



PART I

DEFINITIONS AND ABBREVIATIONS

FOREWORD

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Bahrain CAA Publication Revisions Highlight Sheet

☒ ANTR: Part 1 ☐ CAP: ____ ☐ TPM: ____

The following pages of ANTR Part I have been revised to ICAO Annex 6 Part I, ~~11th~~ 12th Edition July 2018 2022 Amendments ~~44, 45 & 46~~ upto and including 48, ICAO Annex 6 Part III, ~~10th~~ 11th Edition July 2018 2022 Amendments upto and including ~~23~~ 24 and ICAO Annex 8, 13th Edition July 2022. ~~EASA's Easy Access Rules for Air Operations~~.

Item	Paragraph number	Page	Reason
1	Foreword and Contents	i & iii	1. To indicate the current revision status 2. Addition related to EBT, based on Easy Access Rules of EASA.
Section 1			
1	1.1 General Definitions	1-2, 1-14, 1-18, 1-20, 1-21, 1-22, 1-27, 1-28, 1-31 & 1-42 1-3, 1-6 to 1-10, 1-13, 1-14, 1-16 to 1-18, 1-20, 1-21, 1-24, 1-27, 1-30 to 1-33, 1-16, 1-37, 1-39 to 1-45, 1-48, 1-52 to 1-54	To incorporate 1. ICAO Annex 6 Part I, 2. ICAO Annex 6 Part III, & 3. ICAO Annex 8.
2	1.2.1 Abbreviations	1-49 1-54 & 1-55	

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REVISION RECORD

ANTR PART

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FOREWORD

- 1 The Kingdom of Bahrain Civil Aviation Affairs, known in these regulations as the “Authority” has implemented ANTR Part 1 based on the ICAO Annexes, and Easy Access Rules of EASA with a view to harmonizing legislation and to regulate commercial air transport and private operations of aeroplanes.
- 2 New, amended and corrected text will be indicated with a side bar beside paragraphs, until a subsequent “amendment” is issued.
- 3 “she”/”her” to be substituted when/as appropriate throughout these Regulations.
- 4 This is the 3rd Edition Revision 8 9 of ANTR Part I dated ~~28-April-2022~~ xx March 2023. All pages of this issue of ANTR Part I are now current.
- 5 Please refer to the Volume 1 Revision Status and List of Effective Pages for current status.

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ANTR PART I

DEFINITIONS AND ABBREVIATIONS

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SECTION 1

DEFINITIONS AND ABBREVIATIONS

ANTR 1.1 General Definitions

‘Abortive Start’ (turbine engines) means an attempt to start, in which the engine lights up, but fails to accelerate.

Note: The handling of the engine is assumed to be in accordance with the instructions laid down by the engine manufacturer to be followed in these circumstances.

‘Acceleration Datum Conditions’ (turbine engines) means the engine conditions, e.g. rotational speed, torque, exhaust gas temperature, as appropriate, from which, during the type endurance test, the specified accelerations to 95% of take-off power and/or thrust is timed. Unless otherwise agreed by the Authority, the power and/or thrust at the acceleration datum conditions is not greater than 10% of take-off power and/or thrust and the time to 95% of take-off power and/or thrust is not greater than 5 seconds.

‘Accelerate-Stop Distance Available (ASDA)’ means the length of the take-off run available plus the length of stopway, if provided.

‘Accepted/Acceptable’ means not objected to by the Authority as suitable for the purpose intended.

‘Accredited Medical Conclusion’ means the conclusion reached by one or more medical experts acceptable to the CAA for the purposes of the case concerned, in consultation with flight operations or other experts as necessary.

‘Accuracy’ means, in respect to ATC, a degree of conformance between the estimated or measured value and the true value.

Note: For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.

‘Acrobatic flight’ means manoeuvres intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed.

‘Acts of unlawful interference’ means acts or attempted acts such as to jeopardize the safety of civil aviation and air transport, i.e.:

- unlawful seizure of aircraft in flight,
- unlawful seizure of aircraft on the ground,
- hostage-taking on board aircraft or on aerodromes,
- forcible intrusion on board an aircraft, at an airport or on the premises of an aeronautical facility,
- introduction on board an aircraft or at an airport of a weapon or hazardous device or material intended for criminal purposes,
- communication of false information such as to jeopardize the safety of an aircraft in flight or on the ground, of passengers, crew, ground personnel or the general public, at an airport or on the premises of a civil aviation facility.

‘Adapted competency model’ means a group of competencies with their associated description and performance criteria adapted from an ICAO competency framework that an organization uses to develop competency-based training and assessment for a given role.

‘Adjustable Pitch Propeller’ means a propeller, the pitch setting of which can be conveniently changed in the course of ordinary field maintenance, but which cannot be changed when the propeller is rotating.

‘ADS-C agreement’ means a reporting plan which establishes the conditions of ADS-C data reporting (i.e. data required by the air traffic services unit and frequency of ADS-C reports which have to be agreed to prior to using ADS-C in the provision of air traffic services).

Note: The terms of the agreement will be exchanged between the ground system and the aircraft by means of a contract, or a series of contracts.

‘Advanced Aircraft’ means an aircraft with equipment in addition to that required for a basic aircraft for a given take-off, approach or landing operation.

‘Advisory airspace’ means airspace of defined dimensions, or designated route, within which air traffic advisory service is available.

‘Advisory route’ means a designated route along which air traffic advisory service is available.

‘Aerial Work’ means an aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

‘Aerobatic Flight’ means manoeuvres intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed.

‘Aerodrome’ means a defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

‘Aerodrome control service’ means air traffic control service for aerodrome traffic.

‘Aerodrome control tower’ means a unit established to provide air traffic control service to aerodrome traffic.

‘Aerodrome Operating Minima’ means the limits of usability of an aerodrome for;

- a. take-off, expressed in terms of runway visual range and/or visibility, and, if necessary, cloud conditions;
- b. landing in 2D instrument approach operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height(MDA/H) and, if necessary, cloud conditions; and
- c. landing in 3D instrument approach operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the type and/or category of the operation.

‘Aerodrome traffic’ means all traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

Note: An aircraft is in the vicinity of an aerodrome when it is in, entering or leaving an aerodrome traffic circuit.

‘Aerodrome Traffic Zone’ means an airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic.

‘Aeronautical Fixed Service (AFS)’ means a telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

‘Aeronautical Information Publication’ means a publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation

‘Aerodynamic coefficients’ means non-dimensional coefficients for aerodynamic forces and moments.

‘Aeronautical mobile service (RR S1.32)’ means a mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

‘Aeronautical station (RR S1.81)’ means a land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example, on board ship or on a platform at sea.

‘Aeroplane’ means a power driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces, which remain fixed under given conditions of flight.

‘Afterburning’ means a mode of engine operation wherein a combustion system fed (in whole or part) by vitiated air is used.

‘Agreement summary’ means when an aircraft is operating under an Article 83 *bis* agreement between the State of Registry and another State, the agreement summary is a document transmitted with the Article 83 *bis* Agreement registered with the ICAO Council that identifies succinctly and clearly which functions and duties are transferred by the State of Registry to that other State.

Note: The other State in the above definition refers to either the State of the Operator for commercial air transport operations or, for general aviation operations, to the State of the principal location of a general aviation operator

‘Airborne’ means entirely supported by aerodynamic forces (CS-25 only).

‘Airborne Collision Avoidance System (ACAS)’ means an aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

‘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.

Note: ††— When the word aircraft is used, it includes the remotely piloted aircraft.

†† Applicable as of 26 November 2026

‘Aircraft avionics’ means a term designating any electronic device, including its electrical part for use in an aircraft, including radio, automatic flight control and instrument systems.

‘Aircraft category’ means a classification of aircraft according to specified basic characteristics, e.g. aeroplane, helicopter, glider, free balloon.

‘Aircraft certificated for single-pilot operation’ means a type of aircraft which the State of Registry has determined, during the certification process, can be operated safely with a minimum crew of one pilot.

‘Aircraft Flight Manual’ means a manual associated with the Certificate of Airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.

‘Aircraft Operating Manual’ means a manual, acceptable to the State of the operator, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft.

Note: The Aircraft Operating Manual is part of the Operations Manual.

‘Aircraft required to be operated with a co-pilot’ means a type of aircraft that is required to be operated with a co-pilot, as specified in the flight manual or by the air operator certificate.

‘Aircraft tracking’ means a process, established by the operator, that maintains and updates, at standardized intervals, a ground-based record of the four dimensional position of individual aircraft in flight.

‘Aircraft Type’ as used with respect to;

- a) licensing and operations of flight crew, is defined in ANTR–FCL;
- b) type certification of aircraft, is defined in CS–21;
- c) cabin crew, is defined in ANTR–OPS; or
- d) certifying staff, is defined in ANTR 66.

‘Aircraft Variant’ as used with respect to the licensing and operation of flight crew, means an aircraft of the same basic certificated type which contain modifications not resulting in significant changes of handling and/or flight characteristic, or flight crew complement, but causing significant changes to equipment and/or procedures.

‘Airframe’ means the fuselage, booms, nacelles, cowlings, fairings, aerofoil surfaces (including rotors but excluding propellers and rotating aerofoils of engines), and landing gear of an aircraft and their accessories and controls.

‘Air-ground communication’ means two-way communication between aircraft and stations or locations on the surface of the earth.

‘Air-ground control radio station’ means an aeronautical telecommunication station having primary responsibility for handling communications pertaining to the operation and control of aircraft in a given area.

‘Airmanship’ means the consistent use of good judgement and well developed knowledge, skills and attitudes to accomplish flight objectives.

‘AIRMET information’ means information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of low-level aircraft operations and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof.

‘Air Operator Certificate (AOC)’ means a certificate authorising an Operator, to carry out specified commercial air transport operations.

‘Air Service’ means an air service performed by aircraft for the public transport of passengers, cargo or mail for remuneration or hire.

‘Airship’ means a power-driven lighter-than-air aircraft.

‘Air-taxiing’ means movement of a helicopter/VTOL above the surface of an aerodrome, normally in ground effect and at a ground speed normally less than 37 km/h (20 kt).

Note: The actual height may vary, and some helicopters may require air-taxiing above 8 m (25 ft) AGL to reduce ground effect turbulence or provide clearance for cargo sling loads.

‘Air Traffic’ means all aircraft in flight or operating on the manoeuvring area of an aerodrome.

‘Air traffic advisory service’ means a service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans.

‘Air Traffic Control Clearance’ means authorisation for an aircraft to proceed under conditions specified by an air traffic control unit.

Note 1: For convenience, the term “air traffic control clearance” is frequently abbreviated to “clearance” when used in appropriate contexts.

Note 2: The abbreviated term “clearance” may be prefixed by the words “taxi”, “take-off”, “departure”, “en route”, “approach” or “landing” to indicate the particular portion of flight to which the air traffic control clearance relates.

‘Air traffic control service’ means a service provided for the purpose of:

- a) preventing collisions:
 - 1) between aircraft, and
 - 2) on the manoeuvring area between aircraft and obstructions, and
- b) expediting and maintaining an orderly flow of air traffic.

‘Air Traffic Control Unit’ means a generic term meaning variously, area control centre, approach control office or aerodrome control tower.

‘Air traffic flow management (ATFM)’ means a service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilized to the maximum extent possible and that the traffic volume is compatible with the capacities declared by the appropriate ATS authority.

‘Air Traffic Service (ATS)’ means a generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

‘Air Traffic Services Airspaces’ means airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.

Note: ATS airspaces are classified as Class A to G.

‘Air traffic services reporting office’ means a unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure.

Note: An air traffic services reporting office may be established as a separate unit or combined with an existing unit, such as another air traffic services unit, or a unit of the aeronautical information service.

‘Air traffic services unit’ means a generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office.

‘Air Transport Operator’ means an operator of an aircraft engaged in the transportation of passengers, cargo and mail for remuneration or hire offering service to the public on demand and not to a published schedule.

‘Airway’ means a control area or portion thereof established in the form of a corridor equipped with radio navigation aids.

‘Airworthy’ † means the status of an aircraft, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation.

† Applicable until 25 November 2026

‘Airworthy’ †† means the status of an aircraft, remote pilot station, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation.

†† Applicable as of 26 November 2026

‘ALERFA’ means the code word used to designate an alert phase.

‘Alert phase’ means a situation wherein apprehension exists as to the safety of an aircraft and its occupants.

