA) or minimum descent height (MDH)' means a specified altitude or height in a 2D instrument approach operation or circling approach below which descent must not be made without the required visual reference;
- 79) 'night' means [the time from half an hour after sunset until half an hour before sunrise (both times inclusive), sunset and sunrise being determined at surface level];
- (80) 'night vision goggles (NVG)' means a head-mounted, binocular, light intensification appliance that enhances the ability to maintain visual surface references at night;
- (81) 'night vision imaging system (NVIS)' means the integration of all elements required to successfully and safely use NVGs while operating a helicopter. The system includes as a minimum: NVGs, NVIS lighting, helicopter components, training and continuing airworthiness;
- (82) 'non-hostile environment' means an environment in which: In any case, those parts of a congested area with adequate safe forced landing areas shall be considered non-hostile;
 - (a) a safe forced landing can be accomplished;
 - (b) the helicopter occupants can be protected from the elements; and

(c) search and rescue response/capability is provided consistent with the anticipated exposure.

(83) 'non-precision approach (NPA) operation' means an instrument approach with a minimum descent height (MDH), or DH when flying a CDFA technique, not lower than 250 ft and an RVR/CMV of not less than 750 m for aeroplanes and 600 m for helicopters; (84) 'NVIS crew member' means a technical crew member assigned to an NVIS flight;

(85) 'NVIS flight' means a flight under night visual meteorological conditions (VMC) with the flight crew using NVGs in a helicopter operating under an NVIS approval;

(85a) 'obstacle clearance altitude (OCA) or obstacle clearance height (OCH)' means the lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation, as applicable, used in establishing compliance with the appropriate obstacle clearance criteria;

(86) 'offshore operation' means a helicopter operation that has a substantial proportion of any flight conducted over open sea areas to or from an offshore location;

(86a) 'offshore location' means a facility intended to be used for helicopter operations on a fixed or floating offshore structure or a vessel;

(86b) 'open sea area' means the area of water to seaward of the coastline;

(87) 'operating site' means a site, other than an aerodrome, selected by the operator or pilotin-command or commander for landing, take-off and/or external load operations;

(88) 'operation in performance class 1' means an operation that, in the event of failure of the critical engine, the helicopter is able to land within the rejected take-off distance available or safely continue the flight to an appropriate landing area, depending on when the failure occurs;

(89) 'operation in performance class 2' means an operation that, in the event of failure of the critical engine, performance is available to enable the helicopter to safely continue the flight, except when the failure occurs early during the take-off manoeuvre or late in the landing manoeuvre, in which cases a forced landing may be required;

(90) 'operation in performance class 3' means an operation that, in the event of an engine failure at any time during the flight, a forced landing may be required in a multi-engined helicopter and will be required in a single-engined helicopter;

(91) 'operational control' means the responsibility for the initiation, continuation, termination or diversion of a flight in the interest of safety;

- (91a) 'operational credit' means a credit for operations with an advanced aircraft enabling lower aerodrome operating minima than would normally be established by the operator for a basic aircraft, based upon the performance of advanced aircraft systems utilising the available external infrastructure. Lower operating minima may include a lower decision height/altitude or minimum descent height/altitude, reduced visibility requirements or reduced ground facilities or a combination of these;
- (92) 'other than standard category II (OTS CAT II) operation' means a precision instrument approach and landing operation using ILS or MLS where some or all of the elements of the precision approach category II light system are not available, and with:

(a)DH below 200 ft but not lower than 100 ft; and

(b)RVR of not less than 350 m;

'operator proficiency check' means a check conducted by the operator and completed by the pilot or the technical crew member to demonstrate competence in carrying out normal, (93) 'performance class A aeroplanes' means multi-engined aeroplanes powered by turbo-

propeller engines with an MOPSC of more than nine or a maximum take-off mass exceeding 5700 kg, and all multi-engined turbo-jet powered aeroplanes;

- (94) 'performance class B aeroplanes' means aeroplanes powered by propeller engines with an MOPSC of nine or less and a maximum take-off mass of 5700 kg or less;
- (95) 'performance class C aeroplanes' means aeroplanes powered by reciprocating engines with an MOPSC of more than nine or a maximum take-off mass exceeding 5700 kg;
- (95a) 'personnel-carrying device system (PCDS)' means a system including one or more devices that is either attached to a hoist or cargo hook or mounted to the rotorcraft airframe during human external cargo (HEC) or helicopter hoist operations (HHO). The devices have the structural capability and features needed to transport occupants external to the helicopter e.g. a life safety harness with or without a quick release and strop with a connector ring, a rigid basket or a cage;
- (95b) 'simple personnel carrying device system (simple 'PCDS')' means a PCDS that complies with the following conditions:
 - (a) meets a harmonised standard under Regulation (EU) 2016/425 of the European Parliament and of the Council or Directive 2006/42/EC of the European Parliament and of the Council;
 - (b) is designed to restrain no more than a single person (for instance, hoist or cargo hook operator, task specialist or photographer) inside the cabin, or to restrain no more than two persons outside the cabin;
 - (c) is not a rigid structure such as a cage, a platform or a basket;
- (96) 'pilot-in-command' 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, the 'pilot-in-command' shall be termed the 'commander';
- (96a) 'portable EFB' means a portable EFB host platform, used on the flight deck, which is not part of the configuration of the certified aircraft;
- (96b) 'portable electronic device (PED)' means any kind of electronic device, typically but not limited to consumer electronics, brought on board the aircraft by crew members, passengers, or as part of the cargo, that is not included in the configuration of the certified aircraft. It includes all equipment that is able to consume electrical energy. The electrical energy can be provided from internal sources such as batteries (chargeable or nonrechargeable) or the devices may also be connected to specific aircraft power sources;
- (97) 'principal place of business' means the head office or registered office of the organisation within which the principal financial functions and operational control of the activities referred to in this Regulation are exercised;
- (98) 'prioritisation of ramp inspections' means the dedication of an appropriate portion of the total number of ramp inspections conducted by the CAA on an annual basis as provided in Part-ARO;
- (98a) 'proficient' means having demonstrated the necessary skills, knowledge and attitudes that are required to perform any defined tasks to the prescribed standard;
- (100) 'ramp inspection' means the inspection of aircraft, of flight and cabin crew qualifications

and of flight documentation in order to verify the compliance with the applicable requirements;

- (101) 'rectification interval' means a limitation on the duration of operations with inoperative equipment;
- (102) 'rejected take-off distance available (RTODAH)' means 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;
- (103) 'rejected take-off distance required (RTODRH)' means 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;
- (103a) 'required navigation performance (RNP) specification' means a navigation specification for PBN operations which includes a requirement for on-board navigation performance monitoring and alerting;
- (103b) 'rules of the air' means the rules established in Commission Implementing Regulation (EU) No 923/2012;
- (103c) 'runway condition report (RCR)' means a comprehensive standardised report relating to the conditions of the runway surface and their effect on the aeroplane landing and take-off performance, described by means of runway conditions code;
- (104) 'runway visual range (RVR)' means the range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line;
- (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 with no less than the final reserve fuel/energy remaining and in compliance with the applicable operational procedures and aerodrome operating minima;
- (105) 'safe forced landing' means an unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface;
- (105a) 'safety-sensitive personnel' means persons who, if they fail to perform their duties or functions properly, may endanger the safety of an aircraft or its occupants;
- (105b) 'scenario-based training phase' means a phase of an EBT module which focuses on the development of competencies, whilst the pilot is trained to mitigate the most critical risks identified for the aircraft generation. It should include the management of specific operator's threats and errors in a real-time line-orientated environment;
- (106) 'seaplane' means a fixed wing aircraft which is designed for taking off and landing on water and includes amphibians operated as seaplanes;
- (107) 'separate runways' means runways at the same aerodrome that are separate landing surfaces. These runways may overlay or cross in such a way that if one of the runways is blocked, it will not prevent the planned type of operations on the other runway. Each runway shall have a separate approach procedure based on a separate navigation aid;
- (107a) 'specially prepared winter runway' means a runway with a dry frozen surface of compacted snow or ice which has been treated with sand or grit or has been mechanically

treated to improve runway friction;

- (108) 'special VFR flight' means a VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC;
- (109) 'stabilised approach (SAp)' means an approach that is flown in a controlled and appropriate manner in terms of configuration, energy and control of the flight path from a pre-determined point or altitude/height down to a point 50 ft above the threshold or the point where the flare manoeuvre is initiated if higher;
- (109a) 'sterile flight crew compartment' means any period of time when the flight crew members are not disturbed or distracted, except for matters critical to the safe operation of the aircraft or the safety of the occupants;
- (110) 'take-off alternate aerodrome' means an alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and if it is not possible to use the aerodrome of departure;
- (111) 'take-off decision point (TDP)' means the point used in determining 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;
- (112) 'take-off distance available (TODA)' in the case of aeroplanes means the length of the take-off run available plus the length of the clearway, if provided;
- (113) 'take-off distance available (TODAH)' in the case of helicopters means the length of the final approach and take-off area plus, if provided, the length of helicopter clearway declared available and suitable for helicopters to complete the take-off;
- (114) 'take-off distance required (TODRH)' in the case of helicopters means the horizontal distance required from the start of the take-off to the point at which take-off safety speed (VTOSS), a 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;
- (115) 'take-off flight path' means the vertical and horizontal path, with the critical engine inoperative, from a specified point in the take-off for aeroplanes to 1500 ft above the surface and for helicopters to 1000 ft above the surface;
- (116) 'take-off mass' means the mass including everything and everyone carried at the commencement of the take-off for helicopters and take-off run for aeroplanes;
- (117) 'take-off run available (TORA)' means the length of runway that is declared available by the State of the aerodrome and suitable for the ground run of an aeroplane taking off;
- (117a) 'task specialist' means a person assigned by the operator or a third party, or acting as an undertaking, who performs tasks on the ground directly associated with a specialised task or performs specialised tasks on board or from the aircraft;
- (118) 'technical crew member' means a crew member in commercial air transport HEMS, 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, HHO or NVIS operations, which may require the operation of specialised on-board equipment;

- (119) 'technical instructions (TI)' means the latest effective edition of the 'Technical instructions for the safe transport of dangerous goods by air', including the supplement and any addenda, approved and published by the International Civil Aviation Organisation;
- (120) 'traffic load' means the total mass of passengers, baggage, cargo and carry-on specialist equipment and including any ballast;
- (120a) 'type A EFB application' means an EFB application whose malfunction or misuse has no safety effect;
- (120b) 'type B EFB application' means an EFB application:
- (a) whose malfunction or misuse is classified as minor failure condition or below; and
- (b) which neither replaces nor duplicates any system or functionality required by airworthiness regulations, airspace requirements, or operational rules;
- (120c) 'training to proficiency' means training designed to achieve end-state performance objectives, providing sufficient assurance that the trained individual is capable of consistently carrying out specific tasks safely and effectively;
- (120d) 'Type A instrument approach operation' means an instrument approach operation with an MDH or a DH at or above 250 ft;
- (120e) 'Type B instrument approach operation' means an operation with a DH below 250 ft. Type B instrument approach operations are categorised as:
 - (a) Category I (CAT I): a DH not lower than 200 ft and with either a visibility not less than 800 m or an RVR not less than 550 m;
 - (b) Category II (CAT II): a DH lower than 200 ft but not lower than 100 ft, and an RVR not less than 300 m;
 - (c) Category III (CAT III): a DH lower than 100 ft or no DH, and an RVR less than 300 m or no RVR limitation;'
- (121) 'unaided NVIS flight' means, in the case of NVIS operations, that portion of a VFR flight performed at night when a crew member is not using NVG;
- (122) 'undertaking' means any natural or legal person, whether profit-making or not, or any official body whether having its own personality or not;
- (123) 'V1' means the maximum speed in the take-off at which the pilot must take the first action to stop the aeroplane within the accelerate-stop distance. V1 also means the minimum speed in the take-off, following a failure of the critical engine at VEF, at which the pilot can continue the take-off and achieve the required height above the take-off surface within the take-off distance;
- (124) 'VEF' means the speed at which the critical engine is assumed to fail during take-off;
- (124a) 'visibility (VIS)' means visibility for aeronautical purposes, which is the greater of:
 - (a) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognised when observed against a bright background; and
 - (b) the greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background;

(125) visual approach' means an approach when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to the terrain;

'visual approach operation' means an approach operation by an IFR flight when either a part or all parts of an IAP is (are) not completed and the approach operation is completed with visual reference to terrain;

(126) 'weather-permissible aerodrome' means an adequate aerodrome where, for the anticipated time of use, weather reports, or forecasts, or any combination thereof, indicate that the weather conditions will be at or above the required aerodrome operating minima, and the runway surface condition reports indicate that a safe landing will be possible;

...

'weather-permissible aerodrome' means an adequate aerodrome where, for the anticipated time of use, meteorological reports, or forecasts, or any combination thereof, indicate that the meteorological conditions will be at or above the required aerodrome operating minima, and the runway surface condition reports indicate that a safe landing will be possible;

Annex II AUTHORITY REQUIREMENTS FOR AIR OPERATIONS (Part-ARO)

ARO.OPS.225 Approval of fuel/energy schemes operations to an isolated aerodrome

The approval referred to in CAT.OP.MPA.106 shall include a list of the aerodromes specified by the operator to which the approval applies.

- (a) The CAA shall approve the fuel/energy scheme proposed by a CAT operator if the operator demonstrates compliance with all applicable requirements laid down in this Regulation related to fuel/energy for aeroplanes or helicopters involved in CAT.
- (b) The CAA shall assess and oversee the fuel/energy planning and in-flight re-planning, selection of aerodrome and, in-flight fuel/energy management policies associated with the fuel/energy schemes, together with the processes supporting the implementation of these fuel/energy schemes.
- (c) In addition to points (a) and (b), when approving individual fuel/energy schemes, the CAA shall:
 - verify that the operator has demonstrated the baseline safety performance of the current fuel/energy scheme;
 - (2) assess the capability of the operator to support the implementation of the proposed individual fuel/energy scheme; the following elements shall be considered as a minimum:
 - (i) the operator's management system,
 - (ii) the operator's operational capabilities;

. . .

- (3) verify that the operator's safety risk assessment that supports the proposed individual fuel/energy scheme achieves an equivalent level of safety to that of the current fuel/energy scheme; and
- (4) establish an oversight plan to carry out periodic assessments of the approved individual fuel/energy scheme to verify compliance of the scheme or decide whether the scheme should be amended or revoked.
- (d) The approval referred to in point CAT.OP.MPA.182 (d)(2) shall include a list of the isolated aerodromes that are specified by the operator for each aircraft type to which the approval applies.

Appendix II

OPERATIONS SPECIFICATIONS (subject to the approved conditions in the operations manual)

CAA ⁽¹⁾ : contact details							
Telephone ⁽²⁾ :; Fax:;							
Email:							
AOC ⁽⁴⁾ :	Operator name ⁽⁵⁾ : Date			Date (6	⁶⁾ :	Signature:	
	Dba trading name						
Operations specifications #:							
Aircraft model ⁽⁷⁾ :							
Registration marks ⁽⁸⁾ :							
Types of operations: Commercial air transport							
□ Passengers	□ Cargo				□ Others ⁽⁹⁾ :		
Area of operation ⁽¹⁰⁾ :							
Special limitations ⁽¹¹⁾ :							
Specific approvals:	Yes	No	Specification ⁽¹²⁾				Remarks
Dangerous goods:							
Low-visibility operations							
Take-off			RVR ⁽¹³⁾ m				
Approach and landing			CAT ⁽¹⁴⁾ DA/H: ft, RVR: m				
Operational credits			CAT ⁽¹⁵⁾ DA/H: ft, RVR: m				
RVSM ⁽¹⁶⁾ D N/A							
			☐ Maximum diversion time ⁽¹⁸⁾ : min.				
Complex navigation specifications for PBN operations ⁽¹⁹⁾							(18)
Minimum navigation performance specification							
Operations of single-engined turbine aeroplane at night or in IMC (SET-IMC)			(20)				
Helicopter operations with the aid of night vision imaging systems							
Helicopter hoist operations							
Helicopter emergency medical service operations							
Helicopter offshore operations							
Cabin crew training ⁽²²⁾							
Issue of CC attestation ⁽²³⁾							
Use of type B EFB applications			(22)				
Continuing airworthiness			(23)				
Others ⁽²⁴⁾							
CAA Form 139 ⁽²⁷⁾							

- Words substituted by Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019/645 Pt 4(5) reg.357(3)(a) (December 31, 2020: shall come into force on IP completion day not exit day as specified in 2020 c.1 s.39(1) and Sch.5 para.1(1))
- (2) Telephone contact details of the CAA, including the country code. Email to be provided if available.
- (3) Words substituted by Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019/645 Pt 4(5) reg.357(3)(b) (December 31, 2020: shall come into force on IP completion day not exit day as specified in 2020 c.1 s.39(1) and Sch.5 para.1(1))
- (4) Insertion of associated air operator certificate (AOC) number.
- (5) Insertion of the operator's registered name and the operator's trading name, if different. Insert 'Dba' before the trading name (for 'Doing business as').
- (6) Issue date of the operations specifications (dd-mm-yyyy) and signature of the CAA representative.
- (7) 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).
- (8) Either 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 remark column to the related specific approval.
- (9) Other type of transportation to be specified (e.g. emergency medical service).
- (10) Listing of geographical area(s) of authorised operation (by geographical coordinates or specific routes, flight information region or national or regional boundaries).
- (11) Listing of applicable special limitations (e.g. VFR only, Day only, etc.).
- (12) List in this column the most permissive criteria for each approval or the approval type (with appropriate criteria).
- (13) Insertion of applicable precision approach category: LTS CAT I, CAT II, OTS CAT II, CAT IIIA, CAT IIIB or CAT IIIC. Insertion of minimum runway visual range (RVR) in meters and decision height (DH) in feet. One line is used per listed approach category. Insertion of approved minimum take-off RVR in metres. One line per approval may be used if different approvals are granted.
- (14) Insertion of approved minimum take-off RVR in metres. One line per approval may be used if different approvals are granted. 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.
- (15) The Not Applicable (N/A) box may be checked only if the aircraft maximum ceiling is below FL290. 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.
- (16) 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 less

or more than two engines. The Not Applicable (N/A) box may be checked only if the aircraft maximum ceiling is below FL290.

- (17) The threshold distance may also be listed (in NM), as well as the engine type. 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 less or more than two engines.
- (18) 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. The threshold distance may also be listed (in NM), as well as the engine type.
- (19) Specify if the specific approval is limited to certain runway ends or aerodromes, or both. 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.
- (20) Insertion of the particular airframe or engine combination. Specify if the specific approval is limited to certain runway ends or aerodromes, or both.
- (21) 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 UK Regulation (EU) No 1178/2011 Insertion of the particular airframe or engine combination.
- (22) Approval to issue cabin crew attestations as specified in Annex V (Part-CC) to UK Regulation (EU) No 1178/2011. 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 UK Regulation (EU) No 1178/2011.
- (23) 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. Approval to issue cabin crew attestations as specified in Annex V (Part-CC) to UK Regulation (EU) No 1178/2011.
- (24) The name of the person or organisation responsible for ensuring that the continuing airworthiness of the aircraft is maintained and a reference to the regulation that requires the work, i.e. Subpart G of Annex I (Part-M) to UK Regulation (EU) No 1321/2014. 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 manual.
- (25) 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). The name of the person or organisation responsible for ensuring that the continuing airworthiness of the aircraft is maintained and a reference to the regulation that requires the work, i.e. Subpart G of Annex I (Part-M) to **UK Regulation (EU) No 1321/2014**.

- (26) Words substituted by Aviation Safety (Amendment) (EU Exit) Regulations 2020/1116 Pt 4(3) reg.64(3) (December 31, 2020: shall come into force on IP completion day) 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).
- (27) Words substituted by Aviation Safety (Amendment) (EU Exit) Regulations 2020/1116 Pt
 4(3) reg.64(3) (December 31, 2020: shall come into force on IP completion day)

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Annex III ORGANISATION REQUIREMENTS FOR AIR OPERATIONS (Part-ORO)

ORO.FC.100 Composition of flight crew

- (a) The composition of the flight crew and the number of flight crew members at designated crew stations shall be not less than the minimum specified in the aircraft flight manual or operating limitations prescribed for the aircraft.
- (b) The flight crew shall include additional flight crew members when required by the type of operation and shall not be reduced below the number specified in the operations manual.
- (c) All flight crew members shall hold a licence and ratings issued or accepted in accordance with **UK Regulation (EU) No 1178/2011** and appropriate to the duties assigned to them.
- (d) The flight crew member may be relieved in flight of his or *i* her duties at the controls by another suitably qualified flight crew member.
- (e) When engaging the services of flight crew members who are working on a freelance or parttime basis, the operator shall verify that all applicable requirements of this Subpart and the relevant elements of Annex I (Part-FCL) to UK Regulation (EU) No 1178/2011, including the requirements on recent experience, are complied with, taking into account all services rendered by the flight crew member to other operator(s) to determine in particular:
 - (1) the total number of aircraft types or variants operated; and
 - (2) the applicable flight and duty time limitations and rest requirements.
- (f) Specific requirements for helicopter operations

If the helicopter is operated with a crew of two pilots, each pilot shall either:

- (1) hold a certificate of satisfactory completion of a multi-crew cooperation (MCC) course in helicopters in accordance with UK Regulation (EU) No 1178/2011; or
- (2) have at least 500 hours of flight time as a pilot in multi-pilot operations.

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

(a) In accordance with 8.e of Annex IV to Regulation (EC) No 216/2008, one pilot amongst the flight crew, qualified as pilot-in-command in accordance with Annex I (Part-FCL) to UK Regulation (EU) No 1178/2011, shall be designated by the operator as pilot-in-command or, for commercial air transport operations, as commander.

- (b) The operator shall only designate a flight crew member to act as pilot-incommand/commander if he/she has:
 - (1) the minimum level of experience specified in the operations manual;
 - (2) adequate knowledge of the route or area to be flown and of the aerodromes, including alternate aerodromes, facilities and procedures to be used;
 - (3) in the case of multi-crew operations, completed an operator's command course if upgrading from co-pilot to pilot-in-command/commander.
- (c) In the case of commercial operations of aeroplanes and helicopters, the pilot-incommand/commander or the pilot, to whom the conduct of the flight may be delegated, shall have had initial familiarisation training of the route or area to be flown and of the aerodromes, facilities and procedures to be used. This route/area and aerodrome knowledge shall be maintained by operating at least once on the route or area or to the aerodrome within a 12month period.
- (d) Point (c) shall not apply in the case of:
 - (1) performance class B aeroplanes involved in commercial air transport operations under VFR by day; and
 - (2) commercial air transport operations of passengers conducted under VFR by day, starting and ending at the same aerodrome or operating site or within a local area specified by the CAA, with other-than complex motor-powered helicopters, singleengined, with a MOPSC of 5.
- (a) In accordance with point 8.6 of Annex V to UK Regulation (EU) 2018/1139, one pilot amongst the flight crew, qualified as pilot-in-command in accordance with Annex I (Part-FCL) to UK Regulation (EU) No 1178/2011, shall be designated by the operator as pilot-in-command or, for commercial air transport operations, as commander.
- (b) The operator shall only designate a flight crew member to act as pilot-incommand/commander if all of 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, facilities and procedures to be used;
 - (3) in the case of multi-crew operations, the flight crew member has completed an operator's command course if upgrading from co-pilot to pilot-incommand/commander.
- (c) the case of commercial operations of aeroplanes and helicopters, In the pilot-in-command/commander or the pilot to whom the conduct of the flight may be delegated shall have had initial familiarisation training on the route or area to be flown and on the aerodromes, facilities and procedures to be used and shall maintain this knowledge as follows:
 - (1) The validity of the aerodrome knowledge shall be maintained by operating at least once on the aerodrome within a 12 calendar months' period.

- (2) The route or area knowledge shall be maintained by operating at least once to the route or area within a 36 months' period. In addition, refresher training is required regarding route or area knowledge if not operating on a route or area for 12 months within the 36-month period.
- (d) Notwithstanding point (c), in the case of operations under VFR by day with performance class B and C aeroplanes and helicopters, familiarisation training on the route and aerodromes may be replaced by area familiarisation training.

ORO.FC.125 Differences training, and familiarization, equipment and procedure training

- (a) Flight crew members shall complete differences or familiarisation training when required by Annex I (Part-FCL) to UK Regulation (EU) No 1178/2011 and when changing equipment or procedures requiring additional knowledge on types or variants currently operated.
- (b) The operations manual shall specify when such differences or familiarisation training is required.
- (a) Flight crew members shall complete differences training or familiarisation when required by Annex I (Part- FCL) to **UK Regulation (EU) No. 1178/2011**.
- (b) Flight crew members shall complete equipment and procedure training when changing equipment or changing procedures requiring additional knowledge on types or variants currently operated.
- (c) The operations manual shall specify when such differences training or familiarisation or equipment and procedure training is required.'

ORO.FC.130 Recurrent training and checking

- (a) Each flight crew member shall complete annual recurrent flight and ground training relevant to the type or variant, and associated equipment of aircraft on which he or /she operates, including training on the location and use of all emergency and safety equipment carried on board the aircraft.
- (b) Each flight crew member shall be periodically checked to demonstrate competence in carrying out normal, abnormal and emergency procedures.

ORO.FC.140 Operation on more than one type or variant

(a) Flight crew members operating more than one type or variant of aircraft shall comply with the requirements prescribed in this Subpart for each type or variant, unless credits related to the training, checking, and recent experience requirements are defined in the mandatory part of the operational suitability data established in accordance with Regulation (EU) No 748/2012 for the relevant types or variants.

- (b) Appropriate procedures and/or operational restrictions shall be specified in the operations manual for any operation on more than one type or variant.
- (a) Flight crew members that operate more than one type or variant of aircraft shall comply with the requirements prescribed in this Subpart for each type or variant, unless credits related to the training, checking, and recent experience requirements are defined in the mandatory part of the operational suitability data established in accordance with UK Regulation (EU) No 748/2012 for the relevant types or variants.
- (b) The operator may define groups of single-engined helicopter types. An operator proficiency check on one type shall be valid for all the other types within the group if both of the following conditions are met:
 - the group either includes only single-engined turbine helicopters operated under VFR or it includes only single-engined piston helicopters operated under VFR;
 - (2) for CAT operations, at least two operator proficiency checks per type shall be conducted within a 3-year cycle.
- (c) For specialised operations, elements of the aircraft/FSTD training and operator proficiency check that cover the relevant aspects associated with the specialised task and are not related to the type or group of types may be credited towards the other groups or types, based on a risk assessment performed by the operator.
- (d) For operations on more than one helicopter type or variant that are 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.
- (e) Appropriate procedures and any operational restrictions shall be specified in the operations manual for any operation on more than one type or variant.