‘Alerting Service’ means a service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

‘Alternate Aerodrome’ means an 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 aerodromes include the following:

- a) **Take-off alternate.** An alternate aerodrome at which an aircraft would land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.
- b) **En-route alternate.** An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en-route.
- c) **Destination alternate.** An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.

‘Alternate Heliport’. A heliport to which a helicopter may proceed when it becomes either impossible or inadvisable to proceed to or to land at the heliport 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 heliports include the following:

- a) **Take-off alternate.** An alternate heliport at which a helicopter would be able to land should this become necessary shortly after take-off and it is not possible to use the heliport of departure.

- b) En-route alternate. An alternate heliport at which a helicopter would be able to land in the event that the diversion becomes necessary while en route.
- c) Destination alternate. An alternate heliport to which a helicopter at which a helicopter would be able to land should it become either impossible or inadvisable to land at the heliport of intended landing.

Note: The heliport from which a flight departs may be an en-route or a destination alternate heliport for that flight.

‘Altimetry System Error (ASE)’ means the difference between the altitude indicated by the altimeter display, assuming a correct altimeter barometric setting, and the pressure altitude corresponding to the undisturbed ambient pressure.

‘Altitude’ means the vertical distance of a level, a point or an object considered as a point, measured from mean sea level (msl.).

‘Anticipated operating conditions’ † means those conditions which are known from experience or which can be reasonably envisaged to occur during the operational life of the aircraft taking into account the operations for which the aircraft is made eligible, the conditions so considered being relative to the meteorological state of the atmosphere, to the configuration of terrain, to the functioning of the aircraft, to the efficiency of personnel and to all the factors affecting safety in flight. Anticipated operating conditions do not include:

- a) those extremes which can be effectively avoided by means of operating procedures; and
- b) those extremes which occur so infrequently that to require the Standards to be met in such extremes would give a higher level of airworthiness than experience has shown to be necessary and practical.

† Applicable until 25 November 2026.

‘Anticipated operating conditions’ means those conditions which are known from experience or which can be reasonably envisaged to occur during the operational life of the aircraft **and remote pilot station** taking into account the operations for which the aircraft is made eligible, the conditions so considered being relative to the meteorological state of the atmosphere, to the configuration of terrain, to the functioning of the aircraft, to the efficiency of personnel and to all the factors affecting safety in flight. Anticipated operating conditions do not include:

- a) those extremes which can be effectively avoided by means of operating procedures; and
- b) those extremes which occur so infrequently that to require the Standards to be met in such extremes would give a higher level of airworthiness than experience has shown to be necessary and practical.

†† Applicable as of 25 November 2026.

‘Appliance’ means any instrument, mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is used or intended to be used in operating or controlling an aircraft in flight, is installed in or attached to the aircraft, and is not part of an airframe, engine, or propeller.

‘Applicant’ means a person applying for approval of an aircraft or any part thereof.

‘Approach and landing phase — helicopters’ means that part of the flight from 300 m (1 000 ft) above the elevation of the FATO, if the flight is planned to exceed this height, or from the commencement of the descent in the other cases, to landing or to the bailed landing point.

‘Approach control service’ means air traffic control service for arriving or departing controlled flights.

‘Approach control unit’ means a unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.

‘Approach phase’, in respect to Environmental Protection, means the operating phase defined by the time during which the engine is operated in the approach operating mode.

‘Appropriate airworthiness requirements’ † means the comprehensive and detailed airworthiness codes established, adopted or accepted by a Contracting State for the class of aircraft, engine or propeller under consideration.

† Applicable until 25 November 2026.

‘Appropriate airworthiness requirements’ †† means the comprehensive and detailed airworthiness codes established, adopted or accepted by a Contracting State for the class of aircraft, remote pilot station, engine or propeller under consideration.

†† Applicable as of 25 November 2026.

‘Appropriate ATS authority’ means the relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.

‘Appropriate authority’

- a) *Regarding flight over the high seas:* The relevant authority of the State of Registry.
- b) *Regarding flight other than over the high seas:* The relevant authority of the State having sovereignty over the territory being overflown.

‘Approved by the Authority’ means ~~documented by the Authority as suitable for the purpose intended.~~ Accepted by a Contracting State as suitable for a particular purpose

‘Approved maintenance organization’ means an organization approved by a Contracting State, in accordance with the requirements of Annex 6, Part I, Chapter 8 — Aeroplane Maintenance, to perform maintenance of aircraft or parts thereof and operating under supervision approved by that State.

Note: Nothing in this definition is intended to preclude that the organization and its supervision be approved by more than one State.

‘Approved training’ means training conducted under special curricula and supervision approved by a Contracting State.

‘Approved training organization’ means an organization approved by and operating under the supervision of a Contracting State in accordance with the requirements of ICAO Annex 1, to perform approved training.

‘Apron’ means a defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.

‘Apron management service’ means a service provided to regulate the activities and the movement of aircraft and vehicles on an apron.

‘Area control centre’ means a unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction

‘Area control service’ means an air traffic control service for controlled flights in control areas.

‘Area navigation (RNAV)’ means a method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note: Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.

‘Area navigation route’ means an ATS route established for the use of aircraft capable of employing area navigation.

‘Article’ means any part and appliance to be used on civil aircraft.

‘Associated aircraft systems’ means those aircraft systems drawing electrical/pneumatic power from an auxiliary power unit during ground operations.

‘Atmosphere, International Standard’ means the atmosphere defined in ICAO Annex 8 and Document 7488/2 3. For the purposes of this ANTR the following is acceptable:

- ~~a) The air is a perfect dry gas;~~
- ~~b) The temperature at sea level is 15°C;~~
- ~~c) The pressure at sea level is 1.013250 x 10⁵ Pa (29.92 in Hg) (1013.2 mbar);~~
- ~~d) The temperature gradient from sea level to the altitude at which the temperature becomes -56.5°C is 3.25°C per 500 m (1.98°C/1000 ft);~~
- ~~e) The density at sea level, under the above conditions is 1.2250 kg/m³ (0.002378 slugs/ft³); for the density at altitudes up to 15 000 m (50 000 ft) see Table 1.~~

~~Note: ρ is the density appropriate to the altitude and ρ/ρ_0 the relative density is indicated by σ .~~

a) the air is a perfect dry gas;

b) the physical constants are:

- Sea level mean molar mass:
 $M_0 = 28.964\,420 \text{ } \square \text{ } 10^{-3} \text{ kg mol}^{-1}$
- Sea level atmospheric pressure:
 $P_0 = 1\,013.250 \text{ hPa}$
- Sea level temperature:
 $t_0 = 15^\circ\text{C}$
 $T_0 = 288.15 \text{ K}$
- Sea level atmospheric density:
 $\rho_0 = 1.225\,0 \text{ kg m}^{-3}$
- Temperature of the ice point:
 $T_i = 273.15 \text{ K}$
- Universal gas constant:
 $R^* = 8.314\,32 \text{ JK}^{-1}\text{mol}^{-1}$

c) the temperature gradients are:

Geopotential altitude (km)	Temperature gradient
-------------------------------	----------------------

From	To	(Kelvin per standard geopotential kilometre)
-5.0	11.0	-6.5
11.0	20.0	0.0
20.0	32.0	+1.0
32.0	47.0	+2.8
47.0	51.0	0.0
51.0	71.0	-2.8
71.0	80.0	-2.0

Note 1.— The standard geopotential metre has the value $9.806\,65\text{ m}^2\text{ s}^{-2}$.

Note 2.— See Doc 7488 for the relationship between the variables and for tables giving the corresponding values of temperature, pressure, density and geopotential.

Note 3.— Doc 7488 also gives the specific weight, dynamic viscosity, kinematic viscosity and speed of sound at various altitudes.

‘ATS route’ means a specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.

Note 1: The term “ATS route” is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure route, etc.

Note 2: An ATS route is defined by route specifications which include an ATS route designator, the track to or from significant points (waypoints), distance between significant points, reporting requirements and, as determined by the appropriate ATS authority, the lowest safe altitude.

‘ATS surveillance service’ means a term used to indicate a service provided directly by means of an ATS surveillance system.

‘ATS surveillance system’ means a generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

Note: A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.

‘Authority’ means the Civil Aviation Affairs of the Kingdom of Bahrain and is the competent body responsible for the safety regulation of Civil Aviation. (See IEM 1.1, Authority).

‘Automatic dependent surveillance’

‘Automatic dependent surveillance — broadcast (ADS-B)’ A means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

‘Automatic dependent surveillance — contract (ADS-C)’. A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

Note: The abbreviated term “ADS contract” is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.

‘Automatic deployable flight recorder (ADFR)’. A combination flight recorder installed on the aircraft which is capable of automatically deploying from the aircraft.

‘Automatic terminal information service (ATIS)’ means the automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:

‘Data link-automatic terminal information service (D-ATIS)’. The provision of ATIS via data link. *Voice-automatic terminal information service (Voice-ATIS)*. The provision of ATIS by means of continuous and repetitive voice broadcasts.

‘Autorotation’ means a rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion.

‘Auxiliary Power Unit (APU)’ means a self-contained power-unit on an aircraft providing electrical/pneumatic power to aircraft systems during ground operations.

Definitions applicable to auxiliary power units:

- a) **‘Accessory drives’** means any drive shaft or utility mounting pad, furnished as a part of the auxiliary power unit, that is used for the extraction of power to drive accessories, components, or controls essential to the operation of the auxiliary power unit or any of its associated systems.
- b) **‘Auxiliary Power Unit (APU)’** means any gas turbine-powered unit delivering rotating shaft power, compressor air, or both which is not intended for direct propulsion of an aircraft.
- c) **‘Blade’** means an energy transforming element of the compressor or turbine rotors whether integral or attached design.
- d) **‘Compressor air’** means compressed air that is provided by the APU to do work whether it is extracted or bled from any point of the compressor section of the gas turbine engine or produced from a compressor driven by the APU.
- e) **‘Containment’** means retention within the APU of all high energy rotor fragments resulting from the failure of a high energy rotor.
- f) **‘Critical rotor stage’** means the compressor and turbine stages whose rotors have the smallest margin of safety under the conditions of speed and temperature shown in Appendix 1, paragraph 7.10 of CS-APU.
- g) **‘Demonstrate’** means to prove by physical test under the conditions specified in Appendix 1 of CS-APU.
- h) **‘Essential APU’** means an APU which produces bleed air and/or power to drive accessories necessary for the dispatch of the aircraft to maintain safe aircraft operation.
- i) **‘High energy rotor’** means a rotating component or assembly which, when ruptured, will generate high kinetic energy fragments.
- j) **‘Major part’** means a part of whose failure might adversely affect the operational integrity of the unit.
- k) **‘Maximum allowable speed’** means the maximum rotor speed which the APU would experience under overload or transient conditions and is limited by installed safety devices.

- l) **‘Maximum allowable temperature’** means the maximum exhaust gas temperature (EGT) or turbine inlet temperature (TIT) which the APU would experience during overload or transient conditions and is limited by installed safety devices.
- m) **‘Minor part’** means a part which is not a major part.
- n) **‘Non-essential APU’** means an APU which may be used on the aircraft as a matter of convenience, either on the ground or in flight, and may be shut down without jeopardising safe aircraft operations.
- o) **‘Output provisions’** means any drive pad or compressed air output flange intended for aircraft use to extract usable shaft or pneumatic power from the APU.
- p) **‘Rated output’** means the approved shaft power or compressed air output or both, that is developed statically at standard sea-level atmospheric conditions for unrestricted periods of use.
- q) **‘Rated temperature’** means the maximum turbine inlet or exhaust gas temperature at which the engine can operate at rated output and speed.
- r) **‘Rotor’** means a rotating component or assembly including blades with the exception of accessory drive shafts and gears.
- s) **‘Start’** means an acceleration from the initiation of operation or starter torque to a stabilised speed and temperature in the governed ranges without exceeding approved limits.
- t) **‘Substantiate’** means to prove by presentation of adequate evidence obtained by demonstration or analysis or both.
- u) **‘Type’** means all of a series of units each one of which was developed as an alternative configuration or refinement of the same basic unit.

‘Auxiliary rotor’ means a rotor that principally serves to counteract the effect of the main rotor torque on a rotorcraft and/or to manoeuvre the rotorcraft about one or more of its three principle axes.

‘Balloon’ means a non-power driven lighter than air aircraft.

‘Base turn’ means a turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal.

Note: Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

‘Basic Aircraft’ means An aircraft which has the minimum equipment required to perform the intended take-off, approach or landing operation.

‘Beta Control’ means a system whereby the propeller can be operated at blade angles directly selected by the air crew, or by other means, and normally used during the approach and ground handling.

‘Boost Pressure’ (piston engines) means the manifold pressure measured relative to standard sea-level atmospheric pressure.

‘Brake Horsepower’ means the power delivered at the propeller shaft (main drive or main output) of an aircraft engine.

‘Bypass ratio’ means the ratio of the air mass flow through the bypass ducts of a gas turbine engine to the air mass flow through the combustion chambers calculated at maximum thrust when the engine is stationary in an international standard atmosphere at sea level.

C2 Link. †† The data link between the remotely piloted aircraft and the remote pilot station for the purposes of managing the flight.

†† Applicable as of 26 November 2026.

C2 Link interruption. †† Any temporary situation where the C2 Link is unavailable, discontinuous, introduces too much delay, or has inadequate integrity; but where the lost C2 Link decision time has not been exceeded.

†† Applicable as of 26 November 2026.

C2 Link specification. †† The minimum performance to be achieved by the C2 Link equipment in conformity with the applicable airworthiness system design requirements.

†† Applicable as of 26 November 2026.

‘CAA’ means the Civil Aviation Affairs of the Kingdom of Bahrain or any of its departments to which supervision and development of civil aviation affairs is assigned.

‘Cabin Crew Member’ means a crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the pilot in command of the aircraft, but who shall not act as a flight crew member.

‘Calendar’ means discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108*).

‘Calendar Month’ means a month in the Gregorian calendar, such as May, June, etc., and when applicable to expiry dates of medical certificates or required checks, means the "last date of the month" in which the check becomes due.

‘Calibrated airspeed’ means indicated airspeed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level.

‘Category’ as used with respect to;

- a) licensing of flight crew, is defined in ANTR–FCL;
- b) type certification of aircraft, is defined in ANTR PART V ~~CS–21~~;
- c) certifying staff, is defined in ANTR 66.
- d) aerodrome operating minima required in ANTR–OPS, is defined in ANTR–OPS 1.430;
- ~~e) all weather operations in accordance with CS–AWO, is defined in CS–AWO 201; or~~
- f) all weather operations in accordance with ANTR–OPS, is defined in ANTR–OPS 1.430.

‘Category A’ with respect to rotorcraft, means a multi-engined rotorcraft / helicopter designed with engine and system isolation features specified in ~~CS–27/CS–29~~ Part IVB of Annex 8 and capable of operations using take-off and landing data scheduled under a critical engine failure concept which assures adequate designated surface area and adequate performance capability for continued safe flight or safe rejected take-off ~~in the event of engine failure~~.

‘Category B’ with respect to rotorcraft / helicopter, means a single-engine or multi-engine rotorcraft / helicopter which does not meet Category A standards. Category B rotorcraft / helicopter have no guaranteed capability to continue safe flight in the event of an engine failure, and unscheduled landing is assumed.

‘Ceiling’ means the height above the ground or water of the base of the lowest layer of cloud below 20,000 feet covering more than half the sky.

‘Certify as airworthy (to)’ means to certify that an aircraft or parts thereof comply with current airworthiness requirements after maintenance has been performed on the aircraft or parts thereof.

‘Certifying Staff’ means personnel responsible for the release of an aircraft or a component after maintenance.

‘Change-Over Point’ means the point at which an aircraft navigating on an ATC route segment defined by reference to very high frequency omni-directional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the facility ahead of the aircraft.

Note: Change-over points are established to provide the optimum balance in respect of signal strength and quality between facilities at all levels to be used and to ensure a common source of azimuth guidance for all aircraft operating along the same portion of a route segment.

‘Charge Cooling’ (piston engines) means the percentage degree of charge cooling, quantitatively expressed as:–

$$\frac{(t_2 - t_3) \times 100}{(t_2 - t_1)}$$

where

t_1 is the temperature of the air entering the charge cooler coolant radiator in the power-plant,

t_2 is the temperature of the charge without cooling, and

t_3 is the temperature of the charge with cooling.

‘Class’ means as used with respect to aeroplanes means a group of single-engine aeroplane types having similar handling and flight characteristics.

Note: Change-over points are established to provide the optimum balance in respect of signal strength and quality between facilities at all levels to be used and to ensure a common source of azimuth guidance for all aircraft operating along the same portion of a route segment.

‘Clearance Limit’ means the point to which an aircraft is granted an air traffic control clearance.

‘Clearway’ means, for turbine engine powered aeroplanes certificated after August 29, 1959, an area beyond the runway, not less than 152 m (500 ft) wide, centrally located about the extended centreline of the runway, and under the control of the airport authorities. The clearway is expressed in terms of a clearway plane, extending from the end of the runway with an upward slope not exceeding 1.25%, above which no object or terrain protrudes. However, threshold lights may protrude above the plane if their height above the end of the runway is 0.66 m (26 ins) or less and if they are located to each side of the runway.

Climates, Standard

Note: This sub-paragraph defines three standard climates – Temperate, Tropical and Arctic – by stating the envelope conditions applicable to each. The conditions thus represented are acceptable as giving suitable design criteria for aeroplanes intended for operation

in such regions. They are drawn up on the basis of conditions unlikely to be exceeded more often than on one day per year except that they do not cover the extremes of temperature occasionally reached in tropical deserts or in Siberia in winter.

The Temperate, Tropical and Arctic climates are defined by:

- a) The temperature envelopes enclosed by the appropriate maximum and minimum temperature lines of Fig. 1, from zero metres (feet) to the selected height (e.g. the temperatures appropriate to 0 – 10 000 m (0 – 30 000 ft)) in the standard Temperate climate are those within the envelope A, B, C, D, in Fig. 1;
- b) Every point included in these envelopes being associated with a relative humidity range of 20% to 100%; except that in the conditions represented by the area E, F, G in Fig. 1 the relative humidities shall be assumed to vary from 100% maximum and 20% minimum respectively at the line EF to the value appropriate to the height at the line GF. The value of relative humidity on the line GF shall be taken to vary linearly from 100% maximum and 20% minimum at F to some lower values at G (given here as 10% maximum and 2% minimum);
- c) Every point included in these envelopes being associated with the International standard pressure (ICAO) appropriate to the height, as shown in Table 1;
- d) Every point included in these envelopes being associated with the density corresponding to the temperature, pressure and humidity; extreme values are given in Table 1.

These conditions do not cover variation of pressure from the International standard. This shall be allowed for by assuming a variation of pressure 5% above and below the International standard pressure (ICAO) associated with the International standard temperature (ICAO). (see IEM 1.1, Climates, Standard.)

‘Climb phase’, in respect to Environmental Protection, means the operating phase defined by the time during which the engine is operated in the climb operating mode.

‘COMAT’ means operator material carried on an operator’s aircraft for the operator’s own purposes.

‘Combined vision system (CVS)’ means a system to display images from a combination of an enhanced vision system (EVS) and a synthetic vision system (SVS).

‘Commander’ as used with respect to aircraft operations, is defined in ANTR-OPS.

‘Commercial Air Transportation operation’ means an aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

‘Common mark’ means a mark assigned by the International Civil Aviation Organisation to the common mark registering authority registering aircraft of an international operating agency on other than a national basis.

‘Common mark registering authority’ means the authority maintaining the non-national register or, where appropriate, the part thereof, in which aircraft of an international operating agency are registered.

Note: All aircraft of an international operating agency which are registered on other than a national basis will bear the same common mark.

‘Competency’ means a combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.

Note: ‘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;

‘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;

‘Competency-based training and assessment’ Training and assessment that are characterized by a performance orientation, emphasis on standards of performance and their measurement, and the development of training to the specified performance standards.

‘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;

‘Competency element’ means an action that constitutes a task that has a triggering event and a terminating event that clearly defines its limits, and an observable outcome.

‘Competency standard’ A level of performance that is defined as acceptable when assessing whether or not competency has been achieved.

‘Competency unit’ means a discrete function consisting of a number of competency elements.

‘Competent Authority’ means the Civil Aviation Affairs of the Kingdom of Bahrain or any of its departments to which supervision and development of civil aviation affairs is assigned.

‘Component, Parts, Appliances, Product’ means any engine, propeller, part or appliance.

‘Conditions’ Anything that may qualify a specific environment in which performance will be demonstrated.

‘Configuration (as applied to the aeroplane)’ means a particular combination of the positions of the moveable elements, such as wing flaps and landing gear, etc., that affect the aerodynamic characteristics of the aeroplane.

‘Configuration Deviation List’ (CDL) means a list established by the organisation responsible for the type design with the approval of the State of Design which identifies any external parts of an aircraft type which may be missing at the commencement of a flight, and which contains, where necessary, any information on associated operating limitations and performance correction.

‘Conference communications’ means communication facilities whereby direct speech conversation may be conducted between three or more locations simultaneously.

‘Congested Area’ means, in relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes.

‘Congested hostile environment’ means a hostile environment within a congested area.

‘Contaminated runway’ †† A runway is contaminated when a significant portion of the runway 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 in the runway surface condition descriptors.

~~†† Applicable as of 5th November 2021~~

Note: Further information on runway surface condition descriptors can be found in the Annex 14, Volume I — Definitions.

‘Continuing airworthiness’ † means the set of processes by which an aircraft, engine, rotor or part complies with the applicable airworthiness requirements and remain in a condition for safe operation throughout its operating life.

† Applicable until 25 November 2026.

‘Continuing airworthiness’ †† means the set of processes by which an aircraft, remote pilot station, engine, rotor / propeller or part complies with the applicable airworthiness requirements and remain in a condition for safe operation throughout its operating life.

†† Applicable as of 25 November 2026.

‘Continuing airworthiness records’ means records which are related to the continuing airworthiness status of an aircraft, engine, rotor or associated part.

‘Continuous descent final approach (CDFA)’ means a technique, consistent with stabilized approach procedures, for flying the final approach segment (FAS) of an instrument non-precision 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 begins for the type of aircraft flown; for the FAS of an NPA procedure followed by a circling approach, the CDFA technique applies until circling approach minima (circling OCA/H) or visual flight manoeuvre altitude/height are reached.

‘Continuous Maximum Icing’ (see ‘Icing Atmospheric Conditions’)

‘Contracting State’ means a State that is a signatory to the Convention on International Civil Aviation.

‘Control Area’ means a controlled airspace extending upwards from a specified limit above the earth.

‘Controlled Aerodrome’ means an aerodrome at which air traffic control service is provided to aerodrome traffic.

Note: The term “controlled aerodrome” indicates that air traffic control service is provided to aerodrome traffic but does not necessarily imply that a control zone exists.

‘Controlled Airspace’ means an airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Note: Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E.

‘Controlled Flight’ means any flight, which is subject to an air traffic control clearance.

‘Controller-pilot data link communications (CPDLC)’ is a means of communication between controller and pilot, using data link for ATC communications.

‘Control Zone’ means a controlled airspace extending upwards from the surface of the earth to a specified upper limit.

‘Co-pilot’ means a licensed pilot serving in any piloting capacity other than as pilot in command, but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction for a licence or rating.

‘Credit’ means recognition of alternative means or prior qualifications

‘Crew Member’ means a person assigned by an operator to duty on an aircraft during flight duty period.

‘Critical Altitude’ (piston engines) means the maximum attitude at which, in standard atmosphere, it is possible to maintain, at a specified rotational speed without ram, a specified power or a specified manifold pressure. Unless otherwise stated, the critical altitude is the maximum altitude at which it is possible to maintain, without ram, at the maximum continuous rotational speed, one of the following:—

- a) The maximum continuous power, in the case of engines for which this power rating is the same at sea level and at the rated altitude.
- b) The maximum continuous rated manifold pressure, in the case of engines the maximum continuous power of which, is governed by a constant manifold pressure.

‘Critical Engines’ means ~~the~~ any engine whose failure ~~would~~ gives the most adversely effect on the ~~performance or handling qualities of an aircraft.~~

Note — On some aircraft there may be more than one equally critical engine. In this case, the expression “the critical engine” means one of those critical engines.

‘Critical Part.’ Where the failure analysis shows that a part must achieve and maintain a particularly high level of integrity if Hazardous Effects are not to occur at a rate in excess of Extremely Remote then such a part shall be identified as a Critical Part.

‘Critical power-unit(s)’ means the power-unit(s) failure of which gives the most adverse effect on the aircraft characteristics relative to the case under consideration.

Note: On some aircraft there may be more than one equally critical power-unit. In this case, the expression “the critical power-unit” means one of those critical power-units.