ORO.FC.145 Provision of training, checking and assessment

- (a) All training, checking and assessment required in this Subpart shall be conducted in accordance with the training programmes and syllabi established by the operator in the operations manual;
- (b) When establishing the training programmes and syllabi, the operator shall include the relevant elements defined in the mandatory part of the operational suitability data established in accordance with **UK Regulation (EU) No 748/2012**.
- (c) In the case of CAT operations, training and checking programmes, including syllabi and use of individual flight simulation training devices (FSTDs), shall be approved by the CAA. In the case of CAT operations, training and checking programmes, including syllabi and the use of the means to deliver the programme such as individual flight simulation training devices (FSTDs) and other training solutions, shall be approved by the CAA.
- (d) The FSTD shall replicate the aircraft used by the operator, as far as practicable. Differences between the FSTD and the aircraft shall be described and addressed through a briefing or training, as appropriate. The FSTD used to meet the requirements of this Subpart shall be qualified in accordance with UK Regulation (EU) No 1178/2011 and it shall replicate the aircraft used by the operator, as far as practicable. Differences between the FSTD and the aircraft shall be described and addressed through a briefing or training, as appropriate.

- (e) The operator shall establish a system to adequately monitor changes to the FSTD and to ensure that those changes do not affect the adequacy of the training programmes.
- (f) The operator shall monitor the validity of each recurrent training and checking.
- (g) The validity periods required in this Subpart shall be counted from the end of the month in which the recency, training or check was completed.

ORO.FC.146 Personnel providing training, checking and assessment

- (a) All training, checking and assessment required in this Subpart shall be conducted by appropriately qualified personnel.
- (b) In the case of flight and flight simulation training and checking, the personnel that provides the training and conducts the checks shall be qualified in accordance with Annex I (Part-FCL) to UK Regulation (EU) No 1178/2011. In the case of flight and flight simulation training, checking and assessment, the personnel that provide the training and conduct the checking or assessment shall be qualified in accordance with Annex I (Part- FCL) to UK Regulation (EU) No 1178/2011. Additionally, the personnel providing training and conducting checking towards specialised operations shall be suitably qualified for the relevant operation.
- (c) For an EBT programme, the personnel that performs assessment and provides training shall:
 - (1) hold an Annex I (Part-FCL) instructor or examiner certificate;
 - (2) complete the operator's EBT instructor standardisation programme. This shall include an initial standardisation programme and a recurrent standardisation programme.

Completion of the operator's EBT initial standardisation will qualify the instructor to perform EBT practical assessment.

- (d) Notwithstanding point (b) above, the line evaluation of competence shall be conducted by a suitably qualified commander nominated by the operator that is standardised in EBT concepts and the assessment of competencies (line evaluator). Notwithstanding point (b), the line evaluation of competence may be conducted by a suitably qualified commander nominated by the operator that is standardised in EBT concepts and the assessment of competencies (line evaluator).
- (e) Notwithstanding point (b), the aircraft/FSTD training and the operator proficiency check may be conducted by a suitably qualified commander holding a FI/TRI/SFI certificate and nominated by the operator for any of the following operations:
 - (1) CAT operations of helicopters meeting the criteria defined in point ORO.FC.005(b)(2);
 - (2) CAT operations of other than complex motor-powered helicopters by day and over routes navigated by reference to visual landmarks;
 - (3) CAT operations of performance class B aeroplanes that do not meet the criteria defined in point ORO.FC.005(b)(1).

- (f) Notwithstanding point (b), the aircraft/FSTD training and the demonstration of competence/operator proficiency check may be conducted by a suitably qualified pilot-in-command/commander nominated by the operator for any of the following operations:
 - (1) specialised operations;
 - (2) CAT operations of aeroplanes meeting the criteria defined in point ORO.FC.005(b)(1).
- (g) Notwithstanding point (b), the line check may be conducted by a suitably qualified commander nominated by the operator.
- (h) The operator shall inform the CAA about the persons nominated under points (e) to (g).

ORO.FC.200 Composition of flight crew

- (a) There shall not be more than one inexperienced flight crew member in any flight crew.
- (b) The commander may delegate the conduct of the flight to another pilot suitably qualified in accordance with Annex I (Part-FCL) to UK Regulation (EU) No 1178/2011 provided that the requirements of ORO.FC.105(b)(1), (b)(2) and (c) are complied with.
- (c) Specific requirements for aeroplane operations under instrument flight rules (IFR) or at night.
 - (1) The minimum flight crew shall be two pilots for all turbo-propeller aeroplanes with a maximum operational passenger seating configuration (MOPSC) of more than nine and all turbojet aeroplanes.
 - (2) Aeroplanes other than those covered by (c)(1) shall be operated with a minimum crew of two pilots, unless the requirements of ORO.FC.202 are complied with, in which case they may be operated by a single pilot.
- (d) Specific requirements for helicopter operations.
 - (1) For all operations of helicopters with an MOPSC of more than 19 and for operations under IFR of helicopters with an MOPSC of more than 9:
 - (i) the minimum flight crew shall be two pilots; and
 - (ii) the commander shall be the holder of an airline transport pilot licence (helicopter) (ATPL(H)) with an instrument rating issued in accordance with Annex I (Part-FCL) to UK Regulation (EU) No 1178/2011.
 - (2) Operations not covered by (d)(1) may be operated by a single pilot under IFR or at night provided that the requirements of ORO.FC.202 are complied with.

For all operations of helicopters with an MOPSC of more than 19 and for operations under IFR of helicopters with an MOPSC of more than 9, the minimum flight crew shall be two pilots.

ORO.FC.202 Single-pilot operations under IFR or at night

In order to be able to fly under IFR or at night with a minimum flight crew of one pilot, as foreseen in ORO.FC.200(c)(2) and (d)(2), the following shall be complied with:

- (a) The operator shall include in the operations manual a pilot's conversion and recurrent training programme that includes the additional requirements for a single-pilot operation. The pilot shall have undertaken training on the operator's procedures, in particular regarding:
 - (1) engine management and emergency handling;
 - (2) use of normal, abnormal and emergency checklist;
 - (3) air traffic control (ATC) communication;
 - (4) departure and approach procedures;
 - (5) autopilot management, if applicable;
 - (6) use of simplified in-flight documentation;
 - (7) single-pilot crew resource management.
- (b) The recurrent checks required by ORO.FC.230 shall be performed in the single-pilot role on the relevant type or class of aircraft in an environment representative of the operation. INTENTIONALLY LEFT BLANK
- (c) For aeroplane operations under IFR the pilot shall have:
 - (1) a minimum of 50 hours flight time under IFR on the relevant type or class of aeroplane, of which 10 hours are as commander; and
 - (2) completed during the preceding 90 days on the relevant type or class of aeroplane:
 - (i) five IFR flights, including three instrument approaches, in a single-pilot role; or
 - (ii) an IFR instrument approach check.
- (d) For aeroplane operations at night the pilot shall have:
 - (1) a minimum of 15 hours flight time at night which may be included in the 50 hours flight time under IFR in (c)(1); and
 - (2) completed during the preceding 90 days on the relevant type or class of aeroplane:
 - (i) three take-offs and landings at night in the single pilot role; or
 - (ii) a night take-off and landing check.
- (e) For helicopter operations under IFR the pilot shall have:
 - (1) 25 hours total IFR flight experience in the relevant operating environment; and

- (2) 25 hours flight experience as a single pilot on the specific type of helicopter, approved for single-pilot IFR, of which 10 hours may be flown under supervision, including five sectors of IFR line flying under supervision using the single-pilot procedures; and
- (3) completed during the preceding 90 days:
 - (i) five IFR flights as a single pilot, including three instrument approaches, carried out on a helicopter approved for this purpose; or
 - (ii) an IFR instrument approach check as a single pilot on the relevant type of helicopter, flight training device (FTD) or full flight simulator (FFS).

ORO.FC.220 Operator conversion training and checking

- (a) CRM training shall be integrated into the operator conversion training course.
- (b) Once an operator conversion course has been commenced, the flight crew member shall not be assigned to flying duties on another type or class of aircraft until the course is completed or terminated. Crew members operating only performance class B aeroplanes may be assigned to flights on other types of performance class B aeroplanes during conversion courses to the extent necessary to maintain the operation. Crew members may be assigned to flights on single-engined helicopters during an operator conversion course on a single-engined helicopter, provided that the training is unaffected.
- (c) The amount of training required by the flight crew member for the operator's conversion course shall be determined in accordance with the standards of qualification and experience specified in the operations manual, taking into account his/her previous training and experience.
- (d) The flight crew member shall complete:
 - (1) the 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 line flying under supervision. For performance class B aeroplanes, LIFUS may be performed on any aeroplane within the applicable class.
- (e) In the case of aeroplanes, pilots that have been issued a type rating based on a zero flighttime training ('ZFTT') course shall:
 - commence line flying under supervision not later than 21 days after the completion of the skill test or after appropriate training provided by the operator. The content of that training shall be described in the operations manual;
 - (2) complete six take-offs and landings in an FSTD not later than 21 days after the completion of the skill test under the supervision of a type rating instructor for aeroplanes ('TRI(A)') occupying the other pilot seat. The number of take-offs and landings may be reduced when credits are defined in the mandatory part of the operational suitability data established in accordance with UK Regulation (EU) No 748/2012. If those take-offs and landings have not been performed within 21 days, the operator shall provide refresher training the content of which shall be described in the operations manual;

- (3) conduct the first four take-offs and landings of the LIFUS in the aeroplane under the supervision of a TRI(A) occupying the other pilot seat. The number of take-offs and landings may be reduced when credits are defined in the mandatory part of the operational suitability data established in accordance with **UK Regulation (EU) No 748/2012.**
- (f) 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 operator to comply with the requirements in (d), the operator may develop a specific conversion course, to be used temporarily for a limited number of pilots.

ORO.FC.230 Recurrent training and checking

- (a) Each flight crew member shall complete recurrent training and checking relevant to the type or variant of aircraft on which they operate.
- (b) Operator proficiency check
 - (1) Each flight crew member shall complete operator proficiency checks as part of the normal crew complement to demonstrate competence in carrying out normal, abnormal and emergency procedures.
 - (2) When the flight crew member will be required to operate under IFR, the operator proficiency check shall be conducted without external visual reference, as appropriate.
 - (3) The validity period of the operator proficiency check shall be six calendar months. For operations under VFR by day of performance class B aeroplanes conducted during seasons not longer than eight consecutive months, one operator proficiency check shall be sufficient. The proficiency check shall be undertaken before commencing commercial air transport operations.
 - (4) The flight crew member involved in operations by day and over routes navigated by reference to visual landmarks with an other-than complex motor-powered helicopter may complete the operator proficiency check in only one of the relevant types held. The operator proficiency check shall be performed each time on the type least recently used for the proficiency check. The relevant helicopter types that may be grouped for the purpose of the operator proficiency check shall be contained in the operations manual.
 - (5) Notwithstanding ORO.FC.145(a)(2), for operations of other-than complex motorpowered helicopters by day and over routes navigated by reference to visual landmarks and performance class B aeroplanes, the check may be conducted by a suitably qualified commander nominated by the operator, trained in CRM concepts and the assessment of CRM skills. The operator shall inform the CAA about the persons nominated.
- (c) Line check
 - (1) Each flight crew member shall complete a line check on the aircraft to demonstrate competence in carrying out normal line operations described in the operations manual. The validity period of the line check shall be 12 calendar months.

- (2) Notwithstanding **ORO.FC.145(a)(2)**, line checks may be conducted by a suitably qualified commander nominated by the operator, trained in CRM concepts and the assessment of CRM skills.
- (d) Emergency and safety equipment training and checking

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

- (e) CRM training
 - (1) Elements of CRM shall be integrated into all appropriate phases of the recurrent training.
 - (2) Each flight crew member shall undergo specific modular CRM training. All major topics of CRM training shall be covered by distributing modular training sessions as evenly as possible over each three year period.
- (f) Each flight crew member shall undergo ground training and flight training in an FSTD or an aircraft, or a combination of FSTD and aircraft training, at least every 12 calendar months.
- (g) The validity periods mentioned in (b)(3), (c) and (d) shall be counted from the end of the month when the check was taken.
- (h) When the training or checks required above are undertaken within the last three months of the validity period, the new validity period shall be counted from the original expiry date.
- (a) Each flight crew member shall complete recurrent training and checking relevant to the type or variant, and associated equipment of aircraft on which they operate.

(b) Operator proficiency check

- (1) Each flight crew member shall complete operator proficiency checks as part of the normal crew complement.
- (2) When the flight crew member will be required to operate under IFR, the operator proficiency check shall be conducted without external visual reference, as appropriate.
- (3) The validity period of the operator proficiency check shall be 6 calendar months. For operations under VFR by day of performance class B aeroplanes that are conducted during seasons not longer than 8 consecutive months, one operator proficiency check shall be sufficient. The proficiency check shall be undertaken before commencing CAT operations.
- (c) Line check

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

(e) CRM training

- (1) Elements of CRM shall be integrated into all appropriate phases of the recurrent training.
- (2) Each flight crew member shall undergo specific modular CRM training. All major topics of 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 undergo ground training and flight training in an FSTD or an aircraft, or a combination of FSTD and aircraft training, at least every 12 calendar months.

ORO.FC.235 Pilot qualification to operate in either pilot's seat - aeroplanes

- (a) Commanders whose duties require them to operate in either pilot seat and carry out the duties of a co-pilot, or commanders required to conduct training or checking duties, shall complete additional training and checking to ensure that they are proficient in conducting the relevant normal, abnormal and emergency procedures from either seat. Such training and checking shall as be specified in the operations manual. The checking may be conducted together with the operator proficiency check prescribed in point ORO.FC.230(b) or in the EBT programme prescribed in point-ORO.FC.231.
- (b) The additional training and checking shall include at least the following:
 - (1) an engine failure during take-off;
 - (2) a one-engine-inoperative approach and go-around; and
 - (3) a one-engine-inoperative landing.
- (c) In the case of helicopters, commanders shall also complete their proficiency checks from left- and right-hand seats, on alternate proficiency checks, provided that when the type rating proficiency check is combined with the operator proficiency check the commander completes his/her training or checking from the normally occupied seat. The validity period shall be 12 calendar months. For operators with an approved EBT programme, the validity is determined by the assessment and training topics in accordance with ORO.FC.232.
- (d) When engine-out manoeuvres are carried out in an aircraft, the engine failure shall be simulated. When operating in the co-pilot's seat, the checks required by ORO.FC.230 or the assessment and training required by ORO.FC.231 for operating in the commander's seat shall, in addition, be valid and current.
- (e) When operating in the co-pilot's seat, the checks required by ORO.FC.230 for operating in the commander's seat shall, in addition, be valid and current. The pilot relieving the commander shall have demonstrated, concurrent with the operator proficiency checks prescribed in ORO.FC.230(b) or the assessment and training required by ORO.FC.231, practice of drills and procedures that would not normally be his or her responsibility. Where the differences between left- and right-hand seats are not significant, practice may be conducted in either seat.
- (f) The pilot relieving the commander shall have demonstrated, concurrent with the operator proficiency checks prescribed in **ORO.FC.230(b)**, practice of drills and procedures that would

not, normally, be his/her responsibility. Where the differences between left- and right-hand seats are not significant, practice may be conducted in either seat. The pilot, other than the commander, occupying the commander's seat shall demonstrate practice of drills and procedures, concurrent with the operator proficiency checks prescribed in **ORO.FC.230(b)** or the assessment and training required by **ORO.FC.231**, which are the commander's responsibility acting as pilot monitoring. Where the differences between left- and right-hand seats are not significant, practice may be conducted in either seat.

(g) The pilot other than the commander occupying the commander's seat shall demonstrate practice of drills and procedures, concurrent with the operator proficiency checks prescribed in ORO.FC.230(b), which are the commander's responsibility acting as pilot monitoring. Where the differences between left- and right-hand seats are not significant, practice may be conducted in either seat.

ORO.FC.236 Pilot qualification to operate in either pilot's seat — helicopters

- (a) Helicopter pilots whose duties require them to operate in either pilot's seat shall complete additional training and checking to ensure that they are proficient in conducting the relevant normal, abnormal and emergency procedures from either seat. The validity period of this qualification shall be 12 calendar months.
- (b) Current FIs or TRIs on the relevant type are considered to fulfil the requirement of point (a) if they have had a FI or TRI activity in the last 6 months on that type and on the helicopter.

ORO.FC.240 Operation on more than one type or variant

- (a) The procedures or operational restrictions for operation on more than one type or variant established in the operations manual and approved by the CAA shall cover:
 - (1) the flight crew members' minimum experience level;
 - (2) the minimum experience level on one type or variant before beginning training for and operation of another type or variant;
 - (3) the process whereby flight crew qualified on one type or variant will be trained and qualified on another type or variant; and
 - (4) all applicable recent experience requirements for each type or variant.
- (b) When a flight crew member operates both helicopters and aeroplanes, that flight crew member shall be limited to operations on only one type of aeroplane and one type of helicopter. INTENTIONALLY LEFT BLANK
- (c) Point (a) shall not apply to operations of performance class B aeroplane if they are limited to single-pilot classes of reciprocating engine aeroplanes under VFR by day. Point (b) shall not apply to operations of performance class B aeroplane if they are limited to single-pilot classes of reciprocating engine aeroplanes. Point (a) shall not apply to operations of performance class B aeroplanes if they are limited to single-pilot classes of reciprocating engine aeroplanes under VFR by day.

ORO.FC.A.245 Alternative training and qualification programme

- (a) The aeroplane operator having appropriate experience may substitute one or more of the following training and checking requirements for flight crew by an alternative training and qualification programme (ATQP), approved by the CAA:
 - (1) set out in point **SPA.LVO.120** on flight crew training and qualifications;
 - (2) set out in point **ORO.FC.220** conversion training and checking;
 - (3) set out in point **ORO.FC.125**_differences training and familiarisation training;
 - (4) set out in point **ORO.FC.205** command course;
 - (5) set out in point **ORO.FC.230** recurrent training and checking; and
 - (6) set out in point **ORO.FC.240** operation on more than one type or variant.
- (b) The ATQP shall contain training and checking that establishes and maintains at least an equivalent level of proficiency achieved by complying with the provisions of ORO.FC.220 and ORO.FC.230. The level of flight crew training and qualification proficiency shall be demonstrated prior to being granted the ATQP approval by the CAA.
- (c) The operator applying for an ATQP approval shall provide the CAA with an implementation plan, including a description of the level of flight crew training and qualification proficiency to be achieved.
- (d) In addition to the checks required by ORO.FC.230 and FCL.060 of Annex I (Part-FCL) to UK Regulation (EU) No1178/2011, each flight crew member shall complete a line oriented evaluation (LOE) conducted in an FSTD. The validity period of an LOE shall be 12 calendar months. The validity period shall be counted from the end of the month when the check was taken. When the LOE is undertaken within the last three months of the validity period, the new validity period shall be counted from the original expiry date. The LOE is completed when both of the following conditions are met:
 - (1) the syllabus of the LOE is completed; and
 - (2) the flight crew member has demonstrated an acceptable level of performance.
- (e) After two years of operating with an approved ATQP, the operator may, with the approval of the CAA, extend the validity periods of the checks referred to in ORO.FC.230 as follows:
 - (1) Operator proficiency check to 12 calendar months. The validity period shall be counted from the end of the month when the check was taken. When the check is undertaken within the last three months of the validity period, the new validity period shall be counted from the original expiry date.
 - (2) Line check to 24 calendar months. The validity period shall be counted from the end of the month when the check was taken. When the check is undertaken within the last six months of the validity period, the new validity period shall be counted from the original expiry date.
 - (3) Emergency and safety equipment checking to 24 calendar months. The validity period shall be counted from the end of the month when the check was taken. When the check

is undertaken within the last six months of the validity period, the new validity period shall be counted from the original expiry date.

- (f) Each flight crew member shall undergo specific modular CRM training. All major topics of CRM training shall be covered by distributing modular training sessions as evenly as possible over each 3-year period.
- (g) The ATQP programme shall include 48 hours on an FSTD for each flight crew member, distributed evenly over a 3-year programme. The operator may reduce the number of FSTD hours, but no lower than 36 hours, provided that it demonstrates that the level of safety that is achieved is equivalent to that of the programme the ATQP may substitute in accordance with point (a).

ORO.FC.H.250 Commanders holding a CPL(H)

- (a) Holders The holder of a CPL(H) (helicopter) shall only act as commanders in CAT commercial air transport on a single-pilot helicopter if:
 - (1) when operating under IFR, he/she has they have a minimum of 700 hours total flight time on helicopters, including 300 hours as pilot-in-command. These hours The total flight time on helicopters shall include 100 hours under IFR. The 300 hours as pilot-in-command may be substituted by hours operating as co-pilot within an established multi-pilot crew system prescribed in the operations manual on the basis of two hours of flight time as co-pilot for one hour flight time as pilot-in command; Up to 50 hours instrument time performed on an FFS(H) level B or FTD level 3 qualification or higher qualified for instrument training, may be credited towards the 100 hours. The 300 hours as pilot-in-command may be substituted by hours operating as co-pilot within an established multi-pilot crew system prescribed in the operations manual on the basis of hours instrument training. The substituted by hours operating as co-pilot within an established multi-pilot crew system prescribed in the operations manual on the basis of hours as pilot-in-command may be substituted by hours operating as co-pilot within an established multi-pilot crew system prescribed in the operations manual on the basis of 2 hours of flight time as co-pilot for 1 hour flight time as pilot-in command;
 - (2) when operating under visual meteorological conditions (VMC) at night, he/she has:
 - (i) a valid instrument rating; or
 - (ii) 300 hours of flight time on helicopters, including 100 hours as pilot-in-command and 10 hours as pilot flying at night.

ORO.FC.320 Operator conversion training and checking

The operator conversion course shall include an operator proficiency check.

ORO.FC.325 Equipment and procedure training and checking

If a flight crew member undergoes equipment and procedure training that requires training on a suitable FSTD or the aircraft, with regard to standard operating procedures related to a specialised operation, the flight crew member shall undergo an operator proficiency check.

ORO.FC.330 Recurrent training and checking — operator proficiency check

- (a) Each flight crew member shall complete operator proficiency checks. to demonstrate his/her competence in carrying out normal, abnormal and emergency procedures, covering the relevant aspects associated with the specialised tasks described in the operations manual. Each flight crew member shall complete recurrent training and operator proficiency checks. In the case of specialised operations, the recurrent training and checking shall cover the relevant aspects associated with the specialised tasks described in the operations manual.
- (b) Appropriate consideration shall be given when operations are undertaken under IFR or at night.
- (c) The validity period of the operator proficiency check shall be 12 calendar months. The validity period shall be counted from the end of the month when the check was taken. When the operator proficiency check is undertaken within the last three months of the validity period, the new validity period shall be counted from the original expiry date.

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DECLARATION				
in accordance with UK Regulation (EU) No 965/2012 on air operations				
Place in which the operator has its principal place of business or, if the operator has no principal place of business, place in which the operator is established or residing and place from which the operations are directed:				
Name and contact details of the accountable manager:				
Aircraft operation				
Starting date of operation and applicability date of the change:				
Information on aircraft, operation and continuing airworthiness management organisation ⁽¹⁾ :				
Type(s) of aircraft, registration(s) and main base:				
				Organisation responsible
Aircraft type	Aircraft	Main	Type(s) of	for the continuing
	registration ⁽³⁾	base	operation	airworthiness
				management ⁽⁵⁾
	the operato ss, place in lirected: act details o n operation a ircraft, ope ift, registrat	DECLAR accordance with UK Regulation (the operator has its principal places, place in which the operator is lirected: act details of the accountable mana n operation and applicability date of ircraft, operation and continuing a aft, registration(s) and main base: Aircraft type	DECLARATION accordance with UK Regulation (EU) No set the operator has its principal place of bus bas, place in which the operator is establish lirected: act details of the accountable manager: n operation and applicability date of the char ircraft, operation and continuing airworthin aft, registration(s) and main base: Aircraft Aircraft Main	DECLARATION accordance with UK Regulation (EU) No 965/2012 on a the operator has its principal place of business or, if the ss, place in which the operator is established or resident lirected: act details of the accountable manager: n operation and applicability date of the change: ircraft, operation and continuing airworthiness manager ft, registration(s) and main base: Aircraft type Aircraft type Aircraft Main Type(s) of operation

	The operator shall obtain a prior approval ⁽⁶⁾ or specific approval ⁽⁷⁾ for certain operations before conducting such operations.					
Wher	Where applicable, details of approvals held. Attach the list of specific approvals. Include:				provals. Include:	
_	 specific approvals granted by a third country, if applicable; name of operations conducted with operational credits (e.g. EFVS 200, SA CAT I, etc.). 					
	re applicab cable).	le, details	of specialised operatio	ons auth	orisation held	d (attach authorisation(s), if
	Where applicable, list of alternative means of compliance (AltMoC) with references to the associated AMC they replace (attach AltMoC).					
State	Statements					
	The operator complies, and continues to comply, with the essential requirements set out in Annex V to UK Regulation (EU) 2018/1139 of the European Parliament and of the Council and with the requirements of UK Regulation (EU) No 965/2012.					
	The management system documentation, including the operations manual, shall comply with the requirements of Annex III (Part-ORO), Annex V (Part-SPA), Annex VI (Part-NCC) or Annex VIII (Part-SPO) to UK Regulation (EU) No 965/2012 and all flights shall be made in accordance with the provisions of the operations manual as required by point ORO.GEN.110(b) of Part-ORO.					
	All operat	ed aircraft s	shall hold:			
 a valid certificate of airworthiness in accordance with UK Regulation (EU) No 748/2012 or, for aircraft registered in a third country, in accordance with ICAO Annex 8; and when used for SPO activities, a valid lease agreement as per ORO.SPO.100. 						
	All flight crew members shall hold a licence in accordance with Annex I to UK Regulation (EU) No 1178/2011 as required by point ORO.FC.100(c) of Part-ORO, and cabin crew members shall, where applicable, be trained in accordance with Subpart CC of Part-ORO.					
	(If applie	cable)				
The o	operator sh	all impleme	nt and demonstrate co	nformity	to a recognis	ed industry standard.
Refe	Reference of the standard:					
Certi	Certification body:					
Date of the last conformity audit:						
	The operator shall notify to the CAA ⁽⁸⁾ any changes in circumstances affecting its compliance with the essential requirements set out in Annex V to UK Regulation (EU) 2018/1139 and with the requirements of UK Regulation (EU) No 965/2012 as declared to the CAA through this declaration, and any changes to the information and lists of AltMoC included in and annexed to this declaration, as required by point ORO.GEN.120(a) of Part-ORO.					
	The opera	ator shall co	onfirm that the informati	on disclo	osed in this de	eclaration is correct.
Date, name, and signature of the accountable manager						

- (1) If there is not enough space to list the required information in the declaration, the information shall be listed in a separate annex. The annex shall be dated and signed.
- (2) If the aircraft is also registered with an AOC holder, specify the AOC number of the AOC holder. Manufacturer serial number.
- (3) Type(s) of operation' refers to the type of operations conducted with this aircraft, e.g. non-commercial operations or specialised operations, e.g. aerial photography flights, aerial advertising flights, news media flights, television and movie flights, parachute operations, skydiving, maintenance check flights. If the aircraft is also registered with an AOC holder, specify the AOC number of the AOC holder.
- (4) Information about the organisation responsible for the continuing airworthiness management shall include the name of the organisation, its address, and the approval reference. 'Type(s) of operation' refers to the type of operations conducted with this aircraft, e.g. non-commercial operations or specialised operations, e.g. aerial photography flights, aerial advertising flights, news media flights, television and movie flights, parachute operations, skydiving, maintenance check flights.
- (5) Words substituted by Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019/645 Pt 4(5) reg.365 (December 31, 2020: commenced by an amendment) Information about the organisation responsible for the continuing airworthiness management shall include the name of the organisation, its address, and the approval reference.
- (6) (a) Operations with any defective instrument or piece of equipment or item or function, under a minimum equipment list (MEL) (points ORO.MLR.105 (b), (f), and (j), NCC.IDE.A.105, NCC.IDE.H.105, SPO.IDE.A.105, and SPO.IDE.H.105).

(b) Operations requiring prior authorisation or approval, including all of the following:

- for specialised operations, wet lease-in and dry lease-in of aircraft registered in a third country (point ORO.SPO.100 (c));
- high-risk commercial specialised operations (point ORO.SPO.110);
- non-commercial operations with aircraft with an MOPSC of more than 19, which are performed without an operating cabin crew member (point ORO.CC.100 (d));
- use of IFR operating minima that are lower than those published by the State (points NCC.OP.110 and SPO.OP.110);
- refuelling with engine(s) and/or rotors turning (point NCC.OP.157);
- specialised operations (SPO) without oxygen above 10 000 ft (point SPO.OP.195).
- (7) Operations in accordance with Annex V (Part-SPA) to UK Regulation (EU) No 965/2012, including Subparts B 'Performance based navigation (PBN) operations', C 'Operations with specified minimum navigation performance (MNPS)', D 'Operations in airspace with reduced vertical separation minima (RVSM)', E 'Low-visibility operations (LVOs) and operations with operational credits', G 'Transport of dangerous goods', K 'Helicopter offshore operations' and N 'Helicopter point-in-space approaches and departures with reduced VFR minima'.
- (8) Words substituted by Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019/645 Pt 4(5) reg.365 (December 31, 2020: commenced by an amendment)



CAT.GEN.MPA.100 Crew responsibilities

- (a) The crew member shall be responsible for the proper execution of his or *i* her duties that are:
 - (1) related to the safety of the aircraft and its occupants; and
 - (2) specified in the instructions and procedures in the operations manual.
- (b) The crew member shall:
 - (1) report to the commander any fault, failure, malfunction or defect which the crew member believes may affect the airworthiness or safe operation of the aircraft including emergency systems, if not already reported by another crew member;
 - (2) report to the commander any incident that endangered, or could have endangered, the safety of the operation, if not already reported by another crew member;
 - (3) comply with the relevant requirements of the operator's occurrence reporting schemes;
 - (4) comply with all flight and duty time limitations (FTL) and rest requirements applicable to their activities;
 - (5) when undertaking duties for more than one operator:
 - (i) maintain his/her individual records regarding flight and duty times and rest periods as referred to in applicable FTL requirements; and
 - (ii) provide each operator with the data needed to schedule activities in accordance with the applicable FTL requirements, and

(iii) provide each operator with the data needed regarding operations on more than one type or variant.

- (c) The crew member shall not perform duties on an aircraft:
 - (1) when under the influence of psychoactive substances or when unfit due to injury, fatigue, medication, sickness or other similar causes;
 - (2) until a reasonable time period has elapsed after deep water diving or following blood donation;
 - (3) if applicable medical requirements are not fulfilled;
 - (4) if he or *i* she is in any doubt of being able to accomplish his or *i* her assigned duties; or

(5) if he or / she knows or suspects that or / she is suffering from fatigue as referred to in Annex V, point 7.5 7.f of Annex IV to UK Regulation (EC) No 216/2008 or feels otherwise unfit, to the extent that the flight may be endangered.

CAT.OP.MPA.100 Use of air traffic services

- (a) The operator shall ensure that:
 - (1) air traffic services (ATS) appropriate to the airspace and the applicable rules of the air are used for all flights whenever available;
 - (2) in-flight operational instructions involving a change to the ATS flight plan, when practicable, are coordinated with the appropriate ATS unit before transmission to an aircraft.
- (b) Notwithstanding (a), the use of ATS is not required unless mandated by air space requirements for:
 - (1) operations under VFR by day of other-than complex motor-powered aeroplanes;
 - (2) helicopters with an MCTOM of 3175 kg or less operated by day and over routes navigated by reference to visual landmarks; or
 - (3) local helicopter operations (LHOs), provided that search and rescue service arrangements can be maintained.

CAT.OP.MPA.101 Altimeter check and settings

- (a) The operator shall establish procedures for altimeter checking before each departure.
- (b) The 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 aerodrome or the State of the airspace, if applicable.

CAT.OP.MPA.106 Use of isolated aerodromes — aeroplanes

- (a) Using an isolated aerodrome as destination aerodrome with aeroplanes requires the prior approval by the CAA.
- (b) An isolated aerodrome is one for which the alternate and final fuel reserve required to the nearest adequate destination alternate aerodrome is more than:
 - (1) for aeroplanes with reciprocating engines, fuel to fly for 45 minutes plus 15 % of the flying time planned to be spent at cruising level or two hours, whichever is less; or
 - (2) for aeroplanes with turbine engines, fuel to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel.

CAT.OP.MPA.107 Adequate aerodrome

The operator shall consider an aerodrome as adequate if, at the expected time of use, the aerodrome is available and equipped with necessary ancillary services such as air traffic services (ATS), sufficient lighting, communications, weather reporting meteorological reports, navigation aids and emergency services.

CAT.OP.MPA.110 Aerodrome operating minima

- (a) The operator shall establish aerodrome operating minima for each departure, destination or alternate aerodrome planned to be used. These minima shall not be lower than those established for such aerodromes by the State in which the aerodrome is located, except when specifically approved by that State. Any increment specified by the CAA shall be added to the minima.
- (b) The use of a head-up display (HUD), head-up guidance landing system (HUDLS) or enhanced vision system (EVS) may allow operations with lower visibilities than the established aerodrome operating minima if approved in accordance with SPA.LVO.
- (c) When establishing aerodrome operating minima, the operator shall take the following into account:
 - (1) the type, performance and handling characteristics of the aircraft;
 - (2) the composition, competence and experience of the flight crew;
 - (3) the dimensions and characteristics of the runways/final approach and take-off areas (FATOs) that may be selected for use;
 - (4) the adequacy and performance of the available visual and non-visual ground aids;
 - (5) the equipment available on the aircraft for the purpose of navigation and/or control of the flight path during the take-off, the approach, the flare, the landing, rollout and the missed approach;
 - (6) for the determination of obstacle clearance, the obstacles in the approach, missed approach and the climb-out areas necessary for the execution of contingency procedures;
 - (7) the obstacle clearance altitude/height for the instrument approach procedures;
 - (8) the means to determine and report meteorological conditions; and
 - (9) the flight technique to be used during the final approach.
- (d) The operator shall specify the method of determining aerodrome operating minima in the operations manual.
- (e) The minima for a specific approach and landing procedure shall only be used if all the following conditions are met:

- (1) the ground equipment shown on the chart required for the intended procedure is operative;
- (2) the aircraft systems required for the type of approach are operative;
- (3) the required aircraft performance criteria are met; and
- (4) the crew is appropriately qualified.
- (a) The operator shall establish aerodrome operating minima for each departure, destination or alternate aerodrome that is planned to be used in order to ensure separation of the aircraft from terrain and obstacles and to mitigate the risk of loss of visual references during the visual flight segment of instrument approach operations.
- (b) The method used to establish aerodrome operating minima shall take all the following elements into account:
 - (1) the type, performance, and handling characteristics of the aircraft;
 - (2) the equipment available on the aircraft for the purpose of navigation, acquisition of visual references, and/or control of the flight path during take-off, approach, landing, and the missed approach;
 - (3) any conditions or limitations stated in the aircraft flight manual (AFM);
 - (4) the relevant operational experience of the operator;
 - (5) the dimensions and characteristics of the runways/final approach and take-off areas (FATOs) that may be selected for use;
 - the adequacy and performance of the available visual and non-visual aids and infrastructure;
 - the obstacle clearance altitude/height (OCA/H) for the instrument approach procedures (IAPs);
 - (8) the obstacles in the climb-out areas and necessary clearance margins;
 - (9) the composition of the flight crew, their competence and experience;
 - (10) the IAP;
 - (11) the aerodrome characteristics and the available air navigation services (ANS);
 - (12) any minima that may be promulgated by the State of the aerodrome;
 - (13) the conditions prescribed in the operations specifications including any specific approvals for low-visibility operations (LVOs) or operations with operational credits.
 - (14) any non-standard characteristics of the aerodrome, the IAP or the environment
- (c) The operator shall specify a method of determining aerodrome operating minima in the operations manual.

(d) The method used by the operator to establish aerodrome operating minima and any change to that method shall be approved by the CAA.

CAT.OP.MPA.115 Approach flight technique — aeroplanes

- (a) All approaches shall be flown as stabilised approaches unless otherwise approved by the CAA for a particular approach to a particular runway.
- (b) Non-precision approaches
 - (1) The continuous descent final approach (CDFA) technique shall be used for all nonprecision approaches.
 - (2) Notwithstanding (1), another approach flight technique may be used for a particular approach/runway combination if approved by the CAA. In such cases, the applicable minimum runway visual range (RVR):
 - (i) shall be increased by 200 m for category A and B aeroplanes and by 400 m for category C and D aeroplanes; or
 - (ii) for aerodromes where there is a public interest to maintain current operations and the CDFA technique cannot be applied, shall be established and regularly reviewed by the CAA taking into account the operator's experience, training programme and flight crew qualification.
- (a) All approach operations shall be flown as stabilised approach operations unless otherwise approved by the CAA for a particular approach to a particular runway.
- (b) The continuous descent final approach (CDFA) technique shall be used for approach operations using non-precision approach (NPA) procedures except for such particular runways for which the CAA has approved another flight technique.

CAT.OP.MPA.150 Fuel policy

- (a) The operator shall establish a fuel policy for the purpose of flight planning and in-flight replanning to ensure that every flight carries sufficient fuel for the planned operation and reserves to cover deviations from the planned operation. The fuel policy and any change to it require prior approval by the CAA.
- (b) The operator shall ensure that the planning of flights is based upon at least:
 - (1) procedures contained in the operations manual and:
 - (i) data provided by the aircraft manufacturer; or
 - (ii) current aircraft-specific data derived from a fuel consumption monitoring system;

and

(2) the operating conditions under which the flight is to be conducted including:

- (i) aircraft fuel consumption data;
- (ii) anticipated masses;
- (iii) expected meteorological conditions; and
- (iv) air navigation services provider(s) procedures and restrictions.
- (c) The operator shall ensure that the pre-flight calculation of usable fuel required for a flight includes:
 - (1) taxi fuel;
 - (2) trip fuel;
 - (3) reserve fuel consisting of:
 - (i) contingency fuel;
 - (ii) alternate fuel, if a destination alternate aerodrome is required;
 - (iii) final reserve fuel; and
 - (iv) additional fuel, if required by the type of operation;

and

- (4) extra fuel if required by the commander.
- (d) The operator shall ensure that in flight replanning procedures for calculating usable fuel required when a flight has to proceed along a route or to a destination aerodrome other than originally planned includes:
 - (1) trip fuel for the remainder of the flight; and
 - (2) reserve fuel consisting of:
 - (i) contingency fuel;
 - (ii) alternate fuel, if a destination alternate aerodrome is required;
 - (iii) final reserve fuel; and
 - (iv) additional fuel, if required by the type of operation;

and

(3) extra fuel if required by the commander.

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CAT.OP.MPA.151 Fuel policy — alleviations

- (a) Notwithstanding CAT.OP.MPA.150(b) to (d), for operations of performance class B aeroplanes the operator shall ensure that the pre-flight calculation of usable fuel required for a flight includes:
 - (i) taxi fuel, if significant;
 - (ii) trip fuel;
 - (iii) reserve fuel, consisting of:
 - (A) contingency fuel that is not less than 5 % of the planned trip fuel or, in the event of in-flight replanning, 5 % of the trip fuel for the remainder of the flight; and
 - (B) final reserve fuel to fly for an additional period of 45 minutes for reciprocating engines or 30 minutes for turbine engines;
 - (iv) alternate fuel to reach the destination alternate aerodrome via the destination, if a destination alternate aerodrome is required; and
 - (v) extra fuel, if specified by the commander.
- (a1) Notwithstanding CAT.OP.MPA.150(b) to (d), for operations taking off and landing at the same aerodrome or operating site with ELA2 aeroplanes under VFR by day the operator shall specify the minimum final reserve fuel in the OM. This minimum final reserve fuel shall not be less than the amount needed to fly for a period of 45 minutes.
- (b) Notwithstanding CAT.OP.MPA.150(b) to (d), for helicopters with an MCTOM of 3 175 kg or less, by day and over routes navigated by reference to visual landmarks or local helicopter operations, the fuel policy shall ensure that, on completion of the flight, or series of flights the final reserve fuel is not less than an amount sufficient for:
 - (1) 30 minutes flying time at normal cruising speed; or
 - (2) 20 minutes flying time at normal cruising speed when operating within an area providing continuous and suitable precautionary landing sites.

CAT.OP.MPA.175 Flight preparation

- (a) An operational flight plan shall be completed for each intended flight based on considerations of aircraft performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes/operating sites concerned.
- (b) The flight shall not be commenced unless the commander is satisfied that:
 - all items stipulated in 2.a.3 of Annex IV to Regulation (EC) No 216/2008 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 contrary to the provisions of the configuration deviation list

(CDL);

- (3) the parts of the operations manual that are required for the conduct of the flight are available;
- (4) the documents, additional information and forms required to be available by **CAT.GEN.MPA.180** are on board;
- (5) current maps, charts and associated documentation or equivalent data are available to cover 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 provisions specified in the operations manual in respect of fuel/energy, oil, oxygen, minimum safe altitudes, aerodrome operating minima and availability of alternate aerodromes, where required, can be complied with for the planned flight;
- (7a) any navigational database required for performance-based navigation is suitable and current; and
- (8) any additional operational limitation can be complied with.
- (c) Notwithstanding (a), an operational flight plan is not required for operations under VFR of:
 - (1) other-than complex motor-powered aeroplane taking off and landing at the same aerodrome or operating site; or
 - (2) helicopters with an MCTOM of 3 175kg or less, by day and over routes navigated by reference to visual landmarks in a local area as specified in the operations manual.

CAT.OP.MPA. 177 Submission of the ATS flight plan

- (a) If an air traffic services (ATS) flight plan is not submitted because it is not required by the rules of the air, adequate information shall be deposited in order to permit alerting services to be activated if required.
- (b) When operating from a site where it is impossible to submit an ATS flight plan, the ATS flight plan shall be transmitted as soon as possible after take-off by the commander or the operator.

CAT.OP.MPA.180 Selection of aerodromes — aeroplanes Fuel/energy scheme – aeroplanes

- (a) Where it is not possible to use the departure aerodrome as a take-off alternate aerodrome due to meteorological or performance reasons, the operator shall select another adequate take-off alternate aerodrome that is no further from the departure aerodrome than:
 - (1) for two-engined aeroplanes:

- (i) one hour flying time at an OEI cruising speed according to the AFM in still air standard conditions based on the actual take-off mass; or
- (ii) the ETOPS diversion time approved in accordance with Annex V (Part-SPA), Subpart F, subject to any MEL restriction, up to a maximum of two hours, at the OEI cruising speed according to the AFM in still air standard conditions based on the actual take-off mass;
- (2) for three and four-engined aeroplanes, two hours flying time at the OEI cruising speed according to the AFM in still air standard conditions based on the actual take-off mass;
- (3) for operations approved in accordance with Annex V (Part-SPA), Subpart L SINGLE-ENGINED TURBINE AEROPLANE OPERATIONS AT NIGHT OR IN IMC (SET-IMC), 30 minutes flying time at normal cruising speed in still air conditions, based on the actual take-off mass.

In the case of multi-engined aeroplanes, if the AFM does not contain an OEI cruising speed, the speed to be used for calculation shall be that which is achieved with the remaining engine(s) set at maximum continuous power.

- (b) The operator shall select at least one destination alternate aerodrome for each instrument flight rules (IFR) flight unless the destination aerodrome is an isolated aerodrome or:
 - (1) the duration of the planned flight from take off to landing or, in the event of in-flight replanning in accordance with CAT.OP.MPA.150(d), the remaining flying time to destination does not exceed six hours; and
 - (2) two separate runways are available and usable at the destination aerodrome and the appropriate weather reports and/or forecasts for the destination aerodrome indicate that, for the period from one hour before until one hour after the expected time of arrival at the destination aerodrome, the ceiling will be at least 2 000 ft or circling height + 500 ft, whichever is greater, and the ground visibility will be at least 5 km.
- (c) The operator shall select two destination alternate aerodromes when:
 - (1) the appropriate weather reports and/or forecasts for the destination aerodrome indicate that during a period commencing one hour before and ending one hour after the estimated time of arrival, the weather conditions will be below the applicable planning minima; or
 - (2) no meteorological information is available.
- (d) The operator shall specify any required alternate aerodrome(s) in the operational flight plan.

(a) The operator shall establish, implement, and maintain a fuel/energy scheme that:

(1) is appropriate for the type(s) of operation performed;

(2) corresponds to the capability of the operator to support its implementation; and

- (3) is either:
 - a basic fuel/energy scheme, which shall form the basis for a basic fuel/energy scheme with variations and an individual fuel/energy scheme; the basic fuel/energy scheme derives from a large-scale analysis of safety and operational

data from previous performance and experience of the industry, applying scientific principles; the basic fuel/energy scheme shall ensure, in this order, a safe, effective, and efficient operation of the aircraft; or

- (ii) a basic fuel/energy scheme with variations, which is a basic fuel/energy scheme where the analysis referred to in point (i) is used to establish a variation to the basic fuel/energy scheme that ensures, in this order, a safe, effective, and efficient operation of the aircraft; or
- (iii) an individual fuel/energy scheme, which derives from a comparative analysis of the operator's safety and operational data, applying scientific principles; the analysis is used to establish a fuel/energy scheme with a higher or equivalent level of safety to that of the basic fuel/energy scheme that ensures, in this order, a safe, effective, and efficient operation of the aircraft.
- (b) All fuel/energy schemes shall comprise:
 - (1) a fuel/energy planning and in-flight re-planning policy;
 - (2) an aerodrome selection policy; and
 - (3) an in-flight fuel/energy management policy.
- (c) The fuel/energy scheme and any change to it shall require prior approval by the CAA.
- (d) When the operator intends to apply for an individual fuel/energy scheme, it shall:
 - (1) establish a baseline safety performance of its current fuel/energy scheme;
 - (2) demonstrate its capability to support the implementation of the proposed individual fuel/energy scheme, including the capability to exercise adequate operational control and to ensure exchange of the relevant safety information between the operational control personnel and the flight crew; and
 - (3) make a safety risk assessment that demonstrates how an equivalent level of safety to that of the current fuel/energy scheme is achieved.

CAT.OP.MPA.181 Selection of aerodromes and operating sites — helicopters Fuel/energy scheme – fuel/energy planning and in-flight re-planning policy – aeroplanes

- (a) For flights under instrument meteorological conditions (IMC), the commander shall select a take off alternate aerodrome within one hour flying time at normal cruising speed if it would not be possible to return to the site of departure due to meteorological reasons.
- (b) For IFR flights or when flying under VFR and navigating by means other than by reference to visual landmarks, the commander shall specify at least one destination alternate aerodrome in the operational flight plan unless:
 - (1) for a flight to any other land destination, the duration of the flight and the meteorological

conditions prevailing are such that, at the estimated time of arrival at the site of intended landing, an approach and landing is possible under visual meteorological conditions (VMC); or

- (2) the site of intended landing is isolated and no alternate is available; in this case, a point of no return (PNR) shall be determined.
- (c) The operator shall select two destination alternate aerodromes when:
 - (1) the appropriate weather reports and/or forecasts for the destination aerodrome indicate that during a period commencing one hour before and ending one hour after the estimated time of arrival, the weather conditions will be below the applicable planning minima; or
 - (2) no meteorological information is available for the destination aerodrome.
- (d) The operator shall specify any required alternate aerodrome(s) in the operational flight plan.
- (a) The operator shall:
 - (1) establish a fuel/energy planning and in-flight re-planning policy as part of the fuel/energy scheme;
 - (2) ensure that the aeroplane carries a sufficient amount of usable fuel/energy to safely complete the planned flight and to allow for deviations from the planned operation;
 - (3) develop procedures for the fuel/energy planning and in-flight re-planning policy that shall be contained in the operations manual.
 - (4) ensure that the fuel/energy planning of the flight is based on:
 - (i) current aircraft-specific data derived from a fuel/energy consumption monitoring system or, if not available;
 - (ii) data provided by the aeroplane manufacturer.
- (b) The operator shall ensure that the planning of flights includes the operating conditions under which the flight is to be conducted; the operating conditions shall include at least:
 - (1) aircraft fuel/energy consumption data;
 - (2) anticipated masses;
 - (3) anticipated meteorological conditions;
 - (4) the effects of deferred maintenance items and/or of configuration deviations;
 - (5) the expected departure and arrival routing and runways; and
 - (6) anticipated delays.
- (c) The operator shall ensure that the pre-flight calculation of the usable fuel/energy that is required 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 required to enable the aeroplane to fly from take-off, or from the point of in-flight re-planning, to landing at the destination aerodrome;
- (3) contingency fuel/energy that shall be the amount of fuel/energy required to compensate for unforeseen factors;
- (4) destination alternate fuel/energy:
 - when a flight is operated with at least one destination alternate aerodrome, it shall be the amount of fuel/energy required to fly from the destination aerodrome to the destination alternate aerodrome; or
 - (ii) when a flight is operated with no destination alternate aerodrome, it shall be the amount of fuel/energy required to hold at the destination aerodrome, while enabling the aeroplane to perform a safe landing, and to allow for deviations from the planned operation; as a minimum, this amount shall be 15-minute fuel/energy at holding speed at 1 500ft (450 m) above the aerodrome elevation in standard conditions, calculated according to the estimated aeroplane mass on arrival at the destination aerodrome;
- (5) final reserve fuel/energy that shall be the amount of fuel/energy that is calculated at holding speed at 1 500 ft (450 m) above the aerodrome elevation in standard conditions according to the aeroplane estimated mass on arrival at the destination alternate aerodrome, or destination aerodrome when no destination alternate aerodrome is required, and shall not be less than:
 - (i) for aeroplanes with reciprocating engines, the fuel/energy to fly for 45 minutes; or
 - (ii) for turbine-engined aeroplanes, the fuel/energy to fly for 30 minutes;
- (6) additional fuel/energy, if required by the type of operation; it shall be the amount of fuel/energy to enable the aeroplane to land at a fuel/energy en route alternate aerodrome (fuel/energy ERA aerodrome critical scenario) in the event of an aircraft failure that significantly increases the fuel/energy consumption at the most critical point along the route; this additional fuel/energy is required only if the minimum amount of fuel/energy that is calculated according to points (c)(2) to (c)(5) is not sufficient for such an event;
- (7) extra fuel/energy to take into account anticipated delays or specific operational constraints; and
- (8) discretionary fuel/energy, if required by the commander.
- (d) The operator shall ensure that in-flight re-planning procedures for calculating the usable fuel/energy that is required when a flight proceeds along a route or to a destination aerodrome other than the ones originally planned include points (c)(2) to (c)(7).

CAT.OP.MPA.182 Destination aerodromes — instrumentapproach operations Fuel/energy scheme – aerodrome

selection policy – aeroplanes

The operator shall ensure that sufficient means are available to navigate and land at the destination aerodrome or at any destination alternate aerodrome in the case of loss of capability for the intended approach and landing operation.