‘Cross-country’ means a flight between a point of departure and a point of arrival following a pre-planned route using standard navigation procedures.

‘Cruise climb’ means an aeroplane cruising technique resulting in a net increase in altitude as the aeroplane mass decreases.

‘Cruise relief pilot’ means a flight crew member who is assigned to perform pilot tasks during cruise flight, to allow the pilot-in-command or a co-pilot to obtain planned rest.

‘Cruising Level’ means a level maintained during a significant portion of a flight.

‘Current flight plan’ means the flight plan, including changes, if any, brought about by subsequent clearances.

‘Cyclic redundancy check (CRC)’ means a mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

‘Danger Area’ means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specific times.

‘Dangerous Goods’ 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.

Note: Dangerous goods are classified in ICAO Annex 18, Chapter 3.

‘Data link communications’ means a form of communication intended for the exchange of messages via a data link.

‘Data quality’ means a degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution and integrity.

‘Date of manufacture’ means the date of issue of the document attesting that the individual aircraft or engine as appropriate conforms to the requirements of the type or the date of an analogous document.

‘Datum’ means any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104*).

‘Decision Altitude (DA) or Decision Height (DH)’ means a specified altitude or height in a three-dimensional (3D) instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note 1: Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.

Note 2: The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In Category III operations with a decision height the required visual reference is that specified for the particular procedure and operation.

Note 3: For convenience where both expressions are used they may be written in the form “decision altitude/ height” and abbreviated “DA/H”.

‘Declared Capacity’ means a measure of the ability of the ATC system or any of its subsystems or operating positions to provide service to aircraft during normal activities. It is expressed as the number of aircraft entering a specified portion of airspace in a given period of time, taking due account of weather, ATC unit configuration, staff and equipment available, and any other factors that may affect the workload of the controller responsible for the airspace.

‘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 one engine inoperative, is not assured and forced landing may be required.

Note: Defined points apply to helicopters operating in performance Class 2 only.

‘Defined Point after Landing’ means the point, within the approach and landing phase, after which the helicopter’s ability to continue flight safely, with one engine inoperative, is not assured and a forced landing may be required.

Note: Defined points apply to helicopters operating in performance Class 2 only.

‘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 one engine inoperative, is not assured and a forced landing may be required.

Note: Defined points apply to helicopters operating in performance Class 2 only.

‘Derivative version’ means an aircraft gas turbine engine of the same generic family as an originally type-certificated engine and having features which retain the basic core engine and combustor design of the original model and for which other factors, as judged by the certifying authority, have not changed.

Note: Attention is drawn to the difference between the definition of a “derived version of an helicopter/aeroplane” below.

‘Derived version of a helicopter’ means a helicopter which, from the point of view of airworthiness, is similar to the noise certificated prototype but incorporates changes in type design which may affect its noise characteristics adversely.

Note 1: A helicopter that is based on an existing prototype but which is considered by the certifying authority to be a new type design for airworthiness purposes shall nevertheless be considered as a derived version if the noise source characteristics are judged by the certifying authority to be the same as the prototype.

Note 2: “Adversely” refers to an increase of more than 0.30 EPNdB in any one of the noise certification levels for helicopters certificated according to ICAO Annex 16 Volume I, Chapter 8 and 0.30 dB(A) in the certification level for helicopters certificated according to ICAO Annex 16 Volume I, Chapter 11.

‘Derived version of an aeroplane’ means an aeroplane which, from the point of view of airworthiness, is similar to the noise certificated prototype but incorporates changes in type design which may affect its noise characteristics adversely.

Note 1: Where the certifying authority finds that the proposed change in design, configuration, power or mass is so extensive that a substantially new investigation of compliance with the applicable airworthiness regulations is required, the aeroplane should be considered to be a new type design rather than a derived version.

Note 2: “Adversely” refers to an increase of more than 0.10 dB in any one of the noise certification levels unless the cumulative effects of changes in type design are tracked by an approved procedure in which case “adversely” refers to a cumulative increase in the noise level in any one of the noise certification levels of more than 0.30 dB or the margin of compliance, whichever is smaller.

‘Design landing mass’ means the maximum mass of the aircraft at which, for structural design purposes, it is assumed that it will be planned to land.

‘Design take-off mass’ means the maximum mass at which the aircraft, for structural design purposes, is assumed to be planned to be at the start of the take-off run.

‘Design taxiing mass’ means the maximum mass of the aircraft at which structural provision is made for load liable to occur during use of the aircraft on the ground prior to the start of take-off

Detect and avoid. †† The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

†† Applicable as of 26 November 2026.

‘Detent’ means a mechanical arrangement which indicates, by feel, a given position of an operating control. Once the operating control is placed in this position the detent will hold the lever there and an additional-to-normal force will be required to move the operating control away from the position. (Applicable to CS-25 only.)

‘Discrete source damage’ means structural damage of the aeroplane that is likely to result from: impact with a bird, uncontained fan blade failure, uncontained engine failure, uncontained high-energy rotating machinery failure or similar causes.

‘DETRESFA’ means the code word used to designate a distress phase.

‘Distress phase’ means a situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

‘Downstream clearance’ means a clearance issued to an aircraft by an air traffic control unit that is not the current controlling authority of that aircraft.

‘Dry runway’ †† A runway is considered dry if its surface is free of visible moisture and not contaminated within the area intended to be used.

~~†† Applicable as of 5th November 2021.~~

~~**‘Dual Instruction Time’** means flight time during which a person is receiving flight instruction from a properly authorised pilot on board the aircraft.~~

‘Dual instruction time’ Flight time during which a person is receiving flight instruction from a properly authorized pilot on board the aircraft, or from a properly authorized remote pilot using the remote pilot station during a remotely piloted aircraft flight.

‘Duty’ means any task that flight or cabin crew members are required by the operator to perform, including, for example, flight duty, administrative work, training, positioning and standby when it is likely to induce fatigue.

‘Duty period’ means a period which starts when a flight or cabin crew member is required by an operator to report for or to commence a duty and ends when that person is free from all duties.

‘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;

‘EDTO critical fuel’ means the fuel quantity necessary to fly to an en-route alternate aerodrome considering, at the most critical point on the route, the most limiting system failure.

Note: Guidance on EDTO critical fuel scenarios is contained in the Extended Diversion Time Operations Manual (Doc 10085)

‘EDTO significant system’ means an aeroplane system whose failure or degradation could adversely affect the safety particular to an EDTO flight, or whose continued functioning is specifically important to the safe flight and landing of an aeroplane during an EDTO diversion.

‘ELA1 aircraft’ means the following European Light Aircraft:

- (i) an aeroplane, sailplane or powered sailplane with a Maximum Take-off Mass (MTOM) less than 1000 kg that is not classified as complex motor-powered aircraft;

- (ii) a balloon with a maximum design lifting gas or hot air volume of not more than 3400 m³ for hot-air balloons, 1050 m³ for gas balloons, 300 m³ for tethered gas balloons;
- (iii) an airship designed for not more than two occupants and a maximum design lifting gas or hot-air volume of not more than 2500 m³ for hot-air airships and 1000 m³ for gas airships;

'Electronic Flight Bag (EFB)' means an electronic information system, comprised of equipment and applications, for flight crew which allows for storing, updating, displaying and processing of EFB functions to support flight operations or duties.

'Elevated Heliport' means a heliport located on a raised structure on land.

'Emergency Locator Transmitter (ELT)' means a generic term describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may be automatically activated by impact or be manually activated. An ELT may be any of the following;

Automatic fixed ELT (ELT(AF)). An automatically activated ELT, which is permanently attached to an aircraft.

Automatic portable ELT (ELT(AP)). An automatically activated ELT, which is rigidly attached to an aircraft but readily removable from the aircraft.

Automatic deployable ELT (ELT(AD)). An ELT, which is rigidly attached to an aircraft and which is automatically deployed and activated by impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided.

Survival ELT (ELT(S)). An ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by survivors.

'Emergency phase' means a generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

'Engine' means a unit used or intended to be used for aircraft propulsion. It consists of at least those components and equipment necessary for the functioning and control, but excludes the propeller/rotor (if applicable).

'Engine Dry Weight' means the weight of an engine as type certificated or a weight which is clearly derived from this by specified additions or omissions.

'Engine Type' means engines which are similar in design (See CS-21).

'Enhanced Vision System (EVS)' means a system to display electronic real-time images of the external scene achieved through the use of image sensors.

Note: EVS does not include night vision imaging systems (NVIS).

'En-route Phase' means that part of the flight from the end of the take-off and initial climb phase to the commencement of the approach and landing phase.

Note: Where adequate obstacle clearance cannot be guaranteed visually, flights must be planned to ensure that obstacles can be cleared by an appropriate margin. In the event of failure of the critical engine, operators may need to adopt alternative procedures.

'enrolment' means the administrative action carried out by the operator where a pilot participates in the operator's EBT programme;

‘enrolled pilot’ means the pilot that participates in the EBT recurrent training programme;

‘EPA’ or European Part Approval, means the article has been produced in accordance with approved design data not belonging to the type-certificate holder of the related product, except for ETSO articles.

‘Equivalent airspeed’ means the calibrated airspeed of an aircraft corrected for adiabatic compressible flow for the particular altitude. Equivalent airspeed is equal to calibrated airspeed in standard atmosphere at sea level.

‘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;

‘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;

‘evaluation phase’ means one of the phases of an EBT module which is a line-orientated 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;

‘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;

‘Error’ means an action or inaction by an operational person that leads to deviations from organisational or the operational person’s intentions or expectations.

‘Error Management’ means the process of detecting and responding to errors with countermeasures that reduce or eliminate the consequences of errors, and mitigate the probability of further errors or undesired states.

‘Estimated Off-Block Time’ means the estimated time at which the aircraft will commence movement associated with departure.

‘Estimated Time Of Arrival’ for IFR flights, the time at which it is estimated that the aircraft will arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome. For VFR flights, the time at which it is estimated that the aircraft will arrive over the aerodrome.

‘Exemptions’ (regulatory waivers) means the action of issuing under exceptional and temporary basis an exemption from the Air Navigation Technical Regulations (ANTR) when satisfied that there is a need and subject to compliance with any supplementary condition the authority considers necessary in order to ensure an acceptable level of safety in the particular case.

‘Exhaust Gas Temperature’ (turbine engines) means the average temperature of the exhaust gas stream obtained in an approved manner.

‘Expected Approach Time’ means the time at which ATC expects that an arriving aircraft, following a delay, will leave the holding point to complete its approach for a landing.

Note: The actual time of leaving the holding fix will depend upon the approach clearance.

‘Extended diversion time operations (EDTO)’ means any operation by an aeroplane with two or more turbine engines where the diversion time to an en-route alternate aerodrome is greater than the threshold time established by the State of the Operator.

‘External equipment (helicopter)’ means any instrument, mechanism, part, apparatus, appurtenance, or accessory that is attached to or extends from the helicopter exterior but is not used nor is intended to be used for operating or controlling a helicopter in flight and is not part of an airframe or engine.

‘External load’ means a load that is carried, towed or extends, outside the aircraft fuselage.

‘External load attaching means’ means the structural components used to attach an external load to an aircraft, including external-load containers, the backup structure at the attachment points, and any quick-release device used to jettison the external load.

‘Factor of Safety’ means a design factor used to provide for the possibility of loads greater than those assumed, and for uncertainties in design and fabrication.

‘False Start’ / ‘Start Fault’ (turbine engines) means an attempt to start in which the engine fails to light up.

Note: The handling of the engine is assumed to be in accordance with the instructions laid down by the engine manufacturer to be followed in these circumstances.

‘Fatigue’ means a physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, and/or workload (mental and/or physical activity) that can impair a person’s alertness and ability to perform safety related operational duties.

‘Fatigue Risk Management System (FRMS)’ means a data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.

‘Feathered Pitch’ means the pitch setting, specified in the appropriate propeller manual, which in flight with the engine stopped, gives approximately the minimum drag, and corresponds with a windmilling torque of approximately zero.

‘Filed Flight Plan’ means the flight plan as filed with an ATS unit by the pilot or a designated representative, without any subsequent changes.

‘Final Approach’ means that part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified, a) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or b) at the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:

- 1) a landing can be made; or
- 2) a missed approach procedure is initiated.

‘Final Approach and Take-off Area (FATO)’ means a defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced. Where the FATO is to be used by helicopters operating in performance Class 1, the defined area includes the rejected take-off area available.