- (a) At the planning stage, the operator shall ensure that once the flight has commenced, there is reasonable certainty that an aerodrome where a safe landing can be made will be available at the estimated time of use of that aerodrome.
- (b) At the planning stage, to allow for a safe landing in case of an abnormal or emergency situation after take-off, the operator shall select and specify in the operational flight plan a take-off alternate aerodrome if either:
 - (1) the meteorological conditions at the aerodrome of departure are below the operator's established aerodrome landing minima for that operation; or
 - (2) it would be impossible to return to the aerodrome of departure for other reasons.
- (c) The take-off alternate aerodrome shall be located within a distance from the departure aerodrome that minimises the risk of exposure to potential abnormal or emergency situations. In selecting the take-off alternate aerodrome, the operator shall consider at least the following:
 - (1) actual and forecast meteorological conditions;
 - (2) availability and quality of the aerodrome infrastructure;
 - (3) navigation and landing capabilities of the aircraft in abnormal or emergency conditions, taking into account the redundancy of critical systems; and
 - (4) approvals held (e.g. extended range operations with two-engined aeroplanes (ETOPS), low visibility operation (LVO), etc.).
- (d) At the planning stage, for each instrument flight rules (IFR) flight, the operator shall select and specify in the operational and air traffic services (ATS) flight plans one or more aerodromes so that two safe-landing options are available during normal operation when:
 - (1) reaching the destination aerodrome; or
 - (2) reaching the point of no return, to any available fuel/energy ERA aerodrome during isolated aerodrome operations; a flight to an isolated aerodrome shall not be continued past the point of no return unless a current assessment of meteorological conditions, traffic, and other operational conditions indicates that a safe landing can be made at the destination aerodrome at the estimated time of use.

The operator shall obtain prior approval from the CAA for the use of an isolated aerodrome as destination aerodrome.

- (e) The operator shall provide appropriate safety margins to flight planning to take into account a possible deterioration of the available forecast meteorological conditions at the estimated time of landing.
- (f) For each IFR flight, the operator shall ensure that sufficient means are available to navigate to and land at the destination aerodrome or at any destination alternate aerodrome in the event of loss of capability for the intended approach and landing operation.

CAT.OP.MPA.185 Planning minima for IFR flights — aeroplanes

(a) Planning minima for a take-off alternate aerodrome

The operator shall only select an aerodrome as a take-off alternate aerodrome when the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the applicable landing minima specified in accordance with **CAT.OP.MPA.110**. The ceiling shall be taken into account when the only approach operations available are non-precision approaches (NPA) and/or circling operations. Any limitation related to OEI operations shall be taken into account.

(b) Planning minima for a destination aerodrome other than an isolated destination aerodrome

The operator shall only select the destination aerodrome when:

- (1) the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the applicable planning minima as follows:
 - (i) RVR/visibility (VIS) specified in accordance with CAT.OP.MPA.110; and
 - (ii) for an NPA or a circling operation, the ceiling at or above MDH;
 - or
- (2) two destination alternate aerodromes are selected.
- (c) Planning minima for a destination alternate aerodrome, isolated aerodrome, fuel en-route alternate (fuel ERA) aerodrome, en-route alternate (ERA) aerodrome

The operator shall only select an aerodrome for one of these purposes when the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the planning minima in Table 1.

Table 1

Planning minima

Destination alternate aerodrome, isolated destination aerodrome, fuel ERA and ERA aerodrome

Type of approach	Planning minima
CAT II and III	CAT I RVR
CAT I	NPA RVR/VIS Ceiling shall be at or above MDH
NPA	NPA RVR/VIS + 1 000 m

	Ceiling shall be at or above MDH + 200 ft
Circling	Circling

(a) The operator shall establish procedures for in-flight fuel/energy management that ensure:

- continual validation of the assumptions made during the planning stage (pre-flight or in-flight re-planning, or both);
- (2) re-analysis and adjustment, if necessary;
- (3) that the amount of usable fuel/energy remaining on board is protected and not less than the fuel/energy that is required to proceed to an aerodrome where a safe landing can be made; and
- (4) relevant fuel/energy data for the purpose of points (1), (2), and (3) shall be recorded.
- (b) The operator shall have procedures in place to require the commander to obtain delay information from a reliable source when unforeseen circumstances may result in landing at the destination aerodrome with less than the final reserve fuel/energy plus any:
 - (1) fuel/energy to proceed to an alternate aerodrome, if required; or
 - (2) fuel/energy required to proceed to an isolated aerodrome.
- (c) The commander shall advise air traffic control (ATC) of a 'minimum fuel/energy' state by declaring 'MINIMUM FUEL' when the commander has:
 - (1) committed to land at a specific aerodrome; and
 - (2) calculated that any change to the existing clearance to that aerodrome may result in landing with less than the planned final reserve fuel/energy.
- (d) The commander 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 aerodrome where a safe landing can be made is less than the planned final reserve fuel/energy.

CAT.OP.MPA.186 Planning minima for IFR flights helicopters

(a) Planning minima for take-off alternate aerodrome(s)

The operator shall only select an aerodrome or landing site as a take off alternate aerodrome when the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the take-off alternate aerodrome, the weather conditions will be at or above the applicable landing minima specified in accordance with **CAT.OP.MPA.110**. The ceiling shall be taken into account when the only approach operations available are NPA operations. Any limitation

related to OEI operations shall be taken into account.

(b) Planning minima for destination aerodrome and destination alternate aerodrome(s)

The operator shall only select the destination and/or destination alternate aerodrome(s) when the appropriate weather reports and/or forecasts indicate that, during a period commencing one hour before and ending one hour after the estimated time of arrival at the aerodrome or operating site, the weather conditions will be at or above the applicable planning minima as follows:

- (1) except as provided in CAT.OP.MPA.181(d), planning minima for a destination aerodrome shall be:
 - (i) RVR/VIS specified in accordance with CAT.OP.MPA.110; and
 - (ii) for NPA operations, the ceiling at or above MDH;
- (2) planning minima for destination alternate aerodrome(s) are as shown in Table 1.

Table 1

Planning minima destination alternate aerodrome

Type of approach	Planning minima
CAT II and III	CAT I RVR
CAT I	CAT I + 200 ft/400 m visibility
NPA	NPA RVR/VIS + 400 m
	Ceiling shall be at or above MDH + 200 ft

CAT.OP.MPA.190 Submission of the ATS flight plan Fuel/energy scheme – helicopters

- (a) If an ATS flight plan is not submitted because it is not required by the rules of the air, adequate information shall be deposited in order to permit alerting services to be activated if required.
- (b) When operating from a site where it is impossible to submit an ATS flight plan, the ATS flight plan shall be transmitted as soon as possible after take-off by the commander or the operator.
- (a) The operator shall establish, implement, and maintain a fuel/energy scheme that comprises:
 - (1) a fuel/energy planning and in-flight re-planning policy; and
 - (2) an in-flight fuel/energy management policy.
- (b) The fuel/energy scheme shall:
 - (1) be appropriate for the type(s) of operation performed; and

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

(c) The fuel/energy scheme and any change to it shall require prior approval by the CAA.

CAT.OP.MPA.191 Fuel/energy scheme – Fuel/energy planning and in-flight re-planning policy - helicopters

- (a) As part of the fuel/energy scheme, the operator shall establish a fuel/energy planning and in-flight re-planning policy to ensure that the aircraft carries a sufficient amount of usable fuel/energy to safely complete the planned flight and to allow for deviations from the planned operation.
- (b) The operator shall ensure that the fuel/energy planning of flights is based upon at least the following elements:
 - (1) procedures contained in the operations manual as well as:
 - current aircraft-specific data derived from a fuel/energy consumption monitoring system; or
 - (ii) data provided by the aircraft manufacturer; and
 - (2) the operating conditions under which the flight is to be conducted including:
 - (i) aircraft fuel/energy consumption data;
 - (ii) anticipated masses;
 - (iii) anticipated meteorological conditions;
 - (iv) the effects of deferred maintenance items or of configuration deviations, or both; and
 - (v) procedures and restrictions introduced by air navigation service providers.
- (c) The operator shall ensure that the pre-flight calculation of the usable fuel/energy that is required for a flight includes:
 - taxi fuel/energy, which shall not be less than the amount expected to be used prior to take-off;
 - (2) trip fuel/energy;
 - (3) contingency fuel/energy;
 - (4) destination alternate fuel/energy if a destination alternate aerodrome is required;
 - (5) final reserve fuel/energy, which shall not be less than:
 - (i) if flying under visual flight rules (VFR) and navigating by day with reference to visual landmarks, 20-minute fuel/energy at best-range speed; or

- (ii) if flying under VFR and navigating by means other than by reference to visual landmarks or at night, 30-minute fuel/energy at best-range speed; or
- (iii) if flying under instrument flight rules (IFR), 30-minute fuel/energy at holding speed at 1 500 ft (450m) above the aerodrome elevation in standard conditions, calculated according to the helicopter estimated mass on arrival at the destination alternate aerodrome or at the destination aerodrome when no destination alternate aerodrome is required;
- (6) extra fuel/energy, to take into account anticipated delays or specific operational constraints; and
- (7) discretionary fuel/energy, if required by the commander.
- (d) The operator shall ensure that if a flight has to proceed along a route or to a destination aerodrome other than the ones originally planned, in-flight re-planning procedures for calculating the required usable fuel/energy include:
 - (1) trip fuel/energy for the remainder of the flight;
 - (2) reserve fuel/energy consisting of:
 - (i) contingency fuel/energy;
 - (ii) alternate fuel/energy if a destination alternate aerodrome is required;
 - (iii) final reserve fuel/energy; and
 - (iv) additional fuel/energy, if required by the type of operation;
 - (3) extra fuel/energy, to take into account anticipated delays or specific operational constraints; and
 - (4) discretionary fuel/energy, if required by the commander.
- (e) As an alternative to points (b) to (d), for helicopters with a maximum certified take-off mass (MCTOM) of 3 175 kg or less, flying by day and over routes navigated by reference to visual landmarks, or for local helicopter operations (LHO), the fuel/energy policy shall ensure that on completion of the flight, or series of flights, the final reserve fuel/energy is sufficient for:
 - (1) 30-minute flying time at best-range speed; or
 - (2) 20-minute flying time at best-range speed, if operating within an area providing continuous and suitable operating sites.

CAT.OP.MPA.192 Selection of aerodromes and operating sites – helicopters

(a) For flights under instrument meteorological conditions (IMC), the operator shall select a take-off alternate aerodrome within one-hour flying time at normal cruising speed if it is not possible to return to the site of departure for meteorological reasons.

- (b) At the planning stage, for each instrument flight rules (IFR) flight, the operator shall select and specify in the operational and air traffic services (ATS) flight plans one or more aerodromes or operating sites so that two safe-landing options are available during normal operation, except as provided for under point SPA.HOFO.120(b).
- (c) The operator shall apply appropriate safety margins to flight planning to take into account a possible deterioration of the available forecast meteorological conditions at the estimated time of landing.
- (d) For each IFR flight, the operator shall ensure that sufficient means are available to navigate to and land at the destination aerodrome or at any destination alternate aerodrome in the event of loss of capability for the intended approach and landing operation.

CAT.OP.MPA.195 Refuelling/defuelling with passengers embarking, on board or disembarking Fuel/energy scheme – in-flight fuel/energy management policy – helicopters

- (a) An aircraft shall not be refuelled/defuelled with Avgas (aviation gasoline) or wide-cut type fuel or a mixture of these types of fuel, when passengers are embarking, on board or disembarking.
- (b) For all other types of fuel, necessary precautions shall be taken and the aircraft shall be properly manned by qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.
- (a) The operator shall establish procedures to ensure that in-flight fuel/energy checks and fuel/energy management are performed.
- (b) The commander shall monitor the amount of usable fuel/energy remaining on board to ensure that it is protected and not less than the fuel/energy that is required to proceed to an aerodrome or operating site where a safe landing can be made.
- (c) The commander shall advise air traffic control (ATC) of a 'minimum fuel/energy' state by declaring 'MINIMUM FUEL' when the commander has:
 - (1) committed to land at an aerodrome or operating site; and
 - (2) calculated that any change to the existing clearance to that aerodrome or operating site, or other air traffic delays, may result in landing with less than the planned final reserve fuel/energy.
- (d) The commander shall declare a situation of 'fuel/energy emergency' by broadcasting 'MAYDAY MAYDAY MAYDAY FUEL' when the usable fuel/energy estimated to be available upon landing at the nearest aerodrome or operating site where a safe landing can be made is less than the planned final reserve fuel/energy.

CAT.OP.MPA.200 Refuelling/defuelling with wide-cut fuel Special refuelling or defuelling of the aircraft

Refuelling/defuelling with wide-cut fuel shall only be conducted if the operator has established appropriate procedures taking into account the high risk of using wide-cut fuel types.

- (a) Special refuelling or defuelling shall only be conducted if the operator:
 - (1) has performed a risk assessment;
 - (2) has developed procedures; and
 - (3) has established a training programme for its personnel involved in such operations.
- (b) Special refuelling or defuelling applies to:
 - (1) refuelling with an engine running or rotors turning;
 - (2) refuelling/defuelling with passengers embarking, on board, or disembarking; and
 - (3) refuelling/defuelling with wide-cut fuel.
- (c) For aeroplanes, any special refuelling or defuelling procedures and any change to them shall require prior approval by the CAA.
- (d) For helicopters, refuelling procedures with rotors turning and any change to them shall require prior approval by the CAA.

CAT.OP.MPA.245 Meteorological conditions — all aircraft

- (a) On IFR flights the commander shall only:
 - (1) commence take-off; or
 - (2) continue beyond the point from which a revised ATS flight plan applies in the event of in-flight replanning,

when information is available indicating that the expected weather conditions, at the time of arrival, at the destination and/or required alternate aerodrome(s) are at or above the planning minima.

- (b) On IFR flights, the commander shall only continue towards the planned destination aerodrome when the latest information available indicates that, at the expected time of arrival, the weather conditions at the destination, or at least one destination alternate aerodrome, are at or above the applicable aerodrome operating minima.
- (c) On VFR flights, the commander shall only commence take off when the appropriate weather reports and/or forecasts indicate that the meteorological conditions along the part of the route to be flown under VFR will, at the appropriate time, be at or above the VFR limits.

(a) On IFR flights, the commander shall only:

(1) commence the flight; or

(2) continue beyond the point from which a revised ATS flight plan applies in the event of in-flight re-planning,

when information is available indicating that the expected meteorological conditions, at the time of arrival, at the destination and/or required alternate aerodrome(s) are at or above the planning minima.

- (b) On IFR flights, the commander shall only continue towards the planned destination aerodrome when the latest information available indicates that, at the expected time of arrival, the meteorological conditions at the destination, or at least one destination alternate aerodrome, are at or above the applicable aerodrome operating minima.
- (c) On VFR flights, the commander shall only commence the flight when the appropriate meteorological reports and/or forecasts indicate that the meteorological conditions along the part of the route to be flown under VFR will, at the appropriate time, be at or above the VFR limits.

CAT.OP.MPA.246 Meteorological conditions — aeroplanes

In addition to **CAT.OP.MPA.245**, on IFR flights with aeroplanes, the commander shall only continue beyond:

- (a) the decision point when using the reduced contingency fuel/energy (RCF) procedure; or
- (b) the pre-determined point when using the pre-determined point (PDP) procedure, point of no return when using the isolated aerodrome procedure,

when information is available indicating that the expected meteorological weather conditions, at the time of arrival, at the destination and/or required alternate aerodrome(s) are at or above the applicable aerodrome operating minima.

CAT.OP.MPA.247 Meteorological conditions — helicopters

In addition to CAT.OP.MPA.245:

- (a) On VFR flights overwater out of sight of land with helicopters, the commander shall only commence take-off when the appropriate meteorological weather reports and/or forecasts indicate that the cloud ceiling will be above 600 ft by day or 1 200 ft by night.
- (b) Provision repealed before document was retained.
- (c) Flight with helicopters to a helideck or elevated FATO shall only be operated when the mean wind speed at the helideck or elevated FATO is reported to be less than 60 kt.

CAT.OP.MPA.260 Fuel/energy and oil supply

The commander shall only commence a flight or continue in the event of in-flight re-planning when satisfied that the aircraft carries at least the planned amount of usable fuel/energy and oil to safely complete the flight, safely, taking into account the expected operating conditions.

CAT.OP.MPA.265 Take-off conditions

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

- (a) according to the information available to him/her, the weather at the aerodrome or operating site and the condition of the runway or FATO intended to be used would not prevent a safe take off and departure; and the meteorological conditions at the aerodrome or operating site and the condition of the runway/FATO intended to be used will not prevent a safe take-off and departure; and
- (b) established aerodrome operating minima will be complied with. the selected aerodrome operating minima are consistent with all of the following:
 - (1) the operative ground equipment;
 - (2) the operative aircraft systems;
 - (3) the aircraft performance;
 - (4) flight crew qualifications.

CAT.OP.MPA.280 In-flight fuel management – aeroplanes

The operator shall establish a procedure to ensure that in-flight fuel checks and fuel management are carried out according to the following criteria.

(a) In-flight fuel checks

- (1) The commander shall ensure that fuel checks are carried out in-flight at regular intervals. The usable remaining fuel shall be recorded and evaluated to:
 - (i) compare actual consumption with planned consumption;
 - (ii) check that the usable remaining fuel is sufficient to complete the flight, in accordance with (b); and
 - (iii) determine the expected usable fuel remaining on arrival at the destination aerodrome.
- (2) The relevant fuel data shall be recorded.
- (b) In-flight fuel management

- (1) The flight shall be conducted so that the expected usable fuel remaining on arrival at the destination aerodrome is not less than:
 - (i) the required alternate fuel plus final reserve fuel; or
 - (ii) the final reserve fuel if no alternate aerodrome is required.
- (2) If an in-flight fuel check shows that the expected usable fuel remaining on arrival at the destination aerodrome is less than:
 - (i) the required alternate fuel plus final reserve fuel, the commander shall take into account the traffic and the operational conditions prevailing at the destination aerodrome, at the destination alternate aerodrome and at any other adequate aerodrome in deciding whether to proceed to the destination aerodrome or to divert so as to perform a safe landing with not less than final reserve fuel; or
 - (ii) the final reserve fuel if no alternate aerodrome is required, the commander shall take appropriate action and proceed to an adequate aerodrome so as to perform a safe landing with not less than final reserve fuel.
- (3) The commander shall declare an emergency when the calculated usable fuel on landing, at the nearest adequate aerodrome where a safe landing can be performed, is less than final reserve fuel.
- (4) Additional conditions for specific procedures
 - (i) On a flight using the RCF procedure, to proceed to the destination 1 aerodrome, the commander shall ensure that the usable fuel remaining at the decision point is at least the total of:
 - (A) trip fuel from the decision point to the destination 1 aerodrome;
 - (B) contingency fuel equal to 5 % of trip fuel from the decision point to the destination 1 aerodrome;
 - (C) destination 1 aerodrome alternate fuel, if a destination 1 alternate aerodrome is required; and
 - (D) final reserve fuel.
 - (ii) On a flight using the PDP procedure to proceed to the destination aerodrome, the commander shall ensure that the usable fuel remaining at the PDP is at least the total of:
 - (A) trip fuel from the PDP to the destination aerodrome;
 - (B) contingency fuel from the PDP to the destination aerodrome; and
 - (C) additional fuel.

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CAT.OP.MPA.281 In-flight fuel management – helicopters

(a) The operator shall establish a procedure to ensure that in-flight fuel checks and fuel management are carried out.

(b) The commander shall ensure that the amount of usable fuel remaining in flight is not less than the fuel required to proceed to an aerodrome or operating site where a safe landing can be made, with final reserve fuel remaining.

(c) The commander shall declare an emergency when the actual usable fuel on board is less than final reserve fuel.

CAT.OP.MPA.300 Approach and landing conditions – aeroplanes

Before commencing an approach to land, the commander shall be satisfied that, according to the information available to him/her, the weather at the aerodrome and the condition of the runway or FATO intended to be used should not prevent a safe approach, landing or missed approach, having regard to the performance information contained in the operations manual.

Before commencing an approach to land, the commander shall be satisfied that:

- (a) the meteorological conditions at the aerodrome or operating site and the condition of the runway/FATO intended to be used will not prevent a safe approach, landing or go-around, considering the performance information contained in the operations manual; and
- (b) the selected aerodrome operating minima are consistent with all of the following:
 - (1) the operative ground equipment;
 - (2) the operative aircraft systems;
 - (3) the aircraft performance;
 - (4) flight crew qualifications.

CAT.OP.MPA.305 Commencement and continuation of approach

- (a) The commander or the pilot to whom conduct of the flight has been delegated may commence an instrument approach regardless of the reported RVR/VIS. For aeroplanes, if the reported visibility (VIS) or controlling RVR for the runway to be used for landing is less than the applicable minimum, then an instrument approach operation shall not be continued:
 - (1) past a point at which the aeroplane is 1 000 ft above the aerodrome elevation; or
 - (2) into the final approach segment (FAS) if the DH or MDH is higher than 1 000 ft.

- (b) If the reported RVR/VIS is less than the applicable minimum the approach shall not be continued:
 - (1) below 1 000 ft above the aerodrome; or
- (2) into the final approach segment in the case where the DA/H or MDA/H is more than 1 000 ft above the aerodrome. For helicopters, if the reported RVR is less than 550 m and the controlling RVR for the runway to be used for landing is less than the applicable minimum, then an instrument approach operation shall not be continued:

(1) past a point at which the helicopter is 1 000 ft above the aerodrome elevation; or

- (2) into the FAS if the DH or MDH is higher than 1 000 ft.
- (c) Where the RVR is not available, RVR values may be derived by converting the reported visibility. If the required visual reference is not established, then a missed approach shall be executed at or before the DA/H or the MDA/H.
- (d) If, after passing 1 000 ft above the aerodrome, the reported RVR/VIS falls below the applicable minimum, the approach may be continued to DA/H or MDA/H. If the required visual reference is not maintained after DA/H or MDA/H, then a go-around shall be executed promptly.
- (e) The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the visual reference adequate for the type of approach operation and for the intended runway is established at the DA/H or MDA/H and is maintained. Notwithstanding point (a), in the case where no RVR is reported, and the reported VIS is less than the applicable minimum, but the converted meteorological visibility (CMV) is equal or greater than the applicable minimum, then the instrument approach can be continued to the DA/H or MDA/H.
- (f) The touchdown zone RVR shall always be controlling. If reported and relevant, the midpoint and stopend RVR shall also be controlling. The minimum RVR value for the midpoint shall be 125 m or the RVR required for the touchdown zone if less, and 75 m for the stopend. For aircraft equipped with a rollout guidance or control system, the minimum RVR value for the midpoint shall be 75 m.

CAT.OP.MPA.310 Operating procedures — threshold crossing height — aeroplanes

The operator shall establish operational procedures designed to ensure that an aeroplane conducting <u>3D instrument approach</u> operations precision approaches crosses the threshold of the runway by a safe margin, with the aeroplane in the landing configuration and attitude.

CAT.OP.MPA.312 EFVS 200 operations

(a) An operator that intends to conduct EFVS 200 operations shall ensure that:

(1) the aircraft is certified for the intended operations;

- only runways, FATO and instrument approach procedures (IAPs) suitable for EFVS operations are used;
- (3) the flight crew members are competent to conduct the intended operation, and a training and checking programme for the flight crew members and relevant personnel involved in the flight preparation is established;
- (4) operating procedures are established;
- (5) any relevant information is documented in the minimum equipment list (MEL);
- (6) any relevant information is documented in the maintenance programme;
- (7) safety assessments are carried out and performance indicators are established to monitor the level of safety of the operation; and
- (8) the aerodrome operating minima take into account the capability of the system used.
- (b) The operator shall not conduct EFVS 200 operations when conducting LVOs.
- (c) Notwithstanding point (a)(1), the operator may use EVSs meeting the minimum criteria to conduct EFVS 200 operations, provided that this is approved by the CAA.

CAT.POL.A.215 En-route – one-engine-inoperative (OEI)

- (a) The OEI en-route net flight path data shown in the AFM, appropriate to the meteorological conditions expected for the flight, shall allow demonstration of compliance with (b) or (c) at all points along the route. The net flight path shall have a positive gradient at 1 500 ft above the aerodrome where the landing is assumed to be made after engine failure. In meteorological conditions requiring the operation of ice protection systems, the effect of their use on the net flight path shall be taken into account.
- (b) The gradient of the en-route net flight path shall be positive at least 1 000 ft above all terrain and obstructions along the route within 9,3 km (5 NM) on either side of the intended track.
- (c) The en-route net flight path shall permit the aeroplane to continue flight from the cruising altitude to an aerodrome where a landing can be made in accordance with point <u>CAT.POL.A.230</u> or CAT.POL.A.235, as appropriate. The en-route net flight path shall clear vertically, by at least 2 000 ft, all terrain and obstructions along the route within 9,3 km (5 NM) on either side of the intended track, taking into account the following elements:
 - (1) the engine is assumed to fail at the most critical point along the route;
 - (2) account is taken of the effects of winds on the flight path;
 - (3) fuel jettisoning is permitted to an extent consistent with reaching the aerodrome where the aeroplane is assumed to land after engine failure with the required fuel reserves in accordance with point CAT.OP.MPA.150_CAT.OP.MPA.181, appropriate for an alternate aerodrome, if a safe procedure is used;
 - (4) the aerodrome, where the aeroplane is assumed to land after engine failure, shall meet the following criteria:

- (i) the performance requirements for the expected landing mass are met;
- (ii) weather reports or forecasts and runway condition reports indicate that a safe landing can be accomplished at the estimated time of landing;
- (5) if the AFM does not contain en-route net flight path data, the gross OEI en-route flight path shall be reduced by a climb gradient of 1,1 % for two-engined aeroplanes, 1,4 % for three-engined aeroplanes, and 1,6 % for four-engined aeroplanes.
- (d) The operator shall increase the width margins provided for in points (b) and (c) to 18,5 km (10 NM) if the navigational accuracy does not meet at least navigation specification RNAV 5.

CAT.POL.A.220 En-route – aeroplanes with three or more engines, two engines inoperative

- (a) An aeroplane that has three or more engines shall not be away from an aerodrome at which the requirements of points CAT.POL.A.230 or CAT.POL.A.235(a) for the expected landing mass are met accordingly, at any point along the intended track for more than 90 minutes, with all engines operating at cruising power or thrust, as appropriate, at standard temperature in still air, unless points (b) to (f) of this point are complied with.
- (b) The two-engines-inoperative en-route net flight path data shall allow the aeroplane to continue the flight, in the expected meteorological conditions, from the point where two engines are assumed to fail simultaneously to an aerodrome at which it is possible to land and come to a complete stop when using the prescribed procedure for a landing with two engines inoperative. The en-route net flight path shall clear vertically, by at least 2 000 ft, all terrain and obstructions along the route within 9,3 km (5 NM) on either side of the intended track. At altitudes and in meteorological conditions that require ice protection systems to be operable, the effect of their use on the en-route net flight path data shall be taken into account. If the navigational accuracy does not meet at least navigation specification RNAV 5, the operator shall increase the prescribed width margin provided for in the second sentence to 18,5 km (10 NM).
- (c) The two engines shall be assumed to fail at the most critical point of that portion of the route where the aeroplane is operated for more than 90 minutes, with all engines operating at cruising power or thrust, as appropriate, at standard temperature in still air, away from the aerodrome referred to in point (a).
- (d) The net flight path shall have a positive gradient at 1 500 ft above the aerodrome where the landing is assumed to be made after the failure of two engines.
- (e) Fuel jettisoning shall be permitted to an extent consistent with reaching the aerodrome with the required fuel reserves referred to in point (f), if a safe procedure is used.
- (f) The expected mass of the aeroplane at the point where the two engines are assumed to fail shall not be less than that which would include sufficient fuel/energy to proceed to an aerodrome where the landing is assumed to be made, and to arrive there at an altitude of at least 450 m (1 500 ft) (450 m) directly over the landing area and thereafter to fly for 15 minutes at cruising power or thrust, as appropriate.

CAT.POL.A.230 Landing – dry runways

- (a) The landing mass of the aeroplane determined in accordance with point **CAT.POL.A.105(a)** for the estimated time of landing at the destination aerodrome and at any alternate aerodrome shall allow a full-stop landing from 50 ft above the threshold:
 - (1) for turbojet-powered aeroplanes, within 60 % of the landing distance available (LDA);
 - (2) for turbopropeller-powered aeroplanes, within 70 % of the LDA;
 - (3) by way of derogation from points (a)(1) and (a)(2), for aeroplanes that are approved for reduced landing distance operations under point <u>CAT.POL.A.255</u>, within 80 % of the LDA.
- (b) For steep approach operations, the operator shall use the landing distance data factored in accordance with point (a)(1) or (a)(2), as applicable, based on a screen height of less than 60 ft, but not less than 35 ft, and shall comply with point **CAT.POL.A.245**.
- (c) For short landing operations, the operator shall use the landing distance data factored in accordance with point (a)(1) or (a)(2), as applicable, and shall comply with point <u>CAT.POL.A.250</u>.
- (d) When determining the landing mass, the operator shall take into account the following:
 - (1) not more than 50 % of the headwind component or not less than 150 % of the tailwind component;
 - (2) corrections as provided in the AFM.
- (e) For dispatching the aeroplane, the aeroplane shall: either:-
 - (1) land on the most favourable runway, in still air; and
 - (2) land on the runway most likely to be assigned, considering the probable wind speed and direction, the ground-handling characteristics of the aeroplane and other conditions such as landing aids and terrain.
- (f) If the operator is unable to comply with point (e)(2) for the destination aerodrome, the aeroplane shall only be dispatched if an alternate aerodrome is designated that allows full compliance with one of the following:
 - (1) points (a) to (d), if the runway at the estimated time of arrival is dry;
 - (2) points **CAT.POL.A.235(a)** to (d), if the runway at the estimated time of arrival is wet or contaminated.

CAT.POL.A.235 Landing – wet and contaminated runways

(a) When the appropriate weather reports or forecasts, or both, indicate that the runway at the estimated time of arrival may be wet, the LDA shall be one of the following distances:

- (1) a landing distance provided in the AFM for use on wet runways at time of dispatch, but not less than that required by point **CAT.POL.A.230(a)(1)** or (a)(2), as applicable;
- (2) if a landing distance is not provided in the AFM for use on wet runways at time of dispatch, at least 115 % of the required landing distance, determined in accordance with point CAT.POL.A.230(a)(1) or (a)(2), as applicable;
- (3) a landing distance shorter than that required by point (a)(2), but not less than that required by point CAT.POL.A.230(a)(1) or (a)(2), as applicable, if the runway has specific friction-improving characteristics and the AFM includes specific additional information for landing distance on that runway type;
- (4) by way of derogation from points (a)(1), (a)(2) and (a)(3), for aeroplanes that are approved for reduced landing distance operations under point **CAT.POL.A.255**, the landing distance determined in accordance with point CAT.POL.A.255(b)(2)(v)(B).
- (b) When the appropriate weather reports or forecasts indicate that the runway at the estimated time of arrival may be contaminated, the LDA shall be one of the following distances:
 - (1) at least the landing distance determined in accordance with point (a), or at least 115 % of the landing distance determined in accordance with approved contaminated landing distance data or equivalent, whichever is greater;
 - (2) on specially prepared winter runways, a landing distance shorter than that required by point (b)(1), but not less than that required by point (a), may be used if the AFM includes specific additional information about landing distances on contaminated runways. Such landing distance shall be at least 115 % of the landing distance contained in the AFM.
- (c) By way of derogation from point (b), the increment of 15 % needs not to be applied if it is already included in the approved landing distance data or equivalent.
- (d) For points (a) and (b), the criteria of points **CAT.POL.A.230(b)**, (c) and (d) shall apply accordingly.
- (e) For dispatching the aeroplane, the aeroplane shall either:
 - (1) land on the most favourable runway, in still air; and
 - (2) land on the runway most likely to be assigned, considering the probable wind speed and direction, the ground-handling characteristics of the aeroplane and other conditions such as landing aids and terrain.
- (f) If the operator is unable to comply with point (e)(1) for a destination aerodrome where the appropriate weather reports or forecasts indicate that the runway at the estimated time of arrival may be contaminated and where a landing depends upon a specific wind component, the aeroplane shall only be dispatched if two alternate aerodromes are designated.
- (g) If the operator is unable to comply with point (e)(2) for the destination aerodrome where the appropriate weather reports or forecasts indicate that the runway at the estimated time of arrival may be wet or contaminated, the aeroplane shall only be dispatched if an alternate aerodrome is designated.
- (h) For points (f) and (g), the designated alternate aerodrome or aerodromes shall allow compliance with one of the following:

- (1) points **CAT.POL.A.230(a)** to (d), if the runway at the estimated time of arrival is dry;
- (2) points CAT.POL.A.235(a) to (d), if the runway at the estimated time of arrival is wet or contaminated.

CAT.POL.A.415 En-route – OEI

- (a) In the meteorological conditions expected for the flight, in the event of any one engine becoming inoperative at any point on its route or on any planned diversion therefrom and with the other engine(s) operating within the maximum continuous power conditions specified, the aeroplane shall be capable of continuing the flight from the cruising altitude to an aerodrome where a landing can be made in accordance with CAT.POL.A.430 or CAT.POL.A.435, as appropriate. The aeroplane shall clear obstacles within 9,3 km (5 NM) either side of the intended track by a vertical interval of at least:
 - (1) 1 000 ft, when the rate of climb is zero or greater; or
 - (2) 2 000 ft, when the rate of climb is less than zero.
- (b) The flight path shall have a positive slope at an altitude of 450 m (1 500 ft) above the aerodrome where the landing is assumed to be made after the failure of one engine.
- (c) The available rate of climb of the aeroplane shall be taken to be 150 ft per minute less than the gross rate of climb specified.
- (d) The width margins provided for in point (a) shall be increased to 18,5 km (10 NM) if the navigational accuracy does not meet at least navigation specification RNAV 5.
- (e) Fuel jettisoning is permitted to an extent consistent with reaching the aerodrome where the aeroplane is assumed to land after engine failure with the required fuel reserves in accordance with point CAT.OP.MPA.150 CAT.OP.MPA.181, appropriate for an alternate aerodrome, if a safe procedure is used.

CAT.POL.A.420 En-route – aeroplanes with three or more engines, two engines inoperative

- (a) An aeroplane that has three or more engines shall not be away from an aerodrome at which the requirements of point CAT.POL.A.430 for the expected landing mass are met, at any point along the intended track for more than 90 minutes with all engines operating at cruising power or thrust, as appropriate, at standard temperature in still air, unless points (b) to (e) of this point are complied with.
- (b) The two-engines-inoperative flight path shall permit the aeroplane to continue the flight, in the expected meteorological conditions, clearing all obstacles within 9,3 km (5 NM) on either side of the intended track by a vertical interval of at least 2 000 ft, to an aerodrome at which the performance requirements applicable for the expected landing mass are met.
- (c) The two engines shall be assumed to fail at the most critical point of that portion of the route where the aeroplane is operated for more than 90 minutes, with all engines operating at cruising power or thrust, as appropriate, at standard temperature in still air, away from the

aerodrome referred to in point (a).

- (d) The expected mass of the aeroplane at the point where the two engines are assumed to fail shall not be less than that which would include sufficient fuel/energy to proceed to an aerodrome where the landing is assumed to be made and to arrive there at an altitude of at least 450 m (1 500 ft) (450 m) directly over the landing area and thereafter to fly for 15 minutes at cruising power or thrust, as appropriate.
- (e) The available rate of climb of the aeroplane shall be 150 ft per minute less than that specified.
- (f) The width margins provided for in point (b) shall be increased to 18,5 km (10 NM) if the navigational accuracy does not meet at least navigation specification RNAV 5.
- (g) Fuel jettisoning is permitted to an extent consistent with reaching the aerodrome with the required fuel reserves in accordance with point (d), if a safe procedure is used.

CAT.IDE.A.195 Data link recording

- (a) Aeroplanes first issued with an individual CofA on or after 8 April 2014 that have the capability to operate data link communications and are required to be equipped with a CVR, shall record on a recorder, where applicable:
 - (1) data link communication messages related to ATS communications to and from the aeroplane, including messages applying to the following applications:
 - (i) data link initiation;
 - (ii) controller-pilot communication;
 - (iii) addressed surveillance;
 - (iv) flight information;
 - (v) as far as is practicable, given the architecture of the system, aircraft broadcast surveillance;
 - (vi) as far as is practicable, given the architecture of the system, aircraft operational control data; and
 - (vii) as far as is practicable, given the architecture of the system, graphics;
 - (2) information that enables correlation to any associated records related to data link communications and stored separately from the aeroplane; and
 - (3) information on the time and priority of data link communications messages, taking into account the system's architecture.
- (b) The recorder shall use a digital method of recording and storing data and information and a method for retrieving that data. The recording method shall allow the data to match the data recorded on the ground.
- (c) The recorder shall be capable of retaining data recorded for at least the same duration as set

out for CVRs in CAT.IDE.A.185.

- (d) If the recorder is not deployable, it shall have a device to assist in locating it under water. By 16 June 2018 at the latest, this device shall have a minimum underwater transmission time of 90 days. If the recorder is deployable, it shall have an automatic emergency locator transmitter.
- (e) The requirements applicable to the start and stop logic of the data link recorder are the same as the requirements applicable to the start and stop logic of the cockpit voice recorder (CVR) contained in point CAT.IDE.A.185. (d) and (e).

Annex V SPECIFIC APPROVALS

SUBPART E – LOW-VISIBILITY OPERATIONS (LVOs) AND OPERATIONS WITH OPERATIONAL CREDITS

SPA.LVO.100 Low visibility operations and operations with operational credits

The operator shall only conduct the following low visibility operations (LVO) when approved by the CAA:

- (a) low visibility take-off (LVTO) operation; take-off operations with visibility conditions of less than 400 m RVR;
- (b) lower than standard category I (LTS CAT I) operation; instrument approach operations in lowvisibility conditions; and
- (c) standard category II (CAT II) operation; operations with operational credits, except for EFVS 200 operations, which shall not be subject to a specific approval.
- (d) other than standard category II (OTS CAT II) operation;
- (e) standard category III (CAT III) operation;
- (f) approach operation utilising enhanced vision systems (EVS) for which an operational credit is applied to reduce the runway visual range (RVR) minima by no more than one third of the published RVR.

SPA.LVO.105 LVO approval Specific approval criteria

To obtain an LVO approval from the CAA, the operator shall demonstrate compliance with the requirements of this Subpart.

To obtain a specific approval as required by SPA.LVO.100, the operator shall demonstrate that:

- (a) for low-visibility approach operations, LVTO operations in an RVR less than 125 m, and operations with operational credits, the aircraft has been certified for the intended operations;
- (b) the flight crew members are competent to conduct the intended operation and a training and checking programme for the flight crew members and relevant personnel involved in the flight preparation has been established, in accordance with SPA.LVO.120;
- (c) operating procedures for the intended operations have been established;
- (d) any relevant changes to the minimum equipment list (MEL) have been made;

(e) any relevant changes to the maintenance programme have been made;

- (f) procedures have been established to ensure the suitability of aerodromes, including instrument flight procedures, for the intended operations, in accordance with SPA.LVO.110; and
- (g) for the intended operations, a safety assessment has been carried out, and performance indicators have been established to monitor the level of safety.

SPA.LVO.110 General operating requirements Aerodromerelated requirements, including instrument flight procedures

- (a) The operator shall only conduct LTS CAT I operations if:
 - (1) each aircraft concerned is certified for operations to conduct CAT II operations; and
 - (2) the approach is flown:
 - (i) auto-coupled to an auto-land that needs to be approved for CAT IIIA operations; or
 - (ii) using an approved head-up display landing system (HUDLS) to at least 150 ft above the threshold.
- (b) The operator shall only conduct CAT II, OTS CAT II or CAT III operations if:
 - (1) each aircraft concerned is certified for operations with a decision height (DH) below 200 ft, or no DH, and equipped in accordance with the applicable airworthiness requirements;
 - (2) a system for recording approach and/or automatic landing success and failure is established and maintained to monitor the overall safety of the operation;
 - (3) the DH is determined by means of a radio altimeter;
 - (4) the flight crew consists of at least two pilots;
 - (5) all height call-outs below 200 ft above the aerodrome threshold elevation are determined by a radio altimeter.
- (c) The operator shall only conduct approach operations utilising an EVS if:
 - (1) the EVS is certified for the purpose of this Subpart and combines infra-red sensor image and flight information on the HUD;
 - (2) for operations with an RVR below 550 m, the flight crew consists of at least two pilots;
 - (3) for CAT I operations, natural visual reference to runway cues is attained at least at 100 ft above the aerodrome threshold elevation;
 - (4) for approach procedure with vertical guidance (APV) and non-precision approach (NPA) operations flown with CDFA technique, natural visual reference to runway cues is

attained at least at 200 ft above the aerodrome threshold elevation and the following requirements are complied with:

- (i) the approach is flown using an approved vertical flight path guidance mode;
- (ii) the approach segment from final approach fix (FAF) to runway threshold is straight and the difference between the final approach course and the runway centreline is not greater than 2°;
- (iii) the final approach path is published and not greater than 3,7°;
- (iv) the maximum cross-wind components established during certification of the EVS are not exceeded.

The operator shall ensure that only aerodromes, including instrument flight procedures, suitable for the intended operations are used for LVOs and operations with operational credits.

SPA.LVO.115 Aerodrome related requirements

- (a) The operator shall not use an aerodrome for LVOs below a visibility of 800 m unless:
 - (1) the aerodrome has been approved for such operations by the State of the aerodrome; and
 - (2) low visibility procedures (LVP) have been established.
- (b) If the operator selects an aerodrome where the term LVP is not used, the operator shall ensure that there are equivalent procedures that adhere to the requirements of LVP at the aerodrome. This situation shall be clearly noted in the operations manual or procedures manual including guidance to the flight crew on how to determine that the equivalent LVP are in effect.

SPA.LVO.120 Flight crew training and qualifications Flight crew competence

The operator shall ensure that, prior to conducting an LVO:

- (a) each flight crew member:
 - (1) complies with the training and checking requirements prescribed in the operations manual, including flight simulation training device (FSTD) training, in operating to the limiting values of RVR/VIS (visibility) and DH specific to the operation and the aircraft type;
 - (2) is qualified in accordance with the standards prescribed in the operations manual;
- (b) the training and checking is conducted in accordance with a detailed syllabus.
- (a) The operator shall ensure that the flight crew is competent to conduct the intended operations.
- (b) The operator shall ensure that each flight crew member successfully completes training and checking for all types of LVOs and operations with operational credits for which an approval has been granted. Such training and checking shall:

- (1) include initial and recurrent training and checking;
- (2) include normal, abnormal and emergency procedures;
- (3) be tailored to the type of technologies used in the intended operations; and
- (4) take into account the human factor risks associated with the intended operations.
- (c) The operator shall keep records of the training and qualifications of the flight crew members.
- (d) The training and checking shall be conducted by appropriately qualified personnel. In the case of flight and flight simulation training and checking, the personnel providing the training and conducting the checks shall be qualified in accordance with Annex I (Part-FCL) to UK Regulation (EU) No 1178/2011.

SPA.NVIS.120 NVIS operating minima

- (a) Operations shall not be conducted below the VER weather minima for the type of night operations being conducted.
- (b) The operator shall establish the minimum transition height from where a change to/from aided flight may be continued.

SPA.HEMS.150 Fuel/energy supply - alleviation

- (a) When the HEMS mission is conducted under VFR within a local and defined geographical area, standard fuel planning can be employed provided the operator establishes final reserve fuel to ensure that, on completion of the mission the fuel remaining is not less than an amount of fuel sufficient for:
 - (1) 30 minutes of flying time at normal cruising conditions; or
 - (2) when operating within an area providing continuous and suitable precautionary landing sites, 20 minutes of flying time at normal cruising speed.

As an alternative to points **CAT.OP.MPA.191(b)**, (c), and (d), when the helicopter emergency medical services (HEMS) mission is conducted under visual flight rules (VFR) within a local and defined geographical area, the fuel/energy policy shall ensure that on completion of the mission, the final reserve fuel/energy is sufficient for:

- (a) 30-minute flying time at best-range speed; or
- (b) 20-minute flying time at best-range speed by day, when operating within an area providing continuous and suitable operating sites.

SPA.HEMS.155 Refuelling with passengers embarking, on board or disembarking

When the commander considers refuelling with passengers on board to be necessary, it can be undertaken either rotors stopped or rotors turning provided the following requirements are met:

(a) door(s) on the refuelling side of the helicopter shall remain closed;

(b) door(s) on the non-refuelling side of the helicopter shall remain open, weather permitting;

(c) fire fighting facilities of the appropriate scale shall be positioned so as to be immediately available in the event of a fire; and

(d) sufficient personnel shall be immediately available to move patients clear of the helicopter in the event of a fire.

A refuelling procedure with either rotors stopped or rotors turning shall be provided in accordance with point **CAT.OP.MPA.200** 'Special refuelling or defuelling of the aircraft.

SPA.HOFO.120 Selection of aerodromes and operating sites

- (a) Onshore destination alternate aerodrome. Notwithstanding points CAT.OP.MPA.192, NCC.OP.152 and SPO.OP.151, the pilot-in command/commander does not need to specify a destination alternate aerodrome in the operational flight plan when conducting flights from an offshore location to a land destination aerodrome provided that sufficient operational contingency is in place to ensure a safe return from offshore. CAT.OP.MPA.181, NCC.OP.152, and SPO.OP.151, the pilot-in command/commander does not need to specify a destination alternate aerodrome in the operational flight plan when conducting flights from an offshore location to a land aerodrome if either:
 - (1) the destination aerodrome is defined as a coastal aerodrome, or
 - (2) the following criteria are met:
 - (i) the destination aerodrome has a published instrument approach;
 - (ii) the flight time is less than 3 hours; and
 - (iii) the published weather forecast valid from 1 hour prior and 1 hour subsequent to the expected landing time specifies that:
 - (A) the cloud base is at least 700 feet above the minima associated with the instrument approach, or 1 000 feet above the destination aerodrome, whichever is higher; and
 - (B) visibility is at least 2 500 meters.
- (b) Offshore destination alternate helideck. The operator may select an offshore destination alternate helideck when all of the following criteria are met:

- (1) An offshore destination alternate helideck shall be used only after the point of no return (PNR) and when an onshore destination alternative aerodrome is not geographically available. Prior to the PNR, an onshore destination alternate aerodrome shall be used.
- (2) One engine inoperative (OEI) landing capability shall be attainable at the offshore destination alternate helideck.
- (3) To the extent possible, helideck availability shall be guaranteed prior to PNR. The dimensions, configuration and obstacle clearance of individual helidecks or other sites shall be suitable for its use as an alternate helideck by each helicopter type intended to be used.
- (4) Weather minima shall be established taking into account the accuracy and reliability of meteorological information.
- (5) The MEL shall contain specific provisions for this type of operation.
- (6) An offshore destination alternate helideck shall only be selected if the operator has established a procedure in the operations manual.

SPA.HOFO.125 Airborne radar approaches (ARAs) to offshore locations – CAT operations Offshore standard approach procedures (OSAPs)

- (a) A commercial air transport (CAT) operator shall establish operational procedures and ensure that ARAs are only flown if:
 - (1) the helicopter is equipped with a radar that is capable of providing information regarding the obstacle environment; and
 - (2) either:
 - (i) the minimum descent height (MDH) is determined from a radio altimeter; or
 - (ii) the minimum descent altitude (MDA) plus an adequate margin is applied.
- (b) ARAs to rigs or vessels in transit shall be flown as multi-pilot operations.
- (c) The decision range shall provide adequate obstacle clearance in the missed approach from any destination for which an ARA is planned.
- (d) The approach shall only be continued beyond decision range or below the minimum descent altitude/height (MDA/H) when visual reference to the destination has been established.
- (e) For single-pilot CAT operations, appropriate increments shall be added to the MDA/H and decision range.
- (f) When an ARA is flown to a non-moving offshore location (i.e. fixed installation or moored vessel) and a reliable GPS position for the location is available in the navigation system, the GPS/area navigation system shall be used to enhance the safety of the ARA.

- (a) An operator shall establish procedures to ensure that offshore standard approach procedures (OSAPs) are followed only if:
 - (1) the helicopter is capable of providing navigation and real-time obstacle environment information for obstacle clearance; and
 - (2) either:
 - the minimum descent height (MDH) is determined from a radio altimeter or a device that provides equivalent performance; or
 - (ii) the minimum descent altitude (MDA) is applied and it includes an adequate margin.
- (b) If the operator follows OSAPs to rigs or vessels in transit, the flight shall be conducted in multi-pilot operations.
- (c) The decision range shall provide adequate obstacle clearance in the missed approach from any destination for which an OSAP is planned.
- (d) The approach shall only be continued beyond decision range or below the minimum descent altitude/height (MDA/H) when visual reference to the destination has been established.
- (e) For single-pilot operations, appropriate increments shall be added to the MDA/H and decision range.
- (f) When an OSAP is followed to a non-moving offshore location (i.e. fixed installation or moored vessel) and a reliable GNSS position for the location is available in the navigation system, the GNSS/area navigation system shall be used to enhance the safety of the OSAP.
- (g) The operator shall include OSAPs in its initial and recurrent training and checking programmes.

SPA.SET-IMC.110 Equipment requirements for SET-IMC operations

Aeroplanes used for SET-IMC operations shall be equipped with all the following equipment:

- two separate electrical generating systems, each one capable of supplying adequate power to all essential flight instruments, navigation systems and aeroplane systems required for continued flight to the destination or alternate aerodrome;
- (b) two attitude indicators, powered from independent sources;
- (c) for passenger operations, a shoulder harness or a safety belt with a diagonal shoulder strap for each passenger seat;
- (d) airborne weather-detecting equipment;
- (e) in a pressurised aeroplane, sufficient supplemental oxygen for all occupants to allow descent, following engine failure at the maximum certificated cruising altitude, at the best range gliding speed and in the best gliding configuration, assuming the maximum cabin leak rate, until

sustained cabin altitudes below 13 000 ft are reached;

- (f) an area navigation system capable of being programmed with the positions of landing sites and providing lateral guidance to the flight crew to reach those sites;
- (g) a radio altimeter;
- (h) a landing light, capable of illuminating the touchdown point on the power-off glide path from 200 ft away;
- (i) an emergency electrical supply system of sufficient capacity and endurance capable of providing power, following the failure of all generated power, to additional loads necessary for all of the following:
 - (1) the essential flight and area navigation instruments during descent from maximum operating altitude after engine failure;
 - (2) the means to provide for one attempt to restart the engine;
 - (3) if appropriate, the extension of landing gear and flaps;
 - (4) the use of the radio altimeter throughout the landing approach;
 - (5) the landing light;
 - (6) one pitot heater;
 - (7) if installed, the electrical means to give sufficient protection against impairment of the pilot's vision for landing;
- (j) an ignition system that activates automatically, or is capable of being operated manually, for take-off, landing, and during flight, in visible moisture;
- (k) a means of continuously monitoring the power train lubrication system to detect the presence of debris associated with the imminent failure of a drivetrain component, including a flight crew compartment caution indication;
- (I) an emergency engine power control device that permits continuing operation of the engine at a sufficient power range to safely complete the flight in the event of any reasonably probable failure of the fuel/energy control unit.

Annex VI NON-COMMERCIAL AIR OPERATIONS WITH COMPLEX MOTOR-POWERED AIRCRAFT

NCC.OP.101 Altimeter check and settings

- (a) The operator shall establish procedures for altimeter checking before each departure.
- (b) The 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 aerodrome or the State of the airspace, if applicable.

NCC.OP.105 Specification of isolated aerodromes – aeroplanes

For the selection of alternate aerodromes and the fuel/energy planning and in-flight re-planning policy, the operator shall not consider an aerodrome as an isolated aerodrome if unless the flying time to the nearest weather-permissible adequate destination alternate aerodrome is more than:

- (a) for aeroplanes with reciprocating engines, 60 minutes; or
- (b) for turbine-engined aeroplanes with turbine engines, 90 minutes.