‘Final approach segment (FAS)’ means that segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

‘Final take-off speed’ means the speed of the aeroplane that exists at the end of the take-off path in the en-route configuration with one engine inoperative.

‘Fireproof.’ ~~With respect to materials, components and equipment,~~ means the capability to withstand the application of heat by a flame, for a period of 15 minutes ~~without any failure that would create a hazard to the aircraft. The flame will have the following characteristics:—~~

~~Temperature — $1100^{\circ}\text{C} \pm 80^{\circ}\text{C}$~~

~~Heat Flux Density — $116 \text{ KW/m}^2 \pm 10 \text{ KW/m}^2$~~

Note - The characteristics of an acceptable flame can be found in ISO 2685

~~**‘Fireproof material’** means a material capable of withstanding heat as well as or better than steel when the dimensions in both cases are appropriate for the specific purpose.~~

‘Fire-resistant.’ ~~With respect to materials, components and equipment,~~ means the capability to withstand the application of heat by a flame, ~~as defined for ‘Fireproof’~~, for a period of 5 minutes ~~without any failure that would create a hazard to the aircraft.~~

Note - The characteristics of an acceptable flame can be found in ISO 2685

‘First aid oxygen’ means the additional oxygen provided for the use of passengers, who do not satisfactorily recover following subjection to excessive cabin altitudes, during which they had been provided with supplemental oxygen.

‘Fixed Pitch Propeller’ means a propeller, the pitch of which cannot be changed, except by processes constituting a workshop operation.

‘Flame resistant’ means not susceptible to combustion to the point of propagating a flame, beyond safe limits, after the ignition source is removed.

‘Flammable’, with respect to a fluid or gas, means susceptible to igniting readily or exploding.

‘Flap extended speed’ means the highest speed permissible with wing-flaps in a prescribed extended position.

‘Flash resistant’ means not susceptible to burning violently when ignited.

‘Flight Crew Member’ means a licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.

‘Flight Data Analysis’ means a process of analysing recorded flight data in order to improve the safety of flight operations.

‘Flight Deck Duty Time’ means total time spent by a flight crew member at a flight crew member position on an aircraft during flight time.

‘Flight Duty Period’ means a period which commences when a flight or cabin crew member is required to report for duty that includes a flight or a series of flights and which finishes when the aeroplane finally comes to rest and the engines are shut down at the end of the last flight on which he/she is a crew member.

‘Flight information centre’ means a unit established to provide flight information service and alerting service.

‘Flight Information Region’ means airspace of defined dimensions within which flight information service and alerting service are provided.

‘Flight information service’ means a service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

‘Flight Level’ means a surface of constant atmospheric pressure, which is related to a specific pressure datum, 1013.2 hPa and is separated from other such surfaces by specific pressure intervals.

Note 1: A pressure type altimeter calibrated in accordance with the Standard Atmosphere:

- a) when set to a QNH altimeter setting, will indicate altitude;*
- b) when set to a QFE altimeter setting, will indicate height above the QFE reference datum;*
- c) when set to a pressure of 1 013.2 hPa, may be used to indicate flight levels.*

Note 2: The terms “height” and “altitude”, used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.

‘Flight Manual’ means a manual associated with the Certificate of Airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.

‘Flight operations officer/flight dispatcher’ means a person designated by the operator to engage in the control and supervision of flight operations, whether licensed or not, suitably qualified in accordance with ICAO Annex 1, who supports, briefs and/or assists the pilot-in-command in the safe conduct of the flight.

‘Flight Plan’ means specified information provided to air traffic service units, relative to an intended flight or portion of a flight of an aircraft.

‘Flight Procedures Trainer’ - See Flight simulation training device.

‘Flight Recorder’ means any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

‘Automatic Deployable Flight Recorder (ADFR)’ means a combination flight recorder installed on the aircraft which is capable of automatically deploying from the aircraft.

‘Flight safety documents system.’ A set of inter-related documentation established by the operator, compiling and organising information necessary for flight and ground operations, and comprising, as a minimum, the operations manual and the operator’s maintenance control manual.

‘Flight simulation training device’ means any one of the following three types of apparatus in which flight conditions are simulated on the ground:

A flight simulator, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. Aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;

A flight procedures trainer, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;

A basic instrument flight trainer, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.

‘Flight Time – Aeroplane’ means the total time from the moment an aeroplane first moves for the purpose of taking-off until the moment it finally comes to rest at the end of the flight.

Note: Flight time as here defined is synonymous with the term “block to block” time or “chock to chock” time in general usage which is measured from the time an aeroplane first moves for the purpose of taking off until it finally stops at the end of the flight.

‘Flight Time – Helicopter’ means the total time from the moment a helicopter’s rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight and the rotor blades are stopped.

Note: The CAA may provide guidance in those cases where the definition of flight time does not describe or permit normal practices. Examples are: crew change without stopping the rotors; and rotors running engine wash procedure following a flight. In any case, the time when rotors are running between sectors of a flight is included within the calculation of flight time.

‘Flight time’ means remotely piloted aircraft systems. The total time from the moment a command and control (C2) link is established between the remote pilot station (RPS) and the remotely piloted aircraft (RPA) for the purpose of taking off or from the moment the remote pilot receives control following a handover until the moment the remote pilot completes a handover or the C2 link between the RPS and the RPA is terminated at the end of the flight.

† Applicable until 25 November 2026.

‘Flight time’ means remotely piloted aircraft systems.†† The total time from the moment a C2 Link is established between the remote pilot station (RPS) and the remotely piloted aircraft (RPA) for the purpose of taking off or from the moment the remote pilot receives control following a handover until the moment the remote pilot completes a handover or the C2 Link between the RPS and the RPA is terminated at the end of the flight.

†† Applicable as of 26 November 2026.

‘Flight Time’ as used with respect to;

- a) licensing of flight crew, is defined in ANTR–Part II;
- b) type certification of aircraft, is defined in CS–21;
- c) maintenance, is defined in ANTR M.

‘Flight Visibility’ means the visibility forward from the cockpit of an aircraft in flight.

‘Flight Watch System’ means a system described in the operator's Operations Manual for the monitoring of an aircraft during flight time.

‘Forecast’ means a statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.

‘Gate’ means a mechanical arrangement which provides positive stops at given positions of an operating control and is such that a separate movement of the operating control in another direction is necessary in order to initiate movement beyond one of the stops. (Applicable to CS–25 only.)

‘General aviation operation’ means an aircraft operation other than a commercial air transport operation or an aerial work operation.

‘Geodetic datum’ means a minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.

‘Glider’ means a non-power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

‘Glider flight time’ means the total time occupied in flight, whether being towed or not, from the moment the glider first moves for the purpose of taking off until the moment it comes to rest at the end of the flight.

‘Gregorian calendar’ means calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108*).

Note: In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.

‘Ground handling’ means the services necessary for an aircraft’s arrival at, and departure from, an airport, other than air traffic services.

‘Ground Idling Conditions’ (turbine engines) means the conditions of minimum rotational speed associated with zero forward speed and the maximum exhaust gas temperature at this speed.

‘Ground Visibility’ means the visibility at an aerodrome, as reported by an accredited observer or by automatic systems.

‘Gyroplane’ means a heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors which rotate freely on substantially vertical axes.

‘Handover’ †† means the act of passing piloting control from one remote pilot station to another.

†† Applicable as of 26 November 2026.

‘Heavier-than-air aircraft’ means any aircraft deriving its lift in flight chiefly from aerodynamic forces.

‘Harness’ means the equipment, consisting of two shoulder straps and a lap belt, which is provided to restrain a member of the flight crew against inertia loads occurring in emergency conditions.

‘Heading’ means the direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).

‘Head-Up Display (HUD)’ means a display system that presents flight information into the pilot’s forward external field of view.

‘Height’ means the vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

‘Helicopter’ means a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

Note: Some States use the term “rotorcraft” as an alternative to “helicopter”.

‘Helideck’ means a heliport located on a floating or fixed off-shore structure.

‘Heliport’ means an aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Note 1: Throughout this Part when the term “heliport” is used it is intended that the term also applies to aerodromes primarily meant for the use of aeroplanes.

Note 2: Helicopters may be operated to and from areas other than heliports.

‘Heliport operating minima’ means the limits of usability of a heliport for:

- a) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;
- b) landing in 2D instrument approach operations, expressed in terms of visibility and/or runway visual range and descent altitude/height (MDA/H) and if necessary, cloud conditions; and
- c) landing in 3D instrument approach operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H); as appropriate to the type and/or category of operation.

‘Hostile environment’ means an environment in which:

- a) a safe forced landing cannot be accomplished because the surface and surrounding environment are inadequate; or
- b) the helicopter occupants cannot be adequately protected from the elements; or
- c) search and rescue response/capability is not provided consistent with anticipated exposure; or
- d) there is an unacceptable risk of endangering persons or property on the ground

‘Human Factors Principles’ means principles which apply to aeronautical design, certification, training operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

‘Human Performance’ means human capabilities and limitations, which have an impact on the safety and efficiency of aeronautical operations.

‘ICAO competency framework’ means a competency framework, developed by ICAO, is a selected group of competencies for a given aviation discipline. Each competency has an associated description and observable behaviours.

‘Icing Atmospheric Conditions’. The definitions of atmospheric conditions are given in this sub-paragraph and Figures 2 to 7:–

- a) **‘Continuous Maximum Icing’.** The maximum continuous intensity of atmospheric icing conditions (continuous maximum icing) is defined by the variables of the cloud liquid water content, the mean effective diameter of the cloud droplets, the ambient air temperature, and the inter-relationship of these three variables as shown in Fig. 2. The limiting icing envelope in terms of altitude and temperature is given in Fig. 3. The inter-relationship of cloud liquid water content with droplet diameter and altitude is determined from Fig. 2 and Fig. 3. The cloud liquid water content for continuous maximum icing conditions of a horizontal extent, other than 17.4 n miles, is determined by the value of liquid water content of Fig. 2, multiplied by the appropriate factor from Fig. 4.
- b) **‘Intermittent Maximum Icing’.** The intermittent maximum intensity of atmospheric icing conditions (intermittent maximum icing) is defined by the variables of the cloud liquid water content, the mean effective diameter of the cloud droplets, the ambient air temperature, and the inter-relationship of these three variables as shown in Fig. 5. The limiting icing envelope in terms of altitude and temperature is given in Fig. 6. The inter-relationship of cloud liquid water

content with droplet diameter and altitude is determined from Fig. 5 and Fig. 6. The cloud liquid water content for intermittent maximum icing conditions of a horizontal extent, other than 2.6 n miles, is determined by the value of cloud liquid water content of Fig. 5 multiplied by the appropriate factor in Fig. 7 .

‘IFR’ means the symbol used to designate the instrument flight rules.

‘IFR flight’ means a flight conducted in accordance with the instrument flight rules.

‘IMC’ means the symbol used to designate instrument meteorological conditions.

‘INCERFA’ means the code word used to designate an uncertainty phase.

‘Indicated airspeed’ means the speed of an aircraft as shown on its pitot static airspeed indicator calibrated to reflect standard atmosphere adiabatic compressible flow at sea level uncorrected for airspeed system errors.

‘Industry codes of practice’ means guidance material developed by an industry body, for a particular sector of the aviation industry to comply with the requirements of the International Civil Aviation Organization’s Standards and Recommended Practices, other aviation safety requirements and the best practices deemed appropriate.

‘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;

‘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); (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;

‘Instrument’ means a device using an internal mechanism to show visually or aurally the attitude, altitude, or operation of an aircraft or aircraft part. It includes electronic devices for automatically controlling an aircraft in flight.

‘Instrument Approach Operations’ means an approach and landing using instruments for navigation guidance based on an instrument approach procedure. 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.

Note: Lateral and vertical navigation guidance refers to the guidance provided either by:

- a) a ground-based radio navigation aid; or
- b) computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of these.

‘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. Instrument approach procedures are classified as follows:

Non-precision approach (NPA) procedure. An instrument approach procedure designed for 2D instrument approach operations Type A.

~~*Note:—Non-precision approach procedures may be flown using a continuous descent final approach technique (CDFA). CDFA with advisory VNAV guidance calculated by on-board equipment [see PANS-OPS (Doc 8168), Volume I, Part I, Section 4, Chapter 1, paragraph 1.8.1] are considered 3D instrument approach operations. CDFA with manual calculation of the required rate of descent are considered 2D instrument approach operations. For more information on CDFA refer to PANS-OPS (Doc 8168), Volume I, Section 1.7 and 1.8.*~~

Note.—Non-precision approach procedures may be flown using a continuous descent final approach (CDFA) technique. CDFAs with advisory VNAV guidance calculated by on-board equipment are considered 3D instrument approach operations. CDFAs with manual calculation of the required rate of descent are considered 2D instrument approach operations. For more information on CDFAs, refer to PANS-OPS (Doc 8168), Volume I, Part II, Section 5.

Approach procedure with vertical guidance (APV). A performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A.

Precision approach (PA) procedure. An instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS ~~Cat~~ CAT I) designed for 3D instrument approach operations Type A or B.

Note: Refer to ~~Section II~~, Chapter 2 4, 2 4.2.8.3 of ICAO Annex 6, Part I ~~H~~ for instrument approach operation types.

‘Instrument flight time’ means time during which a pilot is piloting an aircraft, or a remote pilot is piloting a remotely piloted aircraft solely by reference to instruments and without external reference points.

‘Instrument Ground Time’ means time during which a pilot is practising, on the ground, simulated instrument flight in a synthetic flight trainer approved by the CAA.

‘Instrument Meteorological Conditions (IMC)’ means meteorological conditions expressed in terms of visibility, distance from cloud and ceiling *, less than the minima specified for visual meteorological conditions.

Note. — The specified minima for visual meteorological conditions are contained in Chapter 4 of Annex 2

** - As defined in Annex 2*

‘Instrument Time’ means instrument flight time or instrument ground time.

‘Integrated survival suit’ means a survival suit which meets the combined requirements of the survival suit and life jacket.

‘Integrity (aeronautical data)’ means a degree of assurance that an aeronautical data and its value has not been lost nor altered since the data origination or authorised amendment.

‘Intermittent Maximum Icing’ (see ‘Icing Atmospheric Conditions’)

‘International NOTAM office’ means an office designated by a State for the exchange of NOTAM internationally

‘International operating agency’ means an agency of the kind contemplated in Article 77 of the ICAO Convention.

‘Isolated aerodrome’ means a destination aerodrome for which there is no destination alternate aerodrome suitable for a given aeroplane type.

‘Landing Area’ means that part of a movement area intended for the landing or take-off of aircraft.

‘Landing Decision Point (LDP)’ means the point used in determining landing performance from which, an engine failure occurring at this point, the landing may be safely continued or balked landing initiated.

Note: LDP applies only to helicopters operating in performance Class 1.

‘Landing distance available (LDA)’ means the length of runway which is declared available and suitable for the ground run of an aeroplane landing.

‘Landing gear extended speed’ means the maximum speed at which an aircraft can be safely flown with the landing gear extended.

‘Landing gear operating speed’ means the maximum speed at which the landing gear can be safely extended or retracted.

‘Landing surface’ means that part of the surface of an aerodrome which the aerodrome authority has declared available for the normal ground or water run of aircraft landing in a particular direction.

‘Large aeroplane’ means an aeroplane of a maximum certificated take-off mass of over 5 700 kg.

‘LSA aircraft’ means a light sport aeroplane which has all of the following characteristics:

- (i) a Maximum Take-off Mass (MTOM) of not more than 600 kg;
- (ii) a maximum stalling speed in the landing configuration (VS0) of not more than 45 knots Calibrated Airspeed (CAS) at the aircraft’s maximum certificated takeoff mass and most critical centre of gravity;
- (iii) a maximum seating capacity of no more than two persons, including the pilot;
- (iv) a single, non-turbine engine fitted with a propeller;
- (v) a non-pressurised cabin;

‘Level’ means a generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level.

‘Licensing Authority’ means the Authority designated by a Contracting State as responsible for the licensing of personnel. The licensing authority for Bahrain is the Civil Aviation Affairs (Aeronautical Licensing Directorate)

Note: The Licensing Authority is deemed to have been given the following responsibilities by the Contracting State:

- a) assessment of an applicant’s qualifications to hold a licence or rating;

- b) *issue and endorsement of licences and ratings;*
- c) *designation and authorisation of approved persons;*
- d) *approval of training courses;*
- e) *approval of the use of flight simulation training devices and authorisation for their use in gaining the experience or in demonstrating the skill required for the issue of a licence or rating; and*
- f) *validation of licences issued by other Contracting States.*

‘Lighter-than-air aircraft’ means any aircraft supported chiefly by its buoyancy in the air.

‘Likely’ in the context of the medical provisions in ICAO Annex 1, Chapter 6, and ANTR-FCL 3 means with a probability of occurring that is unacceptable to the medical assessor.

‘Limit loads’ means the maximum loads assumed to occur in the anticipated operating conditions.

‘Line Indoctrination’ means experience acquired during flight time in service as a crew member performing the duties of his station under supervision or as an observer observing a qualified crew member perform those duties.

‘Load factor’ means the ratio of a specified load to the total weight of the aircraft. The specified load is expressed in terms of any of the following: aerodynamic forces, inertia forces, or ground or water reactions.

‘Lost C2 Link decision time’. †† The maximum length of time permitted before declaring a lost C2 Link state during which the C2 Link performance is not sufficient to allow the remote pilot to actively manage the flight in a safe and timely manner appropriate to the airspace and operational conditions.

†† Applicable as of 26 November 2026.

‘Lost C2 Link state’. †† The state of the RPAS in which the C2 Link performance has degraded, as a result of a C2 Link interruption that is longer than the lost C2 Link decision time, to a point where it is not sufficient to allow the remote pilot to actively manage the flight in a safe and timely manner.

†† Applicable as of 26 November 2026.

‘Low-visibility operations (LVO)’ means approach operations in RVRs less than 550 m and/or with a DH less than 60 m (200 ft) or take-off operations in RVRs less than 400 m.

‘Mach number’ means the ratio of true air speed to the speed of sound.

‘Main rotor(s)’ means the rotor or rotors that supply the principal lift to a rotorcraft.

~~**‘Maintenance’**† means the performance of tasks required to ensure the continued airworthiness of an aircraft including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair. (effective until 4th November 2020)~~

“Maintenance” † means the performance of tasks on an aircraft, engine, propeller or associated part required to ensure the continuing airworthiness of an aircraft, engine, propeller or associated part including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.

† Applicable until 25 November 2026

“Maintenance” †† means the performance of tasks on an aircraft, engine, propeller or associated part required to ensure the continuing airworthiness of an aircraft, remote pilot station, engine, propeller or associated part including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.

†† Applicable as of 26 November 2026.

‘Maintenance Control Manual’ means a document which describes the operator’s procedures necessary to ensure that all scheduled and unscheduled maintenance is performed on the operator’s aircraft on time and in a controlled and satisfactory manner.

‘Maintenance organisation’s procedures manual’ means a document endorsed by the head of the maintenance organisation which details the maintenance organisation’s structure and management responsibilities, scope of work, description of facilities, maintenance procedures and quality assurance or inspection systems.

‘Maintenance programme’ means a document which describes the specific scheduled maintenance tasks and their frequency of completion and related procedures, such as a reliability programme, necessary for the safe operation of those aircraft to which it applies.

‘Maintenance records’ means records that set out the details of the maintenance carried out on an aircraft, engine, propeller or associated part.

~~**‘Maintenance Release’** † means a document which contains a certification confirming that the maintenance work to which it relates has been completed in a satisfactory manner, either in accordance with the approved data and the procedures described in the maintenance organisation’s procedures manual or under an equivalent system. (effective until 4th November 2020)~~

‘Maintenance Release’ †† means a document which contains a certification confirming that the maintenance work to which it relates has been completed in a satisfactory manner in accordance with appropriate airworthiness requirement. ~~(effective as of 5th November 2020)~~

‘Manifold Pressure’ piston engines means the absolute static pressure measured at the appropriate point in the induction system, usually in inches or millimetres of mercury.

‘Manoeuvring Area’ means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

‘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;

‘Master Minimum Equipment List (MMEL).’ A list established for a particular aircraft type by the organisation responsible for the type design with the approval of the State of Design containing items, one or more of which is permitted to be unserviceable at the commencement of a flight. The MMEL may be associated with special operating conditions, limitations or procedures.

‘Maximum diversion time’ means the maximum allowable range, expressed in time, from a point on a route to an en-route alternate aerodrome.

‘Maximum Engine Overspeed’ (20 second-piston engines) means the maximum engine rotational speed, inadvertent occurrence of which for periods of up to 20 seconds, has been agreed not to require rejection of the engine from service or maintenance action (other than to correct the cause).

‘Maximum Engine Overspeed(s)’ (20 second-turbine engines) means the maximum rotational speed of each mechanically independent main rotating system of an engine, inadvertent occurrence of which for periods of up to 20 seconds, has been agreed not to require rejection of the engine from service or maintenance action (other than to correct the cause).

Note: For each main rotating system this speed is normally not less than the maximum transient rpm in non-fault conditions.

‘Maximum Engine Over-torque’ (20 second-applicable only to turbo-propeller and turbo-shaft engines incorporating free power-turbines) means the maximum torque of the free power-turbine, inadvertent occurrence of which for periods of up to 20 seconds, has been agreed not to require rejection of the engine from service or maintenance action (other than to correct the cause).

‘Maximum Power-turbine Overspeed’ (20 second-applicable only to free power-turbine engines for helicopters) means the maximum rotational speed of the free power-turbine, inadvertent occurrence of which for periods of up to 20 seconds, has been agreed not to require rejection of the engine from service or maintenance action (other than to correct the cause).

‘Maximum Exhaust Gas Overtemperature’ (20 second-turbine engines) means the maximum engine exhaust gas temperature, inadvertent use of which for periods of up to 20 seconds, has been agreed not to require rejection of the engine from service or maintenance action (other than to correct the cause).

Note: This is not to be confused with maximum temperatures established for use during starting operations.

‘Maximum Power-turbine Speed for Autorotation’ (applicable only to free power-turbine engines for helicopters) means the maximum rotational speed of the power-turbine permitted during autorotation for periods of unrestricted duration.

‘Maximum Governed Rotational Speed’ (variable pitch (governing) propellers) means the maximum rotational speed as determined by the setting of the propeller governor or control mechanism.

‘Maximum Permissible Rotational Speed’ (fixed, adjustable or variable (non-governing) pitch propellers) means the maximum propeller rotational speed permitted in normal or likely emergency operation.

‘Maximum Propeller Overspeed’ (20 second) means the maximum propeller rotational speed, inadvertent occurrence of which for periods of up to 20 seconds, has been agreed not to require rejection of the propeller from service or maintenance action (other than to correct the cause).

‘Maximum Mass’ means the maximum certificated take-off mass.

‘Medical Assessment’ means the evidence issued by a Contracting State that the licence holder meets specific requirements of medical fitness.

‘Medical Assessor’ means a physician, appointed by the Licensing Authority, qualified and experienced in the practice of aviation medicine and competent in evaluating and assessing medical conditions of flight safety significance.

Note 1: Medical assessors evaluate medical reports submitted to the Licensing Authority by medical examiners.

Note 2: Medical assessors are expected to maintain the currency of their professional knowledge.

‘Medical Examiner’ means a physician with training in aviation medicine and practical knowledge and experience of the aviation environment, who is designated by the Licensing Authority to conduct medical examinations of fitness of applicants for licences or ratings for which medical requirements are prescribed.

‘Meteorological information’ means meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions.

‘Microlight’ means an aeroplane having no more than two seats, V_{so} not exceeding 35 knots (65 KM/h) CAS, and a maximum take-off mass of no more than:-

- 300 kg for a landplane, single seater; or
- 450 kg for a landplane, two-seater; or
- 330 kg for an amphibian or floatplane, single seater; or
- 495 kg for an amphibian or floatplane, two-seater, provided that a microlight capable of operating as both a floatplane and a landplane falls below both MTOM limits, as appropriate.

Note: Foot-launched aircraft are excluded from this definition.

‘Minimum Descent Altitude (MDA) or minimum descent height (MDH)’ means a specified altitude or height in a 2D instrument approach operation or circling approach operation below which descent must not be made without the required visual reference.

Note 1: Minimum descent altitude (MDA) is referenced to mean sea level and minimum descent height (MDH) is referenced to the aerodrome elevation or to the threshold elevation if that is more than 2 m (7 ft) below the aerodrome elevation. A minimum descent height for a circling approach is referenced to the aerodrome elevation.

Note 2: The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In the case of a circling approach the required visual reference is the runway environment.

Note 3: For convenience when both expressions are used they may be written in the form “minimum descent altitude/height” and abbreviated “MDA/H”.