NCC.OP.110 Aerodrome operating minima — general

- (a) For instrument flight rules (IFR) flights the operator shall establish aerodrome operating minima for each departure, destination and alternate aerodrome to be used. Such minima shall:
 - (1) not be lower than those established by the State in which the aerodrome is located, except when specifically approved by that State; and
 - (2) when undertaking low visibility operations, be approved by the CAA in accordance with Annex V (Part SPA), Subpart E to UK Regulation (EU) No 965/2012.
- (b) When establishing aerodrome operating minima, the operator shall take the following into account:
 - (1) the type, performance and handling characteristics of the aircraft;
 - (2) the composition, competence and experience of the flight crew;
 - (3) the dimensions and characteristics of the runways and final approach and take-off areas (FATOs) that may be selected for use;
 - (4) the adequacy and performance of the available visual and non-visual ground aids;

- (5) the equipment available on the aircraft for the purpose of navigation and/or control of the flight path, during the take-off, the approach, the flare, the landing, the rollout and the missed approach;
- (6) the obstacles in the approach, the missed approach and the climb-out areas necessary for the execution of contingency procedures;
- (7) the obstacle clearance altitude/height for the instrument approach procedures;
- (8) the means to determine and report meteorological conditions; and
- (9) the flight technique to be used during the final approach.
- (c) The minima for a specific type of approach and landing procedure shall only be used if all the following conditions are met:
 - (1) the ground equipment required for the intended procedure is operative;
 - (2) the aircraft systems required for the type of approach are operative;
 - (3) the required aircraft performance criteria are met; and
 - (4) the crew is qualified appropriately.
- (a) The operator shall establish aerodrome operating minima for each departure, destination or alternate aerodrome that is planned to be used in order to ensure separation of the aircraft from terrain and obstacles and to mitigate the risk of loss of visual references during the visual flight segment of instrument approach operations.
- (b) The method used to establish aerodrome operating minima shall take all the following elements into account:
 - (1) the type, performance, and handling characteristics of the aircraft;
 - (2) the equipment available on the aircraft for the purpose of navigation, acquisition of visual references, and/or control of the flight path during take-off, approach, landing, and missed approach;
 - (3) any conditions or limitations stated in the aircraft flight manual (AFM);
 - the dimensions and characteristics of the runways/final approach and take-off areas (FATOs) that may be selected for use;
 - (5) the adequacy and performance of the available visual and non-visual aids and infrastructure;
 - the obstacle clearance altitude/height (OCA/H) for the instrument approach procedures (IAPs);
 - (7) the obstacles in the climb-out areas and necessary clearance margins;
 - (8) any non-standard characteristics of the aerodrome, the IAP or the environment;
 - (9) the composition of the flight crew, their competence and experience;

- (10) the IAP;
- (11) the aerodrome characteristics and the available air navigation services (ANS);
- (12) any minima that may be promulgated by the State of the aerodrome;
- (13) the conditions prescribed in any specific approvals for low-visibility operations (LVOs) or operations with operational credits; and
- (14) the relevant operational experience of the operator.
- (c) The operator shall specify a method of determining aerodrome operating minima in the operations manual.

NCC.OP.111 Aerodrome operating minima — NPA, APV, CAT I operations

- (a) The decision height (DH) to be used for a non-precision approach (NPA) flown with the continuous descent final approach (CDFA) technique, approach procedure with vertical guidance (APV) or category I (CAT I) operation shall not be lower than the highest of:
 - (1) the minimum height to which the approach aid can be used without the required visual reference;
 - (2) the obstacle clearance height (OCH) for the category of aircraft;
 - (3) the published approach procedure DH where applicable;
 - (4) the system minimum specified in Table 1; or
 - (5) the minimum DH specified in the AFM or equivalent document, if stated.
- (b) The minimum descent height (MDH) for an NPA operation flown without the CDFA technique shall not be lower than the highest of:
 - (1) the OCH for the category of aircraft;
 - (2) the system minimum specified in Table 1; or
 - (3) the minimum MDH specified in the AFM, if stated.

Table 1

System minima

Facility	Lowest DH/MDH (ft)
Instrument landing system (ILS)	200

Global navigation satellite system (GNSS)/Satellite-based- augmentation system (SBAS) (Lateral precision with vertical- guidance approach (LPV))	200
GNSS (Lateral Navigation (LNAV))	250
GNSS/Baro-vertical navigation (VNAV) (LNAV/VNAV)	250
Localiser (LOC) with or without distance measuring equipment (DME)	250
Surveillance radar approach (SRA) (terminating at ½ NM)	250
SRA (terminating at 1 NM)	300
SRA (terminating at 2 NM or more)	350
VHF omnidirectional radio range (VOR)	300
VOR/DME	250
Non-directional beacon (NDB)	350
NDB/DME	300
VHF direction finder (VDF)	350

NCC.OP.112 Aerodrome operating minima — circling operations with aeroplanes

(a) The MDH for a circling operation with aeroplanes shall not be lower than the highest of:

- (1) the published circling OCH for the aeroplane category;
- (2) the minimum circling height derived from Table 1; or
- (3) the DH/MDH of the preceding instrument approach procedure.
- (b) The minimum visibility for a circling operation with aeroplanes shall be the highest of:
 - (1) the circling visibility for the aeroplane category, if published;
 - (2) the minimum visibility derived from Table 2; or
 - (3) the runway visual range/converted meteorological visibility (RVR/CMV) of the preceding instrument approach procedure.

Table 1

MDH and minimum visibility for circling vs. aeroplane category

	Aeroplane category			
	A	₿	C	Ð
MDH (ft)	400	500	600	700

	Acroplane category			
	A	₽	¢	Ð
Minimum meteorological- visibility (m)	1500	1600	2400	3600

(a) The MDH for a circling approach with aeroplanes shall not be lower than the highest of:

- (1) the published circling OCH for the aeroplane category;
- (2) the minimum circling height derived from Table 1; or
- (3) the DH/MDH of the preceding IAP.
- (b) The minimum visibility for a circling approach with aeroplanes shall be the highest of:
 - (1) the circling visibility for the aeroplane category, if published; or
 - (2) the minimum visibility derived from Table 1.

Table 1

MDH and minimum visibility for circling vs. aeroplane category

	Aeroplane category			
	Α	В	С	D
MDH (ft)	400	500	600	700
Minimum VIS (m)	1500	1600	2400	3600

NCC.OP.130 Fuel and oil supply – aeroplanes Fuel/energy scheme – aeroplanes and helicopters

- (a) The pilot-in-command shall only commence a flight if the aeroplane carries sufficient fuel and oil for the following:
 - (1) for visual flight rules (VFR) flights:
 - (i) by day, to fly to the aerodrome of intended landing and thereafter to fly for at least 30 minutes at normal cruising altitude; or
 - (ii) by night, to fly to the aerodrome of intended landing and thereafter to fly for at least 45 minutes at normal cruising altitude;
 - (2) for IFR flights:

- (i) when no destination alternate is required, to fly to the aerodrome of intended landing, and thereafter to fly for at least 45 minutes at normal cruising altitude; or
- (ii) when a destination alternate is required, to fly to the aerodrome of intended landing, to an alternate aerodrome and thereafter to fly for at least 45 minutes at normal cruising altitude.
- (b) In computing the fuel required including to provide for contingency, the following shall be taken into consideration:
 - (1) forecast meteorological conditions;
 - (2) anticipated ATC routings and traffic delays;
 - (3) procedures for loss of pressurisation or failure of one engine while en-route, where applicable; and
 - (4) any other condition that may delay the landing of the aeroplane or increase fuel and/or oil consumption.
- (c) Nothing shall preclude amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that all requirements can be complied with from the point where the flight is re-planned.
- (a) The operator shall establish, implement, and maintain a fuel/energy scheme that comprises:
 - (1) a fuel/energy planning and in-flight re-planning policy; and
 - (2) an in-flight fuel/energy management policy.
- (b) The fuel/energy scheme shall:
 - (1) be appropriate for the type(s) of operation performed; and
 - (2) correspond to the capability of the operator to support its implementation.

NCC.OP.131 Fuel and oil supply – helicopters Fuel/energy scheme – fuel/energy planning and in-flight re-planning policy – aeroplanes and helicopters

- (a) The pilot-in-command shall only commence a flight if the helicopter carries sufficient fuel and oil for the following:
 - (1) for VFR flights, to fly to the aerodrome/operating site of intended landing and thereafter to fly for at least 20 minutes at best-range-speed; and
 - (2) for IFR flights:
 - (i) when no alternate is required or no weather-permissible alternate aerodrome is available, to fly to the aerodrome/operating site of intended landing, and thereafter to fly for 30 minutes at holding speed at 450 m (1 500 ft) above the destination aerodrome/operating site under standard temperature conditions and approach and land; or

- (ii) when an alternate is required, to fly to and execute an approach and a missed approach at the aerodrome/operating site of intended landing, and thereafter:
 - (A) to fly to the specified alternate; and
 - (B) to fly for 30 minutes at holding speed at 450 m (1 500 ft) above the alternate aerodrome/operating site under standard temperature conditions and approach and land.
- (b) In computing the fuel required including to provide for contingency, the following shall be taken into consideration:
 - (1) forecast meteorological conditions;
 - (2) anticipated ATC routings and traffic delays;
 - (3) procedures for loss of pressurisation or failure of one engine while en-route, where applicable; and
 - (4) any other condition that may delay the landing of the aircraft or increase fuel and/or oil consumption.
- (c) Nothing shall preclude amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that all requirements can be complied with from the point where the flight is re-planned.
- (a) As part of the fuel/energy scheme, the operator shall establish a fuel/energy planning and in-flight re-planning policy to ensure that the aircraft carries a sufficient amount of usable fuel/energy to safely complete the planned flight and to allow for deviations from the planned operation.
- (b) The operator shall ensure that the fuel/energy planning of flights is based upon at least the following elements:
 - (1) procedures contained in the operations manual as well as:
 - current aircraft-specific data derived from a fuel/energy consumption monitoring system, or, if not available;
 - (ii) data provided by the aircraft manufacturer; and
 - (2) the operating conditions under which the flight is to be conducted including:
 - (i) aircraft fuel/energy consumption data;
 - (ii) anticipated masses;
 - (iii) anticipated meteorological conditions;
 - (iv) the effects of deferred maintenance items or configuration deviations, or both; and
 - (v) anticipated delays.
- (c) For aeroplanes, the operator shall ensure that the pre-flight calculation of the usable fuel/energy that is required for a flight includes:

- 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 required to enable the aeroplane to fly from take-off, or from the point of in-flight re-planning, to landing at the destination aerodrome;
- (3) contingency fuel/energy that shall be the amount of fuel/energy required to compensate for unforeseen factors;
- (4) destination alternate fuel/energy:
 - when a flight is operated with at least one destination alternate aerodrome, it shall be the amount of fuel/energy required to fly from the destination aerodrome to the destination alternate aerodrome; or
 - (ii) when a flight is operated with no destination alternate aerodrome, it shall be the amount of fuel/energy required to hold at the destination aerodrome to compensate for the lack of a destination alternate aerodrome;
- (5) final reserve fuel/energy that shall be the amount of fuel/energy that is calculated at holding speed at 1 500ft (450 m) above the aerodrome elevation in standard conditions according to the aircraft estimated mass on arrival at the destination alternate aerodrome, or destination aerodrome when no destination alternate aerodrome is required, and shall not be less than:
 - (i) for aeroplanes with reciprocating engines on visual flight rules (VFR) flights by night and instrument flight rules (IFR) flights, the fuel/energy to fly for 45 minutes; or
 - (ii) for aeroplanes with reciprocating engines on VFR flights by day, the fuel/energy to fly for 30 minutes;
 - (iii) for turbine-engined aeroplanes, the fuel/energy to fly for 30 minutes;
- (6) additional fuel/energy, if required by the type of operation; it shall be the amount of fuel/energy to enable the aeroplane to perform a safe landing at a fuel/energy en route alternate aerodrome (fuel/energy ERA aerodrome critical scenario) in the event of an engine failure or loss of pressurisation, whichever requires the greater amount of fuel/energy, based on the assumption that such a failure occurs at the most critical point along the route; this additional fuel/energy is required only if the minimum amount of fuel/energy that is calculated according to points (c)(2) to (c)(5) is not sufficient for such an event;
- (7) extra fuel/energy to take into account anticipated delays or specific operational constraints; and
- (8) discretionary fuel/energy, if required by the commander.
- (d) For helicopters, the operator shall ensure that the pre-flight calculation of the usable fuel/energy that is required for a flight includes all of the following:
 - (1) fuel/energy to fly to the aerodrome or operating site of intended landing;

- (2) if a destination alternate is required, destination alternate fuel/energy, which shall be the amount of fuel/energy that is required to execute a missed approach at the aerodrome or operating site of intended landing, and thereafter, to fly to the specified destination alternate, approach and land; and
- (3) final reserve fuel/energy, which shall not be less than:
 - for flights under VFR, fuel/energy to fly for at least 20 minutes at best-range speed; or
 - (ii) for IFR flights, fuel/energy to fly for at least 30 minutes at holding speed at 450 m (1 500 ft) above the aerodrome or operating site of intended landing or destination alternate in standard temperature conditions.
- (e) The operator shall ensure that if a flight has to proceed to a destination aerodrome other than the one originally planned, in-flight re-planning procedures for calculating the required usable fuel/energy are available and comply with points (c)(2) to (c)(7) for aeroplanes, and point (d) for helicopters.
- (f) The pilot in command shall only commence a flight or continue in the event of in-flight re-planning, when satisfied that the aircraft carries at least the planned amount of usable fuel/energy and oil to safely complete the flight.

NCC.OP.145 Flight preparation

- (a) Before commencing a flight, the pilot-in-command shall ascertain by every reasonable means available that the space-based facilities, ground and/or water facilities, including communication facilities and navigation aids available and directly required on such flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted.
- (b) Before commencing a flight, the pilot-in-command shall be familiar with all available meteorological information appropriate to the intended flight. Preparation for a flight away from the vicinity of the place of departure, and for every flight under IFR, shall include:
 - (1) a study of available current meteorological weather reports and forecasts; and
 - (2) the planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned, because of meteorological weather conditions.

NCC.OP.147 Destination alternate aerodromes planning minima — aeroplanes

An aerodrome shall not be specified as a destination alternate aerodrome unless the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period,

(a) for an alternate aerodrome with an available instrument approach operation with DH less than 250 ft,

- a ceiling of at least 200 ft above the DH or MDH associated with the instrument approach operation; and
- (2) a visibility of at least the higher of 1 500 m and 800 m above the instrument approach operation RVR/VIS minima; or
- (b) for an alternate aerodrome with an instrument approach operation with DH or MDH 250 ft or more,
 - (1) a ceiling of at least 400 ft above the DH or MDH associated with the instrument approach operation; and
 - (2) a visibility of at least 3 000 m; or
- (c) for an alternate aerodrome without an instrument approach procedure,
 - (1) a ceiling of at least the higher of 2 000 ft and the minimum safe IFR height; and
 - (2) a visibility of at least 5 000 m.

NCC.OP.148 Destination alternate aerodrome planning minima — helicopters

The operator shall only select an aerodrome as a destination alternate aerodrome if the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period:,

- (a) for an alternate aerodrome with an instrument approach procedure (IAP):
 - (1) a ceiling of at least 200 ft above the DH or MDH associated with the IAP; and
 - (2) a visibility of at least 1 500 m by day or 3 000 m by night; or
- (b) for an alternate aerodrome without an IAP:
 - (1) a ceiling of at least 2 000 ft or the minimum safe IFR height whichever is greater; and
 - (2) a visibility of at least 1 500 m by day or 3 000 m by night.

NCC.OP.150 Take-off alternate aerodromes — aeroplanes

- (a) For IFR flights, the pilot-in-command shall specify at least one weather-permissible take-off alternate aerodrome in the flight plan if the meteorological weather conditions at the aerodrome of departure are at or below the applicable aerodrome operating minima or it would not be possible to return to the aerodrome of departure for other reasons.
- (b) The take-off alternate aerodrome shall be located within the following distance from the aerodrome of departure:

- (1) for aeroplanes having two engines, not more than a distance equivalent to a flight time of 1 hour at the single-engine cruise speed in still air standard conditions; and
- (2) for aeroplanes having three or more engines, not more than a distance equivalent to a flight time of 2 hours at the one-engine-inoperative (OEI) cruise speed according to the AFM in still air standard conditions.
- (c) For an aerodrome to be selected as a take-off alternate aerodrome the available information shall indicate that, at the estimated time of use, the conditions will be at or above the aerodrome operating minima for that operation.

NCC.OP.151 Destination alternate aerodromes – aeroplanes

For IFR flights, the pilot-in-command shall specify at least one weather-permissible destination alternate aerodrome in the flight plan, unless:

- (a) the available current meteorological information indicates that, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period, the approach and landing may be made under visual meteorological conditions (VMC); or
- (b) the place of intended landing is designated an isolated aerodrome and:
 - (1) an instrument approach procedure is prescribed for the aerodrome of intended landing; and
 - (2) available current meteorological information indicates that the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival:
 - (i) a cloud base of at least 300 m (1 000 ft) above the minimum associated with the instrument approach procedure; and
 - (ii) visibility of at least 5,5 km or of 4 km more than the minimum associated with the procedure.

NCC.OP.155 Refuelling with passengers embarking, on board or disembarking

- (a) The aircraft shall not be refuelled with aviation gasoline (AVGAS) or wide-cut type fuel or a mixture of these types of fuel, when passengers are embarking, on board or disembarking.
- (b) For all other types of fuel/energy, necessary precautions shall be taken and the aircraft shall be properly manned by qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.

NCC.OP.157 Refuelling with engine(s) and/or rotors turning – helicopters

- (a) Refuelling with engine(s) and/or rotors turning shall only be conducted:
 - (1) with no passengers embarking or disembarking;
 - (2) if the operator of the aerodrome/operating site allows such operations;
 - (3) in accordance with any specific procedures and limitations in the aircraft flight manual (AFM);
 - (4) with JET A or JET A-1 fuel types; and
 - (5) in the presence of the appropriate rescue and firefighting (RFF) facilities or equipment.
- (b) The operator shall assess the risks associated with refuelling with engine(s) and/or rotors turning.
- (c) The operator shall establish appropriate procedures to be followed by all involved personnel, such as crew members and ground operations personnel.
- (d) The operator shall train its crew members and ensure that the involved ground operations personnel is trained appropriately.
- (e) The operator shall ensure that the helicopter refuelling procedure with engine(s) and/or rotors turning are specified in the operations manual. This procedure and any change thereto shall require prior approval by the CAA.

NCC.OP.180 Meteorological conditions

- (a) The pilot-in-command shall only commence or continue a VFR flight if the latest available meteorological information indicates that the meteorological weather conditions along the route and at the intended destination at the estimated time of use will be at or above the applicable VFR operating minima.
- (b) The pilot-in-command shall only commence or continue an IFR flight towards the planned destination aerodrome if the latest available meteorological information indicates that, at the estimated time of arrival, the meteorological weather conditions at the destination or at least one destination alternate aerodrome are at or above the applicable aerodrome operating minima.
- (c) If a flight contains VFR and IFR segments, the meteorological information referred to in (a) and (b) shall be applicable as far as relevant.

NCC.OP.195 Take-off conditions – aeroplanes and helicopters

Before commencing take-off, the pilot-in-command shall be satisfied that:

- (a) according to the information available, the weather at the aerodrome or operating site and the condition of the runway or FATO intended to be used would not prevent a safe take-off and departure; and
- (b) applicable aerodrome operating minima will be complied with.
- (a) the meteorological conditions at the aerodrome or the operating site and the condition of the runway/FATO intended to be used will not prevent a safe take-off and departure; and
- (b) the selected aerodrome operating minima are consistent with all of the following:
 - (1) the operative ground equipment;
 - (2) the operative aircraft systems;
 - (3) the aircraft performance;
 - (4) flight crew qualifications.

NCC.OP.205 In-flight fuel management Fuel/energy scheme – in-flight fuel/energy management policy

(a) The operator shall establish a procedure to ensure that in-flight fuel checks and fuel management are performed.

(b) The pilot-in-command shall check at regular intervals that the amount of usable fuel remaining in flight is not less than the fuel required to proceed to a weather-permissible aerodrome or operating site and the planned reserve fuel as required by NCC.OP.130 or NCC.OP.131.

- (a) The operator shall establish procedures to ensure that in-flight fuel/energy checks and fuel/energy management are performed.
- (b) The pilot-in-command shall monitor the amount of usable fuel/energy remaining on board to ensure that it is protected and not less than the fuel/energy that is required to proceed to an aerodrome or operating site where a safe landing can be made.
- (c) The pilot-in-command shall advise air traffic control (ATC) of a 'minimum fuel/energy' state by declaring 'MINIMUM FUEL' when the pilot-in-command has:
 - (1) committed to land at a specific aerodrome or operating site; and
 - (2) calculated that any change to the existing clearance to that aerodrome or operating site, or other air traffic delays, may result in landing with less than the planned final reserve fuel/energy.
- (d) The pilot-in-command shall declare a situation of 'fuel/energy emergency' by broadcasting 'MAYDAY MAYDAY FUEL' when the usable fuel/energy estimated to be available

upon landing at the nearest aerodrome or operating site where a safe landing can be made is less than the planned final reserve fuel/energy.

NCC.OP.225 Approach and landing conditions — aeroplanes and helicopters

Before commencing an approach to land, the pilot-in-command shall be satisfied that, according to the information available, the weather at the aerodrome or the operating site and the condition of the runway intended to be used would not prevent a safe approach, landing or missed approach.

- (a) the meteorological conditions at the aerodrome or the operating site and the condition of the runway/FATO intended to be used will not prevent a safe approach, landing or go-around, considering the performance information contained in the operations manual; and
- (b) the selected aerodrome operating minima are consistent with all of the following:
 - (1) the operative ground equipment;
 - (2) the operative aircraft systems;
 - (3) the aircraft performance; and
 - (4) flight crew qualifications.

NCC.OP.230 Commencement and continuation of approach

- (a) The pilot-in-command may commence an instrument approach regardless of the reported runway visual range/visibility (RVR/VIS).
- (b) If the reported RVR/VIS is less than the applicable minimum the approach shall not be continued:
 - (1) below 1 000 ft above the aerodrome; or
 - (2) into the final approach segment in the case where the decision altitude/height (DA/H) or minimum descent altitude/height (MDA/H) is more than 1 000 ft above the aerodrome.
- (c) Where the RVR is not available, RVR values may be derived by converting the reported visibility.
- (d) If, after passing 1 000 ft above the aerodrome, the reported RVR/VIS falls below the applicable minimum, the approach may be continued to DA/H or MDA/H.
- (e) The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the visual reference adequate for the type of approach operation and for the intended runway is established at the DA/H or MDA/H and is maintained.
- (f) The touchdown zone RVR shall always be controlling.

- (a) For aeroplanes, if the reported visibility (VIS) or controlling RVR for the runway to be used for landing is less than the applicable minimum, then an instrument approach operation shall not be continued:
 - (1) past a point at which the aeroplane is 1 000 ft above the aerodrome elevation; or
 - (2) into the final approach segment (FAS) if the DH or MDH is higher than 1 000 ft.
- (b) For helicopters, if the reported RVR is less than 550 m and the controlling RVR for the runway to be used for landing is less than the applicable minimum, then an instrument approach operation shall not be continued:
 - (1) past a point at which the helicopter is 1 000 ft above the aerodrome elevation; or
 - (2) into the FAS if the DH or MDH is higher than 1 000 ft.
- (c) If the required visual reference is not established, a missed approach shall be executed at or before the DA/H or the MDA/H.
- (d) If the required visual reference is not maintained after DA/H or MDA/H, a go-around shall be executed promptly.
- (e) Notwithstanding point (a), in the case where no RVR is reported, and the reported VIS is less than the applicable minimum, but the converted meteorological visibility (CMV) is equal or greater than the applicable minimum, then the instrument approach can be continued to the DA/H or MDA/H.
- (f) Notwithstanding points (a) and (b), if there is no intention to land, the instrument approach may be continued to the DA/H or the MDA/H. A missed approach shall be executed at or before the DA/H or the MDA/H.

NCC.OP.235 EFVS 200 operations

- (a) An operator that intends to conduct EFVS 200 operations with operational credits and without a specific approval shall ensure that:
 - (1) the aircraft is certified for the intended operations;
 - (2) only runways, FATOs and IAPs suitable for EFVS operations are used;
 - (3) the flight crew members are competent to conduct the intended operation, and a training and checking programme for the flight crew members and relevant personnel involved in the flight preparation is established;
 - (4) operating procedures are established;
 - (5) any relevant information is documented in the minimum equipment list (MEL);
 - (6) any relevant information is documented in the maintenance programme;
 - (7) safety assessments are carried out and performance indicators are established to monitor the level of safety of the operation; and

(8) the aerodrome operating minima take into account the capability of the system used.

(b) The operator shall not conduct EFVS 200 operations when conducting LVOs.

(c) Notwithstanding point (a)(1), the operator may use EVSs meeting the minimum criteria to conduct EFVS 200 operations, provided that this is approved by the CAA.

NCC.POL.110 Mass and balance data and documentation

- (a) The operator shall establish mass and balance data and produce mass and balance documentation prior to each flight specifying the load and its distribution in such a way that the mass and balance limits of the aircraft are not exceeded. The mass and balance documentation shall contain the following information:
 - (1) aircraft registration and type;
 - (2) flight identification, number and date, as applicable;
 - (3) name of the pilot-in-command;
 - (4) name of the person who prepared the document;
 - (5) dry operating mass and the corresponding CG of the aircraft;
 - (6) mass of the fuel at take-off and the mass of trip fuel/energy;
 - (7) mass of consumables other than fuel/energy, if applicable;
 - (8) load components including passengers, baggage, freight, and ballast;
 - (9) take-off mass, landing mass and zero fuel/energy mass;
 - (10) applicable aircraft CG positions; and
 - (11) the limiting mass and CG values.
- (b) Where mass and balance data and documentation are generated by a computerised mass and balance system, the operator shall verify the integrity of the output data.
- (c) When the loading of the aircraft is not supervised by the pilot-in-command, the person supervising the loading of the aircraft shall confirm by hand signature or equivalent that the load and its distribution are in accordance with the mass and balance documentation established by the pilot-in-command. The pilot-in-command shall indicate his/her acceptance by hand signature or equivalent.
- (d) The operator shall specify procedures for last minute changes to the load to ensure that:
 - (1) any last minute change after the completion of the mass and balance documentation is 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 this maximum number is exceeded.

Annex VII NON-COMMERCIAL AIR OPERATIONS WITH OTHER-THAN COMPLEX MOTOR-POWERED AIRCRAFT (Part-NCO)

NCO.OP.101 Altimeter check and settings

- (a) The pilot-in-command shall check the proper operation of the altimeter before each departure.
- (b) The pilot-in-command shall use appropriate altimeter settings for all phases of flight, taking into account any procedure prescribed by the State of the aerodrome or the State of the airspace.

NCO.OP.105 Specification of isolated aerodromes – aeroplanes

For the selection of alternate aerodromes and the fuel/energy supply policy, the pilot-in-command shall not consider an aerodrome as an isolated aerodrome if the flying time to the nearest adequate destination alternate aerodrome is more than:

- (a) for aeroplanes with reciprocating engines, 60 minutes; or
- (b) for turbine-engined aeroplanes with turbine engines, 90 minutes.