‘Minimum Drainage Period After a False Start’ (turbine engines) means the minimum period necessary to allow surplus fuel to drain from the engine prior to making a further attempt to start the engine. The period is measured from the time at which the starter is switched off and/or the engine fuel cock is closed during a false start.

‘Minimum Equipment List (MEL)’ means a list which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, prepared by the operator in conformity with, or more restrictive than, the MMEL established for the aircraft type.

‘Minimum Governed Rotational Speed’ (variable pitch governing propellers) means the minimum rotational speed as determined by the setting of the propeller governor or control mechanism .

‘Minimum Take-off Crankshaft Rotational Speed’ (piston engines) means the minimum crankshaft rotational speed permissible for use with the maximum take-off manifold pressure.

‘Modification’ means a change to the type design of an aircraft, engine or propeller.

Note: A modification may also include the embodiment of the modification which is a maintenance task subject to a maintenance release. Further guidance on aircraft maintenance — modification and repair is contained in the Airworthiness Manual (Doc 9760). Also refer to ANTR PART V and ANTR M

‘Modified Engine’ means an engine, previously approved, in which hitherto unapproved modifications have been embodied.

‘Modified Propeller’ means a propeller previously approved, in which hitherto unapproved modifications have been embodied.

‘Module’. An engine (or propeller) Module is a group of engine (or propeller) components defined by the constructor and designed to be replaceable without mechanical or performance difficulties. It is uniquely identified and amenable to the setting of an overhaul life separate from other parts of the engine (or propeller).

‘Monitoring’ means a cognitive process to compare an actual to an expected state.

Note: Monitoring is embedded in the competencies for a given role within an aviation discipline, which serve as countermeasures in the threat and error management model. It requires knowledge, skills and attitudes to create a mental model and to take appropriate action when deviations are recognized.

‘Movement Area’ means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the aprons.

‘New Engine’ means an engine which has not been subjected to in-service operations, essentially identical in design, materials and methods of construction with one which has been type certificated.

‘New Propeller’ means a propeller which has not been subjected to in-service operations, essentially identical in design, materials and methods of construction with one which has been type certificated .

‘Navigation specification’ means a set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

Note 1: The Performance-based Navigation (PBN) Manual (Doc 9613), Volume II, contains detailed guidance on navigation specifications.

Note 2: The term RNP, previously defined as “a statement of the navigation performance necessary for operation within a defined airspace”, has been removed from this Annex as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM

lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.

‘Night’ means the hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise, as may be prescribed by the appropriate authority.

Note: Civil twilight ends in the evening when the centre of the sun’s disc is 6 degrees below the horizon and begins in the morning when the centre of the sun’s disc is 6 degrees below the horizon.

‘Noise Emission Standards’ means Standards specified in Chapters 2, 3, 5 or 6 of Annex 16 to the Convention on International Civil Aviation entitled "Environmental Protection".

‘Nominal C2 Link state’ †† means the state of the RPAS when the C2 Link performance is sufficient to allow the remote pilot to actively manage the flight of the RPA in a safe and timely manner appropriate to the airspace and operational conditions.

†† Applicable as of 26 November 2026.

‘Non-congested hostile environment’ means a hostile environment outside a congested area.

‘Non-hostile environment’ means an environment in which:

- a) a safe forced landing can be accomplished because the surface and surrounding environment are adequate;
- b) the helicopter occupants can be adequately protected from the elements;
- c) search and rescue response/capability is provided consistent with anticipated exposure; and
- d) the assessed risk of endangering persons or property on the ground is acceptable.

Note: Those parts of a congested area satisfying the above requirements are considered non-hostile.

‘Normal operating differential pressure’ means the pressure differential between the cabin pressure and the outside ambient pressure, including the tolerances of the normal pressure regulating system.

‘NOTAM’ means a notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

‘Notice of Proposed Amendment’ means a notice of a proposed amendment to a ANTR regulation.

‘Observable behaviour (OB)’ means a single role-related behaviour that can be observed and may or may not be measurable.

‘Obstacle’ means all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that extend above the defined surfaces intended to protect aircraft in flight. Terrain may also be considered an obstacle.

‘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 appropriate obstacle clearance criteria.

Note 1: Obstacle clearance altitude is referenced to mean sea level and obstacle clearance height is referenced to the threshold elevation or in the case of non-precision approach

procedures to the aerodrome elevation or the threshold elevation if that is more than 2 m (7 ft) below the aerodrome elevation. An obstacle clearance height for a circling approach procedure is referenced to the aerodrome elevation.

Note 2: For convenience when both expressions are used they may be written in the form “obstacle clearance altitude/height” and abbreviated “OCA/H”.

‘Offshore operations’ means operations which routinely have a substantial proportion of the flight conducted over sea areas to or from offshore locations. Such operations include, but are not limited to, support of offshore oil, gas and mineral exploitation and sea-pilot transfer.

‘Operate’ means using or causing to use or authorising the use of an aircraft for the purpose of air navigation, including the piloting of aircraft with or without the right of legal control.

‘Operating base’ means the location from which operational control is exercised.

Note: An operating base is normally the location where personnel involved in the operation of the aeroplane work and the records associated with the operation are located. An operating base has a degree of permanency beyond that of a regular point of call.

‘Operation - helicopter’ means an activity or group of activities which are subject to the same or similar hazards and which require a set of equipment to be specified, or the achievement and maintenance of a set of pilot competencies, to eliminate or mitigate the risk of such hazards.

Note: Such activities could include, but would not be limited to, offshore operations, heli-hoist operations or emergency medical service.

‘Operational Control’ means the exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of safety of the aircraft, and the regularity and efficiency of a flight.

‘Operational credit’ means a credit authorized for operations with an advanced aircraft enabling a lower aerodrome operating minimum than would normally be authorized for a basic aircraft, based upon the performance of advanced aircraft systems utilizing the available external infrastructure.

‘Operational Flight Plan’ means the operator's plan for the safe conduct of the flight based on considerations of aircraft, performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes concerned.

‘Operations in performance Class 1’ means operations with performance such that, in the event of an engine failure, performance is available to enable the helicopter to safely continue the flight to an appropriate landing area, unless the failure occurs prior to reaching the take-off decision point (TDP) or after passing the landing decision point (LDP), in which cases the helicopter must be able to land within the rejected take-off or landing area.

‘Operations in performance Class 2’ means operations with performance such that, in the event of an engine failure, performance is available to enable the helicopter to safely continue the flight to an appropriate landing area, 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.

‘Operations in performance Class 3’ means operations with performance such that, in the event of an engine failure at any time during the flight, a forced landing will be required.

‘Operations manual’ means a manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.

‘Operations specifications’ means the authorisations including specific approvals, conditions and limitations associated with the air operator certificate and subject to the conditions in the operations manual.

‘Operator’ means the person, organization or enterprise engaged in or offering to engage in an aircraft operation. The definition, as used in this Part, applies to Private and Commercial operators as applicable.

‘Operator’s maintenance control manual’ means a document which describes the operator’s procedures necessary to ensure that all scheduled and unscheduled maintenance is performed on the operator’s aircraft on time and in a controlled and satisfactory manner.

‘Organisation’ means a natural person, a legal person or part of a legal person. Such an organisation may be established at more than one location.

‘Organization responsible for the type design’ † means the organization that holds the type certificate, or equivalent document, for an aircraft, engine or propeller type, issued by a Contracting State.

† Applicable until 25 November 2026.

‘Organization responsible for the type design’ †† means the organization that holds the type certificate, or equivalent document, for an aircraft, remote pilot station, engine or propeller type, issued by a Contracting State.

†† Applicable as of 26 November 2026.

‘Ornithopter’ means a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on planes to which a flapping motion is imparted.

‘Orphan aircraft type’ means an aircraft which has its Type Certificate revoked by the State of Design, and no longer has a designated State of Design in accordance with Annex 8, ANTR PART V & ANTR M. These aircraft do not meet the Standards of Annex 8, ANTR PART V & ANTR M.

‘Overhauled Engine or Module’ means an engine or module which has been repaired or re-conditioned to a standard which renders it eligible for the complete overhaul period agreed by the Authority for the particular type of engine.

‘Overhauled Propeller’ means a propeller which has been repaired or re-conditioned to a standard which renders it eligible for the complete overhaul period agreed by the Authority for the particular type of propeller.

‘Oxides of nitrogen’ means the sum of the amounts of the nitric oxide and nitrogen dioxide contained in a gas sample calculated as if the nitric oxide were in the form of nitrogen dioxide.

‘Performance-based aerodrome operating minimum (PBAOM)’ means a lower aerodrome operating minimum, for a given take-off, approach or landing operation, than is available when using a basic aircraft.

Note 1: The PBAOM is derived by considering the combined capabilities of the aircraft and available ground facilities. Additional guidance material on PBAOM may be found in the Manual of All-Weather Operations (Doc 9365).

Note 2: PBAOM may be based on operational credits.

Note 3: PBAOM are not limited to PBN operations.

‘Performance-Based communication (PBC)’ means communication based on performance specifications applied to the provision of air traffic services.

Note: An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

‘Performance-Based Surveillance (PBS)’ means surveillance based on performance specifications applied to the provision of air traffic services.

Note: An RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

‘Performance-Based Navigation (PBN)’ means an area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note: Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

‘Performance Class 1 Helicopter’ means a helicopter with performance such that, in case of ~~critical power-unit~~ engine failure, it is able to land on the rejected take-off area or safely continue the flight to an appropriate landing area, depending on when the failure occurs.

‘Performance Class 2 Helicopter’ means a helicopter with performance such that, in case of ~~critical power-unit~~ engine failure, it is able to safely continue the flight, except when the failure occurs prior to a defined point after take-off or after a defined point before landing, in which cases a forced landing may be required.

‘Performance Class 3 Helicopter’ means a helicopter with performance such that, in case of engine ~~power-unit~~ failure at any point in the flight profile, a forced landing must be performed.

‘Performance criteria’ means simple, evaluative statements on the required outcome of the competency element and a description of the criteria used to judge whether the required level of performance has been achieved.

‘Pilot (to)’ means to manipulate the flight controls of an aircraft during flight time.

‘Pilot in Command’ means the pilot designated by the operator or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

‘Pilot-in-command under supervision’ means co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command, in accordance with a method of supervision acceptable to the Licensing Authority.

‘Pilot Flying (PF)’ means ~~the pilot, who for the time being, is in charge of the controls of an aircraft.~~ the pilot whose primary task is to control and manage the flight path. The secondary tasks of the PF are to perform nonflight path related actions (radio communications, aircraft systems, other operational activities, etc.) and to monitor other crew members.

‘Pilot Not Flying’ means the pilot who is assisting the *Pilot Flying* in accordance with the multi-crew co-operation concept when the required flight crew is more than one.

Pilot monitoring (PM). The pilot whose primary task is to monitor the flight path and its management by the PF. The secondary tasks of the PM are to perform non-flight path related actions (radio communications, aircraft systems, other operational activities, etc.) and to monitor other crew members.

‘Piston Engines’ :

Power definitions applicable to engines for aeroplanes and helicopters:—

- a) **‘Take-off Power’** means the output shaft power identified in the performance data for use during take-off, discontinued approach and baulked landing and limited in use to a continuous period of not more than 5 minutes,
- b) **‘Take-off Power Rating’** means the test bed minimum acceptance output shaft power as stated in the engine type certificate data sheet, of series and newly overhauled engines when running at the declared maximum coolant/cylinder head temperatures and within the appropriate acceptance limitations.
- c) **Maximum Continuous Power’** means the output shaft power identified in the performance data for use during periods of unrestricted duration.

Note: It should not be assumed that maximum continuous power is necessarily appropriate to normal operations. The power to be used in such operations is a matter between the constructor and the operator.

- d) **‘Maximum Continuous Power Rating’** means the minimum test bed acceptance power, as stated in the engine type certificate data sheet, of series and newly overhauled engines when running at the declared maximum coolant/cylinder head temperatures and within the appropriate acceptance limitations.
- e) **‘Maximum Recommended Cruising Power Conditions’** means the crankshaft rotational speed, engine manifold pressure and any other parameters recommended in the engine manuals as appropriate for cruising operation.
- f) **‘Maximum Best Economy Cruising Power Conditions’** means the crankshaft rotational speed, engine manifold pressure and any other parameters recommended in the engine manuals as appropriate for use with economical-cruising mixture strength.

‘Pitch Setting’ means the propeller blade setting determined by the blade angle, measured in a manner and at a radius declared by the manufacturer and specified in the appropriate Engine Manual.