NCO.OP.110 Aerodrome operating minima — aeroplanes and helicopters

- (a) For instrument flight rules (IFR) flights, the pilot-in-command shall select and use aerodrome operating minima for each departure, destination and alternate aerodrome. Such minima shall:
 - (1) not be lower than those established by the State in which the aerodrome is located, except when specifically approved by that State; and
 - (2) when undertaking low visibility operations, be approved by the CAA in accordance with Annex V (Part-SPA), Subpart E to UK Regulation (EU) No 965/2012.
- (b) When selecting the aerodrome operating minima, the pilot-in-command shall take the following into account:
 - (1) the type, performance and handling characteristics of the aircraft;
 - (2) his/her competence and experience;
 - (3) the dimensions and characteristics of the runways and final approach and take-off areas (FATOs) that may be selected for use;

- (4) the adequacy and performance of the available visual and non-visual ground aids;
- (5) the equipment available on the aircraft for the purpose of navigation and/or control of the flight path, during the take-off, the approach, the flare, the landing, the rollout and the missed approach;
- (6) the obstacles in the approach, the missed approach and the climb-out areas necessary for the execution of contingency procedures;
- (7) the obstacle clearance altitude/height for the instrument approach procedures;
- (8) the means to determine and report meteorological conditions; and
- (9) the flight technique to be used during the final approach.
- (c) The minima for a specific type of approach and landing procedure shall only be used if:
 - (1) the ground equipment required for the intended procedure is operative;
 - (2) the aircraft systems required for the type of approach are operative;
 - (3) the required aircraft performance criteria are met; and
 - (4) the pilot is qualified appropriately.
- (a) For instrument flight rules (IFR) flights, the pilot-in-command shall establish aerodrome operating minima for each departure, destination or alternate aerodrome that is planned to be used in order to ensure separation of the aircraft from terrain and obstacles and to mitigate the risk of loss of visual references during the visual flight segment of instrument approach operations.
- (b) The aerodrome operating minima shall take the following elements into account, if relevant:
 - (1) the type, performance, and handling characteristics of the aircraft;
 - (2) the equipment available on the aircraft for the purpose of navigation, acquisition of visual references, and/or control of the flight path during take-off, approach, landing, and missed approach;
 - (3) any conditions or limitations stated in the aircraft flight manual (AFM);
 - the dimensions and characteristics of the runways/final approach and take-off areas (FATOs) that may be selected for use;
 - (5) the adequacy and performance of the available visual and non-visual aids and infrastructure;
 - the obstacle clearance altitude/height (OCA/H) for the instrument approach procedures (IAPs), if established;
 - (7) the obstacles in the climb-out areas and clearance margins;
 - (8) the competence and relevant operational experience of the pilot-in-command;
 - (9) the IAP, if established;

- (10) the aerodrome characteristics and the type of air navigation services (ANS) available, if any;
- (11) any minima that may be promulgated by the State of the aerodrome;
- (12) the conditions prescribed in any specific approvals for low-visibility operations (LVOs) or operations with operational credits.

NCO.OP.111 Aerodrome operating minima — NPA, APV, CAT I operations 2D and 3D approach operations

- (a) The decision height (DH) to be used for a non-precision approach (NPA) flown with the continuous descent final approach (CDFA) technique, approach procedure with vertical guidance (APV) or category I (CAT I) operation shall not be lower than the highest of:
 - (1) the minimum height to which the approach aid can be used without the required visual reference;
 - (2) the obstacle clearance height (OCH) for the category of aircraft;
 - (3) the published approach procedure DH where applicable;
 - (4) the system minimum specified in Table 1; or
 - (5) the minimum DH specified in the AFM or equivalent document, if stated.
- (b) The minimum descent height (MDH) for an NPA operation flown without the CDFA technique shall not be lower than the highest of:
 - (1) the OCH for the category of aircraft;
 - (2) the system minimum specified in Table 1; or
 - (3) the minimum MDH specified in the AFM, if stated.

Table 1

System minima

Facility	Lowest DH/MDH (ft)
Instrument landing system (ILS)	200
Global navigation satellite system (GNSS)/Satellite-based augmentation system (SBAS) (Lateral precision with vertical guidance approach (LPV))	200
GNSS (Lateral Navigation (LNAV))	250
GNSS/Baro-vertical navigation (VNAV) (LNAV/VNAV)	250
Localiser (LOC) with or without distance measuring equipment (DME)	250
Surveillance radar approach (SRA) (terminating at ½ NM)	250
SRA (terminating at 1 NM)	300

SRA (terminating at 2 NM or more)	350
VHF omnidirectional radio range (VOR)	300
VOR/DME	250
Non-directional beacon (NDB)	350
NDB/DME	300
VHF direction finder (VDF)	350

- (a) The decision height (DH) to be used for a 3D approach operation or a 2D approach operation flown with the continuous descent final approach (CDFA) technique shall not be lower than the highest of:
 - (1) the obstacle clearance height (OCH) for the category of aircraft;
 - (2) the published approach procedure DH or minimum descent height (MDH), where applicable;
 - (3) the system minimum specified in Table 1;
 - (4) the minimum DH specified in the AFM or equivalent document, if stated.
- (b) The MDH for a 2D approach operation flown without the CDFA technique shall not be lower than the highest of:
 - (1) the OCH for the category of aircraft;
 - (2) the published approach procedure MDH, where applicable;
 - (3) the system minimum specified in Table 1; or
 - (4) the minimum MDH specified in the AFM, if stated.

Table 1

System minima

Facility	Lowest DH/MDH (ft)
ILS/MLS/ GLS	200
GNSS/SBAS (LPV)	200
Precision approach radar (PAR)	200
GNSS/SBAS (LP)	250
GNSS (LNAV)	250
GNSS/Baro-VNAV (LNAV/VNAV)	250
Helicopter point-in-space approach	250
LOC with or without DME	250
SRA (terminating at ½ NM)	250

SRA (terminating at 1 NM)	300
SRA (terminating at 2 NM or more)	350
VOR	300
VOR/DME	250
NDB	350
NDB/DME	300
VDF	350

NCO.OP.112 Aerodrome operating minima — circling operations with aeroplanes

(a) The MDH for a circling operation with aeroplanes shall not be lower than the highest of:

- (1) the published circling OCH for the aeroplane category;
- (2) the minimum circling height derived from Table 1; or
- (3) the DH/MDH of the preceding instrument approach procedure.
- (b) The minimum visibility for a circling operation with aeroplanes shall be the highest of:
 - (1) the circling visibility for the aeroplane category, if published;
 - (2) the minimum visibility derived from Table 2; or
 - (3) the runway visual range/converted meteorological visibility (RVR/CMV) of the preceding instrument approach procedure.

Table 1

MDH and minimum visibility for circling vs. aeroplane category

	Aeroplane category			
	Α	В	С	D
MDH (ft)	400	500	600	700
Minimum meteorological visibility (m)	1500	1600	2400	3600

(a) The MDH for a circling approach with aeroplanes shall not be lower than the highest of:

- (1) the published circling OCH for the aeroplane category;
- (2) the minimum circling height derived from Table 1; or
- (3) the DH/MDH of the preceding IAP.

- (b) The minimum visibility for a circling approach with aeroplanes shall be the highest of:
 - (1) the circling visibility for the aeroplane category, if published; or
 - (2) the minimum visibility derived from Table 1'.

Table 1

MDH and minimum visibility for circling per aeroplane category aeroplane category

	Aeroplane category			
	A B C D			
MDH (ft)	400	500	600	700
Minimum VIS (m)	1 500	1 500	2 400	3 600

NCO.OP.125 Fuel and oil supply – aeroplanes Fuel/energy and oil supply – aeroplanes and helicopters

- (a) The pilot-in-command shall only commence a flight if the aeroplane carries sufficient fuel and oil for the following:
 - (1) for visual flight rules (VFR) flights:
 - (i) by day, taking off and landing at the same aerodrome/landing site and always remaining in sight of that aerodrome/landing site, to fly the intended route and thereafter for at least 10 minutes at normal cruising altitude;
 - (ii) by day, to fly to the aerodrome of intended landing and thereafter to fly for at least 30 minutes at normal cruising altitude; or
 - (iii) by night, to fly to the aerodrome of intended landing and thereafter to fly for at least 45 minutes at normal cruising altitude;
 - (2) for IFR flights:
 - (i) when no destination alternate is required, to fly to the aerodrome of intended landing and thereafter to fly for at least 45 minutes at normal cruising altitude; or
 - (ii) when a destination alternate is required, to fly to the aerodrome of intended landing, to an alternate aerodrome and thereafter to fly for at least 45 minutes at normal cruising altitude.
- (b) In computing the fuel required including to provide for contingency, the following shall be taken into consideration:
 - (1) forecast meteorological conditions;
 - (2) anticipated ATC routings and traffic delays;

- (3) procedures for loss of pressurisation or failure of one engine while en-route, where applicable; and
- (4) any other condition that may delay the landing of the aeroplane or increase fuel and/or oil consumption.
- (c) Nothing shall preclude amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that all requirements can be complied with from the point where the flight is re-planned.
- (a) The pilot-in-command shall ensure that the quantity of fuel/energy and oil that is carried on board is sufficient, taking into account the meteorological conditions, any element affecting the performance of the aircraft, any delays that are expected in flight, and any contingencies that may reasonably be expected to affect the flight.
- (b) The pilot-in-command shall plan a quantity of fuel/energy to be protected as final reserve fuel/energy to ensure a safe landing. The pilot-in-command shall take into account all of the following, and in the following order of priority, to determine the quantity of the final reserve fuel/energy:
 - (1) the severity of the hazard to persons or property that may result from an emergency landing after fuel/energy starvation; and
 - (2) the likelihood of unexpected circumstances that the final reserve fuel/energy may no longer be protected.
- (c) The pilot-in-command shall commence a flight only if the aircraft carries sufficient fuel/energy and oil:
 - (1) when no destination alternate is required, to fly to the aerodrome or operating site of intended landing, plus the final reserve fuel/energy; or
 - (2) when a destination alternate is required, to fly to the aerodrome or operating site of intended landing, and thereafter, to an alternate aerodrome, plus the final reserve fuel/energy.

NCO.OP.126 Fuel and oil supply – helicopters

- (a) The pilot-in-command shall only commence a flight if the helicopter carries sufficient fuel and oil for the following:
 - (1) for VFR flights, to fly to the aerodrome/operating site of intended landing and thereafter to fly for at least 20 minutes at best-range-speed; and
 - (2) for IFR flights:
 - (i) when no alternate is required or no weather permissible alternate aerodrome is available, to fly to the aerodrome/operating site of intended landing, and thereafter to fly for 30 minutes at holding speed at 450 m (1 500 ft) above the destination aerodrome/operating site under standard temperature conditions and approach and land; or

- (ii) when an alternate is required, to fly to and execute an approach and a missed approach at the aerodrome/operating site of intended landing, and thereafter:
 - (A) to fly to the specified alternate; and
 - (B) to fly for 30 minutes at holding speed at 450 m (1 500 ft) above the alternate aerodrome/operating site under standard temperature conditions and approach and land.
- (b) In computing the fuel required including to provide for contingency, the following shall be taken into consideration:
 - (1) forecast meteorological conditions;
 - (2) anticipated ATC routings and traffic delays;
 - (3) procedures for loss of pressurisation or failure of one engine while en-route, where applicable; and
 - (4) any other condition that may delay the landing of the aircraft or increase fuel and/or oil consumption.
- (c) Nothing shall preclude amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that all requirements can be complied with from the point where the flight is re-planned.

NCO.OP.135 Flight preparation

- (a) Before commencing a flight, the pilot-in-command shall ascertain by every reasonable means available that the space-based facilities, ground and/or water facilities, including communication facilities and navigation aids available and directly required on such flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted.
- (b) Before commencing a flight, the pilot-in-command shall be familiar with all available meteorological information appropriate to the intended flight. Preparation for a flight away from the vicinity of the place of departure, and for every flight under IFR, shall include:
 - (1) a study of available current meteorological weather reports and forecasts; and
 - (2) the planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned, because of meteorological weather conditions.

NCO.OP.140 Destination alternate aerodromes — aeroplanes

For IFR flights, the pilot-in-command shall specify at least one weather-permissible destinationalternate aerodrome in the flight plan, unless:

(a) the available current meteorological information indicates that, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to

1 hour after the estimated time of arrival, whichever is the shorter period, the approach and landing may be made under visual meteorological conditions (VMC); or

- (b) the place of intended landing is isolated and:
 - (1) an instrument approach procedure is prescribed for the aerodrome of intended landing; and
 - (2) available current meteorological information indicates that the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival:
 - (i) a cloud base of at least 300 m (1 000 ft) above the minimum associated with the instrument approach procedure; and
 - (ii) visibility of at least 5,5 km or of 4 km more than the minimum associated with the procedure.

For IFR flights, the pilot-in-command shall specify at least one destination alternate aerodrome in the flight plan, unless the available current meteorological information for the destination indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period, a ceiling of at least 1 000ft above the DH/MDH for an available instrument approach procedure (IAP) and a visibility of at least 5 000m.

NCO.OP.141 Destination alternate aerodromes — helicopters

For IFR flights, the pilot-in-command shall specify at least one weather-permissible destinationalternate aerodrome in the flight plan, unless:

- (a) an instrument approach procedure is prescribed for the aerodrome of intended landing and the available current meteorological information indicates that the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival, or from the actual time of departure to 2 hours after the estimated time of arrival, whichever is the shorter period:
 - (1) a cloud base of at least 120 m (400 ft) above the minimum associated with the instrument approach procedure; and
 - (2) visibility of at least 1 500 m more than the minimum associated with the procedure; or
- (b) the place of intended landing is isolated and:
 - (1) an instrument approach procedure is prescribed for the aerodrome of intended landing;
 - (2) available current meteorological information indicates that the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival:
 - (i) the cloud base is at least 120 m (400 ft) above the minimum associated with the instrument approach procedure;
 - (ii) visibility is at least 1 500 m more than the minimum associated with the procedure; and

(3) a point of no return (PNR) is determined in case of an offshore destination.

For IFR flights, the pilot-in-command shall specify at least one destination alternate aerodrome in the flight plan, unless the available current meteorological information for the destination indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period, a ceiling of at least 1 000ft above the DH/MDH for an available IAP and a visibility of at least 3 000m.

NCO.OP.142 Destination alternate aerodromes — instrument approach operations

The pilot-in-command shall ensure that sufficient means are available to navigate and land at the destination aerodrome or at any destination alternate aerodrome in the case of loss of capability for the intended approach and landing operation.

The pilot-in-command shall only select an aerodrome as a destination alternate aerodrome if either:

- (a) an IAP that does not rely on GNSS is available either at the destination aerodrome or at a destination alternate aerodrome, or
- (b) all of the following conditions are met:
 - (1) the onboard GNSS equipment is SBAS-capable;
 - (2) the destination aerodrome, any destination alternate aerodrome, and the route between them are within SBAS service area;
 - (3) ABAS is predicted to be available in the event of the unexpected unavailability of SBAS;
 - (4) an IAP is selected (either at destination or destination alternate aerodrome) that does not rely on the availability of SBAS;
 - (5) an appropriate contingency action allows the flight to be completed safely in the event of unavailability of GNSS.

NCO.OP.143 Destination alternate aerodromes planning minima — aeroplanes

An aerodrome shall not be specified as a destination alternate aerodrome unless the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period:

(a) for an alternate aerodrome with an available instrument approach operation with DH less than 250 ft,

- a ceiling of at least 200 ft above the decision height (DH) or minimum descent height (MDH) associated with the instrument approach operation; and
- (2) a visibility of at least 1 500m; or
- (b) for an alternate aerodrome with an instrument approach operation with DH or MDH 250 ft or more,
 - a ceiling of at least 400 ft above the DH or MDH associated with the instrument approach operation; and
 - (2) a visibility of at least 3 000m; or
- (c) for an alternate aerodrome without an IAP,
 - (1) a ceiling of at least the higher of 2 000ft and the minimum safe IFR height; and
 - (2) a visibility of at least 5 000m.

NCO.OP.144 Destination alternate aerodromes planning minima — helicopters

An aerodrome shall not be specified as a destination alternate aerodrome unless the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period,

- (a) for an alternate aerodrome with an IAP:
 - (1) a ceiling of at least 200 ft above the DH or MDH associated with the IAP; and
 - (2) a visibility of at least 1 500m by day or 3 000m by night; or
- (b) for an alternate aerodrome without an IAP:
 - (1) a ceiling of at least the higher of 2 000ft and the minimum safe IFR height; and
 - (2) a visibility of at least 1 500m by day or 3 000m by night.

NCO.OP.145 Refuelling with passengers embarking, on board or disembarking

(a) The aircraft shall not be refuelled with aviation gasoline (AVGAS) or wide-cut type fuel or a mixture of these types of fuel, when passengers are embarking, on board or disembarking.

(b) For all other types of fuel/energy, the aircraft shall not be refuelled when passengers are embarking, on board or disembarking, unless it is attended by the pilot-in-command or other qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.

NCO.OP. 147 Refuelling with engine(s)and/or rotors turning – helicopters

Refuelling with engine(s) and/or rotors turning shall only be conducted if all those conditions are met simultaneously:

- (a) if it is not practical to shut down or restart the engine;
- (b) in accordance with any specific procedures and limitations in the aircraft flight manual (AFM);
- (c) with JET A or JET A-1 fuel types;
- (d) with no passengers or task specialists on board, embarking or disembarking;
- (e) if the operator of the aerodrome or operating site allows such operations;
- (f) in the presence of the appropriate rescue and firefighting (RFF) facilities or equipment; and
- (g) In accordance with a checklist that shall contain:
 - (1) normal and contingency procedures;
 - (2) the required equipment;
 - (3) any limitations; and
 - (4) responsibilities and duties of the pilot-in-command and, if applicable, crew members and task specialists.

NCO.OP.175 Take-off conditions — aeroplanes and helicopters

Before commencing take-off, the pilot-in-command shall be satisfied that:

(a) according to the information available, the weather at the aerodrome or operating site and the condition of the runway or FATO intended to be used would not prevent a safe take-off and departure; and

(b) applicable aerodrome operating minima will be complied with.

Before commencing take-off, the pilot-in-command shall be satisfied that:

- (a) according to the information available, the meteorological conditions at the aerodrome or the operating site and the condition of the runway/FATO intended to be used will not prevent a safe take-off and departure; and
- (b) the selected aerodrome operating minima are consistent with all of the following:

- (1) the operative ground equipment;
- (2) the operative aircraft systems;
- (3) the aircraft performance;
- (4) flight crew qualifications.

NCO.OP.185 In-flight fuel/energy management

The pilot-in-command shall check at regular intervals that the amount of usable fuel remaining inflight is not less than the fuel required to proceed to a weather-permissible aerodrome or operatingsite and the planned reserve fuel as required by points **NCO.OP.125** or **NCO.OP.126**.

- (a) The pilot-in-command shall monitor the amount of usable fuel/energy remaining on board to ensure that it is protected and not less than the fuel/energy that is required to proceed to an aerodrome or operating site where a safe landing can be made.
- (b) The pilot-in-command of a controlled flight shall advise air traffic control (ATC) of a 'minimum fuel/energy' state by declaring 'MINIMUM FUEL' when the pilot-in-command has:
 - (1) committed to land at a specific aerodrome or operating site; and
 - (2) calculated that any change to the existing clearance to that aerodrome or operating site, or other air traffic delays, may result in landing with less than the planned final reserve fuel/energy.
- (c) The pilot-in-command of a controlled flight shall declare a situation of 'fuel/energy emergency' by broadcasting 'MAYDAY MAYDAY MAYDAY FUEL' when the usable fuel/energy estimated to be available upon landing at the nearest aerodrome or operating site where a safe landing can be made is less than the planned final reserve fuel/energy.

NCO.OP.205 Approach and landing conditions — aeroplanes

Before commencing an approach to land, the pilot-in-command shall be satisfied that, according to the information available, the weather at the aerodrome or the operating site and the condition of the runway intended to be used do not prevent a safe approach, landing or missed approach.

Before commencing an approach to land, the pilot-in-command shall be satisfied that:

- (a) according to the information available, the meteorological conditions at the aerodrome or the operating site, and the condition of the runway intended to be used will not prevent a safe approach, landing, or missed approach; and
- (b) the selected aerodrome operating minima are consistent with all of the following:
 - (1) the operative ground equipment;
 - (2) the operative aircraft systems;

- (3) the aircraft performance, and
- (4) flight crew qualifications.

NCO.OP.206 Approach and landing conditions — helicopters

Before commencing an approach to land, the pilot-in-command shall be satisfied that, according to the information available, the weather at the aerodrome or the operating site and the condition of the final approach and take-off area (FATO) intended to be used do not prevent a safe approach, landing or missed approach.

Before commencing an approach to land, the pilot-in-command shall be satisfied that:

- (a) according to the information available, the meteorological conditions at the aerodrome or the operating site and the condition of the final approach and take-off area (FATO) intended to be used will not prevent a safe approach, landing or missed approach; and
- (b) the selected aerodrome operating minima are consistent with all of the following:
 - (1) the operative ground equipment;
 - (2) the operative aircraft systems;
 - (3) the aircraft performance;
 - (4) flight crew qualifications.

NCO.OP.210 Commencement and continuation of approach — aeroplanes and helicopters

- (a) The pilot-in-command may commence an instrument approach regardless of the reported runway visual range/visibility (RVR/VIS).
- (b) If the reported RVR/VIS is less than the applicable minimum, the approach shall not be continued:
 - (1) below 1 000 ft above the aerodrome; or
 - (2) into the final approach segment in the case where the decision altitude/height (DA/H) or minimum descent altitude/height (MDA/H) is more than 1 000 ft above the aerodrome.
- (c) Where the RVR is not available, RVR values may be derived by converting the reported visibility.
- (d) If, after passing 1 000 ft above the aerodrome, the reported RVR/VIS falls below the applicable minimum, the approach may be continued to DA/H or MDA/H.

- (e) The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the visual reference adequate for the type of approach operation and for the intended runway is established at the DA/H or MDA/H and is maintained.
- (f) The touchdown zone RVR shall always be controlling.
- (a) If the controlling RVR for the runway to be used for landing is less than 550 m (or any lower value established in accordance with an approval under SPA.LVO), then an instrument approach operation shall not be continued:
 - (1) past a point at which the aircraft is 1 000 ft above the aerodrome elevation; or
 - (2) into the final approach segment if the DH or MDH is higher than 1 000 ft.
- (b) If the required visual reference is not established, a missed approach shall be executed at or before the DA/H or the MDA/H.
- (c) If the required visual reference is not maintained after DA/H or MDA/H, a go-around shall be executed promptly.

NCO.SPEC.135 Fuel and oil supply – aeroplanes

NCO.OP.125(a)(1)(i) does not apply to sailplane-towing, flying display, aerobatic flights or competition flights.

NCO.SPEC.140 Fuel and oil supply – helicopters

Notwithstanding **NCO.OP.126(a)(1)**, the pilot-in-command of a helicopter may only commence a VFR flight by day remaining within 25 NM of the aerodrome/operating site of departure with reserve fuel of not less than 10 minutes at best-range-speed.

Annex VIII SPECIALISED OPERATIONS (Part-SPO)

SPO.OP.101 Altimeter check and settings

- (a) The operator shall establish procedures for altimeter checking before each departure.
- (b) The 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 aerodrome or the State of the airspace, if applicable.

SPO.OP.105 Specification of isolated aerodromes – aeroplanes

For the selection of alternate aerodromes and the fuel/energy policy, the operator shall consider an aerodrome as an isolated aerodrome if the flying time to the nearest adequate destination alternate aerodrome is more than:

- (a) for aeroplanes with reciprocating engines, 60 minutes; or
- (b) for aeroplanes with turbine engines, 90 minutes.

SPO.OP.110 Aerodrome operating minima – aeroplanes and helicopters

- (a) For instrument flight rules (IFR) flights, the operator or the pilot-in-command shall specify aerodrome operating minima for each departure, destination and alternate aerodrome to be used. Such minima shall:
 - (1) not be lower than those established by the State in which the aerodrome is located, except when specifically approved by that State; and
 - (2) when undertaking low visibility operations, be approved by the CAA in accordance with Annex V (Part-SPA), Subpart E to Regulation (EU) No 965/2012.
- (b) When specifying the aerodrome operating minima, the operator or the pilot-in-command shall take the following into account:
 - (1) the type, performance and handling characteristics of the aircraft;
 - (2) the competence and experience of the flight crew and, if applicable, its composition;
 - (3) the dimensions and characteristics of the runways and final approach and take-off areas (FATOs) that may be selected for use;
 - (4) the adequacy and performance of the available visual and non-visual ground aids;

- (5) the equipment available on the aircraft for the purpose of navigation and/or control of the flight path, during the take-off, the approach, the flare, the landing, the rollout and the missed approach;
- (6) the obstacles in the approach, the missed approach and the climb-out areas required for the execution of contingency procedures;
- (7) the obstacle clearance altitude/height for the instrument approach procedures;
- (8) the means to determine and report meteorological conditions; and
- (9) the flight technique to be used during the final approach.
- (c) The minima for a specific type of approach and landing procedure shall only be used if:
 - (1) the ground equipment required for the intended procedure is operative;
 - (2) the aircraft systems required for the type of approach are operative;
 - (3) the required aircraft performance criteria are met; and
 - (4) the flight crew is qualified appropriately.
- (a) The operator shall establish aerodrome operating minima for each departure, destination or alternate aerodrome that is planned to be used in order to ensure separation of the aircraft from terrain and obstacles and to mitigate the risk of loss of visual references during the visual flight segment of instrument approach operations.
- (b) The method used to establish aerodrome operating minima shall take all the following elements into account:
 - (1) the type, performance, and handling characteristics of the aircraft;
 - (2) the equipment available on the aircraft for the purpose of navigation, acquisition of visual references, and/or control of the flight path during take-off, approach, landing, and missed approach;
 - (3) any conditions or limitations stated in the aircraft flight manual (AFM);
 - the dimensions and characteristics of the runways/final approach and take-off areas (FATOs) that may be selected for use;
 - (5) the adequacy and performance of the available visual and non-visual aids and infrastructure;
 - the obstacle clearance altitude/height (OCA/H) for the instrument approach procedures (IAPs);
 - (7) the obstacles in the climb-out areas and the necessary clearance margins;
 - (8) any non-standard characteristics of the aerodrome, the IAP or the local environment;
 - (9) the composition of the flight crew, their competence and experience;
 - (10) the IAP;

- (11) the aerodrome characteristics and the available air navigation services (ANS);
- (12) any minima that may be promulgated by the State of the aerodrome;
- (13) the conditions prescribed in any specific approvals for low-visibility operations (LVOs) or operations with operational credits; and
- (14) the relevant operational experience of the operator.
- (c) The operator shall specify a method of determining aerodrome operating minima in the operations manual.

SPO.OP.111 Aerodrome operating minima — NPA, APV, CAT I operations

- (a) The decision height (DH) to be used for a non-precision approach (NPA) flown with the continuous descent final approach (CDFA) technique, approach procedure with vertical guidance (APV) or category I (CAT I) operation shall not be lower than the highest of:
 - (1) the minimum height to which the approach aid can be used without the required visual reference;
 - (2) the obstacle clearance height (OCH) for the category of aircraft;
 - (3) the published approach procedure DH where applicable;
 - (4) the system minimum specified in Table 1; or
 - (5) the minimum DH specified in the AFM or equivalent document, if stated.
- (b) The minimum descent height (MDH) for an NPA operation flown without the CDFA technique shall not be lower than the highest of:
 - (1) the OCH for the category of aircraft;
 - (2) the system minimum specified in Table 1; or
 - (3) the minimum MDH specified in the AFM, if stated.

Table 1

System minima

Facility	Lowest DH/MDH (ft)
Instrument landing system (ILS)	200
Global navigation satellite system (GNSS)/satellite-based- augmentation system (SBAS) (lateral precision with vertical guidance- approach (LPV))	200
GNSS (lateral navigation (LNAV))	250

GNSS/Baro-vertical navigation (VNAV) (LNAV/VNAV)	250
Localiser (LOC) with or without distance measuring equipment (DME)	250
Surveillance radar approach (SRA) (terminating at ½ NM)	250
SRA (terminating at 1 NM)	300
SRA (terminating at 2 NM or more)	350
VHF omnidirectional radio range (VOR)	300
VOR/DME	250
Non-directional beacon (NDB)	350
NDB/DME	300
VHF direction finder (VDF)	350

SPO.OP.112 Aerodrome operating minima — circling operations with aeroplanes

(a) The MDH for a circling operation with aeroplanes shall not be lower than the highest of:

- (1) the published circling OCH for the aeroplane category;
- (2) the minimum circling height derived from Table 1; or
- (3) the DH/MDH of the preceding instrument approach procedure.
- (b) The minimum visibility for a circling operation with aeroplanes shall be the highest of:
 - (1) the circling visibility for the aeroplane category, if published;
 - (2) the minimum visibility derived from Table 2; or
 - (3) the runway visual range/converted meteorological visibility (RVR/CMV) of the preceding instrument approach procedure.

Table 1

MDH and minimum visibility for circling vs. aeroplane category

	Acroplane category			
	A	₿	C	Ð
MDH (ft)	4 00	500	600	700
Minimum meteorological visibility (m)	1500	1600	2400	3600

(a) The minimum descent height (MDH) for a circling approach with aeroplanes shall not be lower than the highest of:

(1) the published circling OCH for the aeroplane category;

- (2) the minimum circling height derived from Table 1; or
- (3) the decision height (DH)/MDH of the preceding IAP.
- (b) The minimum visibility for a circling approach with aeroplanes shall be the highest of:
 - (1) the circling visibility for the aeroplane category, if published; or
 - (2) the minimum visibility derived from Table 1.

Table 1

MDH and minimum visibility for circling per aeroplane category

	Aeroplane category			
	Α	В	С	D
MDH (ft)	400	500	600	700
Minimum VIS (m)	1500	1 600	2 400	3 600

SPO.OP.130 Fuel and oil supply – aeroplanes Fuel/energy scheme – aeroplanes and helicopters

- (a) The pilot-in-command shall only commence a flight if the aeroplane carries sufficient fuel and oil for the following:
 - (1) for visual flight rules (VFR) flights:
 - (i) by day, to fly to the aerodrome of intended landing and thereafter to fly for at least 30 minutes at normal cruising altitude; or
 - (ii) by night, to fly to the aerodrome of intended landing and thereafter to fly for at least 45 minutes at normal cruising altitude;
 - (2) for IFR flights:
 - (i) when no destination alternate is required, to fly to the aerodrome of intended landing and thereafter to fly for at least 45 minutes at normal cruising altitude; or
 - (ii) when a destination alternate is required, to fly to the aerodrome of intended landing, to an alternate aerodrome and thereafter to fly for at least 45 minutes at normal cruising altitude.
- (b) In computing the fuel required, including providing for contingency, the following shall be taken into consideration:
 - (1) forecast meteorological conditions;
 - (2) anticipated ATC routings and traffic delays;
 - (3) procedures for loss of pressurisation or failure of one engine while en-route, where applicable; and

- (4) any other condition that may delay the landing of the aeroplane or increase fuel and/or oil consumption.
- (c) Nothing shall preclude amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that all requirements can be complied with from the point where the flight is re-planned.
- (a) The operator shall establish, implement, and maintain a fuel/energy scheme that comprises:
 - (1) a fuel/energy planning and in-flight re-planning policy; and
 - (2) an in-flight fuel/energy management policy.
- (b) The fuel/energy scheme shall:
 - (1) be appropriate for the type(s) of operation performed; and
 - (2) correspond to the capability of the operator to support its implementation.

SPO.OP.131 Fuel and oil supply – helicopters Fuel/energy scheme – fuel/energy planning and in-flight re-planning policy – aeroplanes and helicopters

- (a) The pilot-in-command shall only commence a flight if the helicopter carries sufficient fuel and oil for the following:
 - (1) for VFR flights:
 - (i) to fly to the aerodrome/operating site of intended landing and thereafter to fly for at least 20 minutes at best-range-speed; or
 - (ii) for VFR flights by day, a reserve fuel of 10 minutes at best-range-speed provided the he/she remains within 25 NM of the aerodrome/operating site of departure; and
 - (2) for IFR flights:
 - (i) when no alternate is required or no weather permissible alternate aerodrome is available, to fly to the aerodrome/operating site of intended landing, and thereafter to fly for 30 minutes at normal cruising speed at 450 m (1500 ft) above the destination aerodrome/operating site under standard temperature conditions and approach and land; or
 - (ii) when an alternate is required, to fly to and execute an approach and a missed approach at the aerodrome/operating site of intended landing, and thereafter:
 - (A) to fly to the specified alternate; and
 - (B) to fly for 30 minutes at normal holding speed at 450 m (1 500 ft) above the alternate aerodrome/operating site under standard temperature conditions and approach and land.

- (b) In computing the fuel required, including providing for contingency, the following shall be taken into consideration:
 - (1) forecast meteorological conditions;
 - (2) anticipated ATC routings and traffic delays;
 - (3) failure of one engine while en-route, where applicable; and
 - (4) any other condition that may delay the landing of the aircraft or increase fuel and/or oil consumption.
- (c) Nothing shall preclude amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that all requirements can be complied with from the point where the flight is re-planned.
- (a) As part of the fuel/energy scheme, the operator shall establish a fuel/energy planning and in-flight re-planning policy to ensure that the aircraft carries a sufficient amount of usable fuel/energy to safely complete the planned flight and to allow for deviations from the planned operation.
- (b) The operator shall ensure that the fuel/energy planning of flights is based upon at least the following elements:
 - (1) procedures contained in the operations manual as well as:
 - current aircraft-specific data derived from a fuel/energy consumption monitoring system or, if not available;
 - (ii) data provided by the aircraft manufacturer; and
 - (2) the operating conditions under which the flight is to be conducted including:
 - (i) aircraft fuel/energy consumption data;
 - (ii) anticipated masses;
 - (iii) anticipated meteorological conditions;
 - (iv) the effects of deferred maintenance items and/or configuration deviations; and
 - (v) anticipated delays.
- (c) For aeroplanes, the operator shall ensure that the pre-flight calculation of the usable fuel/energy that is required for a flight includes:
 - 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 required to enable the aeroplane to fly from take-off, or from the point of in-flight re-planning, to landing at the destination aerodrome;
 - (3) contingency fuel/energy that shall be the amount of fuel/energy required to compensate for unforeseen factors;

(4) destination alternate fuel/energy

- when a flight is operated with at least one destination alternate aerodrome, it shall be the amount of fuel/energy required to fly from the destination aerodrome to the destination alternate aerodrome; or
- (ii) when a flight is operated with no destination alternate aerodrome, it shall be the amount of fuel/energy required to hold at the destination aerodrome to compensate for the lack of a destination alternate aerodrome;
- (5) final reserve fuel/energy that shall be protected to ensure a safe landing; the operator shall take into account all of the following, and in the following order of priority, to determine the quantity of the final reserve fuel/energy:
 - the severity of the hazard to persons or property that may result from an emergency landing after fuel/energy starvation;
 - the likelihood of unexpected circumstances that the final reserve fuel/energy may no longer be protected;
- (6) additional fuel/energy, if required by the type of operation; it shall be the amount of fuel/energy to enable the aeroplane to perform a safe landing at a fuel/energy en route alternate aerodrome (fuel/energy ERA aerodrome critical scenario) in the event of an engine failure or loss of pressurisation, whichever requires the greater amount of fuel/energy, based on the assumption that such a failure occurs at the most critical point along the route; this additional fuel/energy is required only if the minimum amount of fuel/energy that is calculated according to points (c)(2) to (c)(5) is not sufficient for such an event;
- extra fuel/energy to take into account anticipated delays or specific operational constraints; and
- (8) discretionary fuel/energy, if required by the pilot-in-command.
- (d) For helicopters, the operator shall ensure that the pre-flight calculation of the usable fuel/energy that is required for a flight includes all of the following:
 - (1) fuel/energy to fly to the aerodrome or operating site of intended landing;
 - (2) if a destination alternate is required, destination alternate fuel/energy, which shall be the amount of fuel/energy that is required to execute a missed approach at the aerodrome or operating site of intended landing, and thereafter, to fly to the specified destination alternate, approach and land; and
 - (3) final reserve fuel/energy, which shall be protected to ensure a safe landing; the operator shall take into account all of the following, and in the following order of priority, to determine the quantity of the final reserve fuel/energy:
 - (i) the severity of the hazard to persons or property that may result from an emergency landing after fuel/energy starvation; and
 - the likelihood of such unexpected circumstances that the final reserve fuel/energy may no longer be protected;

- (4) extra fuel/energy to take into account anticipated delays or specific operational constraints; and
- (5) discretionary fuel/energy, if required by the pilot-in-command.
- (e) The operator shall ensure that, if a flight has to proceed to a destination aerodrome other than the one originally planned, in-flight re-planning procedures for calculating the required usable fuel/energy are available and comply with points (c)(2) to (c)(7) for aeroplanes, and point (d) for helicopters.
- (f) The pilot in command shall only commence a flight or continue in the event of in-flight re-planning, when satisfied that the aircraft carries at least the planned amount of usable fuel/energy and oil to safely complete the flight.

SPO.OP.140 Flight preparation

- (a) Before commencing a flight, the pilot-in-command shall ascertain by every reasonable means available that the space-based facilities, ground and/or water facilities, including communication facilities and navigation aids available and directly required on such flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted.
- (b) Before commencing a flight, the pilot-in-command shall be familiar with all available meteorological information appropriate to the intended flight. Preparation for a flight away from the vicinity of the place of departure, and for every flight under IFR, shall include:
 - (1) a study of available current meteorological weather reports and forecasts; and
 - (2) the planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned, because of meteorological weather conditions.

SPO.OP.143 Destination alternate aerodromes planning minima — aeroplanes

An aerodrome shall not be specified as a destination alternate aerodrome unless the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period,

- (a) for an alternate aerodrome with an available instrument approach operation with DH less than 250 ft,
 - (1) a ceiling of at least 200 ft above the DH or MDH associated with the instrument approach operation; and
 - (2) a visibility of at least the higher of 1 500 m and 800 m above the instrument approach operation RVR/VIS minima; or
- (b) for an alternate aerodrome with an instrument approach operation with DH or MDH 250 ft or more,

- a ceiling of at least 400 ft above the DH or MDH associated with the instrument approach operation; and
- (2) a visibility of at least 3 000 m; or
- (c) for an alternate aerodrome without an instrument approach procedure,
 - (1) a ceiling of at least the higher of 2 000 ft and the minimum safe IFR height; and
 - (2) a visibility of at least 5 000 m.

SPO.OP.144 Destination alternate aerodrome planning minima — helicopters

The operator shall only select an aerodrome as a destination alternate aerodrome if the available current meteorological information indicates, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period,

- (a) for an alternate aerodrome with an IAP:
 - (1) a ceiling of at least 200 ft above the DH or MDH associated with the IAP; and
 - (2) a visibility of at least 1 500 m by day or 3 000 m by night; or
- (b) for an alternate aerodrome without an IAP:
 - (1) a ceiling of at least 2 000 ft or the minimum safe IFR height, whichever is greater; and
 - (2) a visibility of at least 1 500 m by day or 3 000 m by night.

SPO.OP.145 Take-off alternate aerodromes — complex motor-powered aeroplanes

- (a) For IFR flights, the pilot-in-command shall specify at least one weather-permissible take-off alternate aerodrome in the flight plan if the meteorological weather conditions at the aerodrome of departure are at or below the applicable aerodrome operating minima or it would not be possible to return to the aerodrome of departure for other reasons.
- (b) The take-off alternate aerodrome shall be located within the following distance from the aerodrome of departure:
 - (1) for aeroplanes having two engines, not more than a distance equivalent to a flight time of 1 hour at the single-engine cruise speed in still air standard conditions; and
 - (2) for aeroplanes having three or more engines, not more than a distance equivalent to a flight time of 2 hours at the one-engine-inoperative (OEI) cruise speed according to the AFM in still air standard conditions.

(c) For an aerodrome to be selected as a take-off alternate aerodrome the available information shall indicate that, at the estimated time of use, the conditions will be at or above the aerodrome operating minima for that operation.

SPO.OP.150 Destination alternate aerodromes – aeroplanes

For IFR flights, the pilot-in-command shall specify at least one weather-permissible destination alternate aerodrome in the flight plan, unless:

- (a) the available current meteorological information indicates that, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period, the approach and landing may be made under visual meteorological conditions (VMC); or
- (b) the place of intended landing is designated as an isolated aerodrome and:
 - (1) an instrument approach procedure is prescribed for the aerodrome of intended landing; and
 - (2) available current meteorological information indicates that **both** the following meteorological conditions will exist from 2 hours before to 2 hours after the estimated time of arrival, or from the actual time of departure to 2 hours after the estimated time of arrival whichever is the shorter period:
 - (i) a cloud base of at least 300 m (1 000 ft) above the minimum associated with the instrument approach procedure; and
 - (ii) visibility of at least 5,5 km or of 4 km more than the minimum associated with the procedure.

SPO.OP.155 Refuelling with persons embarking, on board or disembarking

(a) The aircraft shall not be refuelled with aviation gasoline (AVGAS) or wide-cut type fuel or a mixture of these types of fuel, when persons are embarking, on board or disembarking.

(b) For all other types of fuel/energy, necessary precautions shall be taken and the aircraft shall be properly manned by qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.

SPO.OP.157 Refuelling with engine(s)and/or rotors turning – helicopters

(a) Refuelling with engine(s) and/or rotors turning shall only be conducted:

(1) with no task specialists embarking or disembarking;

- (2) if the operator of the aerodrome or operating site allows such operations;
- (3) in accordance with any specific procedures and limitations in the aircraft flight manual (AFM);
- (4) with JET A or JET A-1 fuel types; and
- (5) in the presence of the appropriate rescue and firefighting (RFF) facilities or equipment.
- (b) The operator shall assess the risks associated with refuelling with engine(s) and/or rotors turning.
- (c) The operator shall establish appropriate procedures to be followed by all involved personnel, such as crew members, task specialists, and ground operations personnel.
- (d) The operator shall ensure that its crew members, ground operations personnel, as well as any task specialist involved in the procedures, are appropriately trained.
- (e) The operator shall ensure that the helicopter refuelling procedures with engine(s) and/or rotors turning are specified in the operations manual.

SPO.OP.170 Meteorological conditions

- (a) The pilot-in-command shall only commence or continue a VFR flight if the latest available meteorological information indicates that the <u>meteorological weather</u>-conditions along the route and at the intended destination at the estimated time of use will be at or above the applicable VFR operating minima.
- (b) The pilot-in-command shall only commence or continue an IFR flight towards the planned destination aerodrome if the latest available meteorological information indicates that, at the estimated time of arrival, the meteorological weather conditions at the destination or at least one destination alternate aerodrome are at or above the applicable aerodrome operating minima.
- (c) If a flight contains VFR and IFR segments, the meteorological information referred to in (a) and (b) shall be applicable as far as relevant.

SPO.OP.180 Take-off conditions — aeroplanes and helicopters

Before commencing take-off, the pilot-in-command shall be satisfied that:

- (a) according to the information available, the weather at the aerodrome or operating site and the condition of the runway or FATO intended to be used would not prevent a safe take-off and departure; and the meteorological conditions at the aerodrome or the operating site and the condition of the runway/FATO intended to be used will not prevent a safe take-off and departure; and
- (b) applicable aerodrome operating minima will be complied with. the selected aerodrome operating minima are consistent with all of the following:

- (1) the operative ground equipment;
- (2) the operative aircraft systems;
- (3) the aircraft performance;
- (4) flight crew qualifications.

SPO.OP.190 In-flight fuel management Fuel/energy scheme – in-flight fuel/energy management policy

(a) The operator of a complex motor-powered aircraft shall ensure that in-flight fuel checks and fuel management are performed.

(b) The pilot-in-command shall check at regular intervals that the amount of usable fuel remaining in flight is not less than the fuel required to proceed to a weather-permissible aerodrome or operating site and the planned reserve fuel as required by **SPO.OP.130** and **SPO.OP.131**.

- (a) The operator of complex motor-powered aircraft shall establish procedures to ensure that inflight fuel/energy checks and fuel/energy management are performed.
- (b) The pilot-in-command shall monitor the amount of usable fuel/energy remaining on board to ensure that it is protected and not less than the fuel/energy that is required to proceed to an aerodrome or operating site where a safe landing can be made.
- (c) The pilot-in-command shall advise air traffic control (ATC) of a 'minimum fuel/energy' state by declaring 'MINIMUM FUEL' when the pilot-in-command has:
 - (1) committed to land at a specific aerodrome or operating site; and
 - (2) calculated that any change to the existing clearance to that aerodrome or operating site, or other air traffic delays, may result in landing with less than the planned final reserve fuel/energy.
- (d) The pilot-in-command shall declare a situation of 'fuel/energy emergency' by broadcasting 'MAYDAY MAYDAY MAYDAY FUEL' when the usable fuel/energy estimated to be available upon landing at the nearest aerodrome or operating site where a safe landing can be made is less than the planned final reserve fuel/energy.

SPO.OP.210 Approach and landing conditions — aeroplanes and helicopters

Before commencing an approach to land, the pilot-in-command shall be satisfied that, according to the information available, the weather at the aerodrome or the operating site and the condition of the runway intended to be used would not prevent a safe approach, landing or missed approach.

Before commencing an approach operation, the pilot-in-command shall be satisfied that:

- (a) the meteorological conditions at the aerodrome or the operating site and the condition of the runway/FATO intended to be used will not prevent a safe approach, landing or go-around, considering the performance information contained in the operations manual; and
- (b) the selected aerodrome operating minima are consistent with all of the following:
 - (1) the operative ground equipment;
 - (2) the operative aircraft systems;
 - (3) the aircraft performance;
 - (4) flight crew qualifications.

SPO.OP.215 Commencement and continuation of approach — acroplanes and helicopters

- (a) The pilot-in-command may commence an instrument approach regardless of the reported runway visual range/visibility (RVR/VIS).
- (b) If the reported RVR/VIS is less than the applicable minimum, the approach shall not be continued:
 - (1) below 1 000 ft above the aerodrome; or
 - (2) into the final approach segment in the case where the decision altitude/height (DA/H) or minimum descent altitude/height (MDA/H) is more than 1 000 ft above the aerodrome,
- (c) Where the RVR is not available, RVR values may be derived by converting the reported visibility.
- (d) If, after passing 1 000 ft above the aerodrome, the reported RVR/VIS falls below the applicable minimum, the approach may be continued to DA/H or MDA/H.
- (e) The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the visual reference adequate for the type of approach operation and for the intended runway is established at the DA/H or MDA/H and is maintained.
- (f) The touchdown zone RVR shall always be controlling.
- (a) For aeroplanes, if the reported visibility (VIS) or controlling RVR for the runway to be used for landing is less than the applicable minimum, then an instrument approach operation shall not be continued:
 - (1) past a point at which the aeroplane is 1 000 ft above the aerodrome elevation; or
 - (2) into the final approach segment (FAS) if the DH or MDH is higher than 1 000 ft.
- (b) For helicopters, if the reported RVR is less than 550 m and the controlling RVR for the runway to be used for landing is less than the applicable minimum, then an instrument approach operation shall not be continued:

- (1) past a point at which the helicopter is 1 000 ft above the aerodrome elevation; or
- (2) into the FAS if the DH or MDH is higher than 1 000 ft.
- (c) If the required visual reference is not established, a missed approach shall be executed at or before the DA/H or the MDA/H.
- (d) If the required visual reference is not maintained after DA/H or MDA/H, a go-around shall be executed promptly.
- (e) Notwithstanding point (a), in the case where no RVR is reported, and the reported VIS is lower, but the converted meteorological visibility (CMV) is greater than the applicable minimum, then the instrument approach can be continued to the DA/H or MDA/H.
- (f) Notwithstanding points (a) and (b), if there is no intention to land, the instrument approach may be continued to the DA/H or the MDA/H. A missed approach shall be executed at or before the DA/H or the MDA/H.

SPO.OP.235 EFVS 200 operations

- (a) An operator that intends to conduct EFVS 200 operations with operational credits and without a specific approval shall ensure that:
 - (1) the aircraft is certified for the intended operations;
 - (2) only runways, FATOs and IAPs suitable for EFVS operations are used;
 - (3) the flight crew are competent to conduct the intended operation and a training and checking programme for the flight crew members and relevant personnel involved in the flight preparation is established;
 - (4) operating procedures are established;
 - (5) any relevant information is documented in the minimum equipment list (MEL);
 - (6) any relevant information is documented in the maintenance programme;
 - (7) safety assessments are carried out and performance indicators are established to monitor the level of safety of the operation; and
 - (8) the aerodrome operating minima take into account the capability of the system used.
- (b) The operator shall not conduct EFVS 200 operations when conducting LVOs.
- (c) Notwithstanding point (a)(1), the operator may use EVSs meeting the minimum criteria to conduct EFVS 200 operations, provided that this is approved by the CAA.

SPO.POL.110 Mass and balance system – commercial operations with aeroplanes and helicopters and non-commercial operations with complex motor-powered aircraft

- (a) The operator shall establish a mass and balance system in order to determine for each flight or series of flights the following:
 - (1) aircraft dry operating mass;
 - (2) mass of the traffic load;
 - (3) mass of the fuel/energy load;
 - (4) aircraft load and load distribution;
 - (5) take-off mass, landing mass and zero fuel/energy mass;
 - (6) applicable aircraft centre of gravity (CG) positions.
- (b) The flight crew shall be provided with a means of replicating and verifying any mass and balance computation based on electronic calculations.
- (c) The operator shall establish procedures to enable the pilot-in-command to determine the mass of the fuel/energy load by using the actual density or, if not known, the density calculated in accordance with a method specified in the operations manual.
- (d) The pilot-in-command shall ensure the following that the loading of:
 - (1) the loading of the aircraft is performed under the supervision of qualified personnel; and
 - (2) traffic load is consistent with the data used for the calculation of the aircraft mass and balance.
- (e) The operator shall specify, in the operations manual, the principles and methods involved in the loading and in the mass and balance system that meet the requirements contained in (a) to (d). This system shall cover all types of intended operations.

SPO.POL.115 Mass and balance data and documentation – commercial operations with aeroplanes and helicopters and non-commercial operations with complex motor-powered aircraft

- (a) The operator shall establish mass and balance data and produce mass and balance documentation prior to each flight, or series of flights, specifying the load and its distribution in such a way that the mass and balance limits of the aircraft are not exceeded. The mass and balance documentation shall contain the following information:
 - (1) aircraft registration and type;
 - (2) flight identification, number and date, as applicable;

- (3) name of the pilot-in-command;
- (4) name of the person who prepared the document;
- (5) dry operating mass and the corresponding CG of the aircraft;
- (6) mass of the fuel/energy at take-off and the mass of trip fuel/energy;
- (7) mass of consumables other than fuel/energy, if applicable;
- (8) load components;
- (9) take-off mass, landing mass and zero fuel/energy mass;
- (10) applicable aircraft CG positions; and
- (11) the limiting mass and CG values.
- (b) Where mass and balance data and documentation is generated by a computerised mass and balance system, the operator shall verify the integrity of the output data.

SPO.IDE.H.146 Lightweight flight recorder

- (a) Turbine-engined helicopters with an MCTOM of 2 250 kg or more shall be equipped with a flight recorder if all the following conditions are met:
 - (1) they are not within the scope of point SPO.IDE.H.145(a);
 - (2) they are used for commercial operations;
 - (3) they are first issued with an individual CofA on or after 5 September 2022.
- (b) The flight recorder shall record, by means of flight data or images, information that is sufficient to determine the flight path and aircraft speed.
- (c) The flight recorder shall be capable of retaining the flight data and the images recorded during at least the preceding 5 hours.
- (d) The flight recorder shall automatically start to record prior to the helicopter being capable of moving under its own power and shall stop automatically after the helicopter is no longer capable of moving under its own power.
- (e) If the flight recorder records images or audio of the flight crew compartment, then a function shall be provided which can be operated by the pilot-in-command and which modifies image and audio recordings made before the operation of that function, so that those recordings cannot be retrieved using normal replay or copying techniques.