‘Point of no return’ means the last possible geographic point at which an aeroplane can proceed to the destination aerodrome as well as to an available en-route alternate aerodrome for a given flight.

‘Powered-lift’ means a heavier-than-air aircraft capable of vertical take-off, vertical landing, and low-speed flight, which depends principally on engine-driven lift devices or engine thrust for the lift during these flight regimes and on non-rotating aerofoil(s) for lift during horizontal flight.

‘Powered sailplane’ means an aircraft, equipped with one or more engines having, with engine(s) inoperative, the characteristics of a sailplane.

~~**‘Power-unit’** means a system of one or more engines and ancillary parts which are together necessary to provide thrust, independently of the continued operation of any other power unit(s), but not including short period thrust producing devices.~~

‘Powerplant’ means the system consisting of all the engines, drive system components (if applicable), and propellers (if installed), their accessories, ancillary parts, and fuel and oil systems installed on an aircraft but excluding the rotors for a helicopter.

‘Pre-flight inspection’ means the inspection carried out before flight to ensure that the aircraft is fit for the intended flight.

‘Pressure Altitude’ means an atmospheric pressure expressed in terms of altitude, which corresponds to that pressure in the standard atmosphere. As defined under the definition – **‘Atmosphere, International Standard’** above.

‘Pressurized Aircraft’ means an aircraft the pressure in the cabin of which is controlled by mechanical means.

‘Principal place of business’ means the head office or registered office of the undertaking within which the principal financial functions and operational control of the activities referred to in the ANTRs are exercised;

Note: ‘principal place of business’ can also be interpreted as meaning the State in which the administrative headquarters and the operator’s financial, operational and maintenance management are based.

‘Printed communications’ means communications which automatically provide a permanent printed record at each terminal of a circuit of all messages which pass over such circuit.

‘Private Operations’ means carriage of persons or cargo not for hire or reward.

‘Problematic use of substances’ means the use of one or more psychoactive substances by aviation 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.

‘Prohibited Area’ means an airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

‘Propeller’ means a complete propeller including all parts attached to and rotating with the hub and blades, and all equipment required for the control and operation of the propeller.

‘Propeller Equipment’ means all equipment used with, or necessary for the control and operation of the propeller.

‘Protective Breathing Equipment’ means equipment to cover the eyes, nose and mouth, or the nose and mouth if accessory equipment is provided to protect the eyes, that will protect the wearer from the effects of smoke, carbon dioxide or other harmful gases.

‘Prototype Engine’ means the first engine, of a type and arrangement not previously approved, to be submitted for type-approval test.

‘Prototype Propeller’ means the first propeller of a type and arrangement not previously approved, to be submitted for type-approval tests.

‘Psychoactive Substances’ means alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and other volatile solvents, whereas coffee and tobacco are excluded.

‘Quality of service delivered (QoSD)’ †† A statement of the QoS achieved or delivered to the RPAS operator by the C2CSP.

†† Applicable as of 26 November 2026.

‘Quality of service required (QoSR)’ †† A statement of the QoS requirements of the RPAS operator to the C2CSP.

Note: The QoSR may be expressed in descriptive terms (criteria) listed in the order of priority, with preferred performance value for each criterion. The C2CSP then translates these into parameters and metrics pertinent to the service.

†† Applicable as of 26 November 2026.

‘Quality system’ means documented organizational procedures and policies; internal audit of those policies and procedures; management review and recommendation for quality improvement.

‘Quick-Donning Mask’ means an oxygen mask that can be secured on the face of the wearer with one hand within 5 seconds and that provides an immediate supply of oxygen.

‘Radio navigation service’ means A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

‘Radiotelephony’ means a form of radio communication primarily intended for the exchange of information in the form of speech.

‘Rated air traffic controller’ means an air traffic controller holding a licence and valid ratings appropriate to the privileges to be exercised.

‘Rated thrust’ means, for engine emissions purposes, the maximum take-off thrust approved by the certifying authority for use under normal operating conditions at ISA sea level static conditions, and without the use of water injection. Thrust is expressed in kilo newtons.

‘Rating’ means an authorisation entered on or associated with a licence and forming part thereof, stating special conditions, privileges or limitations pertaining to such licence.

‘Recertification’ means certification of an aircraft with or without a revision to its certification noise levels, to a Standard different to that to which it was originally certificated.

‘Reference landing speed’ means the speed of the aeroplane, in a specified landing configuration, at the point where it descends through the landing screen height in the determination of the landing distance for manual landings.

‘Reference pressure ratio’ means the ratio of the mean total pressure at the last compressor discharge plane of the compressor to the mean total pressure at the compressor entry plane when the engine is developing take-off thrust rating in ISA sea level static conditions.

‘Remote co-pilot’ means a licensed remote pilot serving in any piloting capacity other than as remote pilot-in-command but excluding a remote pilot who is in the remote pilot station for the sole purpose of receiving flight instruction.

‘Remote flight crew member’ means a licensed flight crew member charged with duties essential to the operation of a remotely piloted aircraft system during a flight duty period.

‘Remote pilot’ means a person charged by the operator with duties essential to the operation of a remotely piloted aircraft and who manipulates the flight controls, as appropriate, during flight time.

‘Remote pilot-in-command’ means the remote pilot designated by the operator as being in command and charged with the safe conduct of a flight.

‘Remote pilot station (RPS)’ †† means the component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft.

†† Applicable as of 26 November 2026.

‘Remotely piloted aircraft (RPA)’ †† means an unmanned aircraft which is piloted from a remote pilot station.

†† Applicable as of 26 November 2026.

‘Remotely piloted aircraft system (RPAS)’ †† means a remotely piloted aircraft, its associated remote pilot station(s), the required C2 Link(s) and any other components as specified in the type design.

†† Applicable as of 26 November 2026.

‘Rendering (a Certificate of Airworthiness) valid’ means the action taken by a Contracting State, as an alternative to issuing its own Certificate of Airworthiness, in accepting a Certificate of Airworthiness issued by any other Contracting State as the equivalent of its own Certificate of Airworthiness.

‘Rendering (a licence) valid’ means the action taken by a Contracting State, as an alternative to issuing its own licence, in accepting a licence issued by any other Contracting State as the equivalent of its own licence.

~~**‘Repair’** † means the restoration of an aeronautical product to an airworthy condition to ensure that the aircraft continues to comply with the design aspects of the appropriate airworthiness requirements used for the issuance of the type certificate for the respective aircraft type, after it has been damaged or subjected to wear. (effective until 4th November 2020)~~

‘Repair’ †† The restoration of an aircraft, engine or associated part to an airworthy condition in accordance with the appropriate airworthiness requirements after it has been damaged or subjected to wear. (effective as of 5th November 2020)

‘Repetitive flight plan (RPL)’ means a flight plan related to a series of frequently recurring, regularly operated individual flights with identical basic features, submitted by an operator for retention and repetitive use by ATS units.

‘Reporting Point’ means a specified geographical location in relation to which the position of an aircraft can be reported.

‘Required Communication Performance (RCP) specification’ means a set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.

‘Required Surveillance Performance (RSP) specification’ means a set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

‘Rest period’ means a continuous and defined period of time, subsequent to and/or prior to duty, during which flight or cabin crew members are free of all duties.

‘Rescue coordination centre’ means a unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

‘Restricted Area’ means airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of an aircraft is restricted in accordance with certain specified conditions.

‘Reverse Pitch’ means the blade angle used for producing reverse thrust with a propeller.

‘Rotational Direction of Equipment’ means the direction of rotation as observed when looking at the drive face of the equipment (usually described as ‘clockwise’ or ‘anti-clockwise’).

‘Rotational Speed’ (engine) means, unless otherwise qualified (e.g. propeller rotational speed), the rotational speed in revolutions per minute of the engine crankshaft or its equivalent.

‘Rotational Speed’ (propeller) means, unless otherwise specified (e.g. propeller rpm), the speed in revolutions per minute of the engine crankshaft or its equivalent.

‘Rotorcraft’ means a ~~heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors.~~ power-driven heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors. (also see “helicopter”)

‘Rotorcraft-load combination’ means the combination of a rotorcraft and an external-load, including the external load attaching means. Rotorcraft-load combinations are designated as Class A, Class B, Class C and Class D as follows:

- a) **Class A rotorcraft-load combination** means one in which the external load cannot move freely, cannot be jettisoned, and does not extend below the landing gear.
- b) **Class B rotorcraft-load combination** means one in which the external load is jettisonable and is lifted free of land or water during the rotorcraft operation.
- c) **Class C rotorcraft-load combination** means one in which the external load is jettisonable and remains in contact with land or water during the rotorcraft operation.
- d) **Class D rotorcraft-load combination** means one in which the external load is other than a Class A, B or C and has been specifically approved by the Authority for that operation.

‘Route Segments’ means a part of a route each end of which part is identified by:

- a) a continental or insular geographic location, or
- b) a point at which a definite radio fix can be established.

‘Runway’ means a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

‘Runway-holding position’ means a designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorised by the aerodrome control tower.

Note: In radiotelephony phraseologies, the expression “holding point” is used to designate the runway-holding position.

‘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.

‘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.

‘Safety catch’ means a mechanism which locks an operating control in a given position. It engages automatically whenever the operating control is put into that position but has to be manually taken out of engagement in order to move the operating control away from that position. (Applicable to CS-25 only.)

‘Safety Management System (SMS)’ means a systematic approach to managing safety, including the necessary organizational structures, accountabilities, responsibilities, policies and procedures.

‘Safety programme’ means an integrated set of regulations and activities aimed at improving safety.

‘Safety-sensitive personnel’ means persons who might endanger aviation safety if they perform their duties and functions improperly including, but not limited to, crew members, aircraft maintenance personnel and air traffic controllers.

‘Sailplane’ means a heavier-than-air aircraft that is supported in flight by the dynamic reaction of the air against its fixed lifting surfaces, the free flight of which does not depend on an engine.

‘Satisfactory evidence’ means a set of documents or activities that a Contracting State accepts as sufficient to show compliance with an airworthiness requirement.

‘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 lineorientated environment;”

‘Second-In-Command’ means a pilot who is designated by an operator as second-in-command of an aircraft during flight time.

‘Self-sustaining powered sailplane’ means a powered aeroplane with available engine power which allows it to maintain level flight but not to take off under its own power (see also Sailplane).

‘Series of flights’ means a series of flights are consecutive flights that:

- a) begin and end within a period of 24 hours; and
- b) are all conducted by the same pilot-in-command.

‘Series Propeller’ means a propeller essentially identical in design, materials, and methods of construction, with one which has been previously approved.

‘SIGMET information’ means information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

‘Signal Area’ means an area on an aerodrome used for the display of ground signals.

‘Sign a maintenance release (to)’ means to ~~certify that maintenance work has been completed satisfactorily in accordance with the applicable Standards of airworthiness, by issuing the maintenance release referred to in ICAO Annex 6.~~ certify that maintenance work has been completed satisfactorily in accordance with appropriate airworthiness requirements, by issuing the maintenance release referred to in Annex 6 (in the case of a release not issued by an approved maintenance organization) or Annex 8 (in the case of a release issued by an approved maintenance organization).

‘Significant’ means in the context of the medical provisions in ICAO Annex 1, Chapter 6, significant means to a degree or of a nature that is likely to jeopardize flight safety.

‘Significant Obstacle’ means any natural terrain features or fixed (whether temporary or permanent) or mobile object, or parts thereof, which has vertical significance in relation to adjacent and surrounding features and which is considered a potential hazard to the safe passage of aircraft for a particular type of aircraft operation.

‘Significant point’ means a specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

‘Small Aeroplane’ means an aircraft of a maximum certified take-off mass of 5 700 kg or less.

‘Smoke’ means the carbonaceous materials in exhaust emissions which obscure the transmission of light.

‘Smoke Number’ means the dimensionless term quantifying smoke emissions.

‘Solo flight time’ means flight time during which a student pilot is the sole occupant of an aircraft.

‘Solo flight time — remotely piloted aircraft systems’ means flight time during which a student remote pilot is controlling the remotely piloted aircraft system, acting solo.

‘Special VFR flight’ means a VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

‘Specific approval’ means an approval which is documented in the Operations Specifications for commercial air transport operations or in the list of specific approvals for non-commercial operation / general aviation operations.

Note: The terms authorization, specific approval, approval and acceptance are further described in Appendix 1 to ANTR OPS 1.175, Appendix 1 to ANTR OPS 1.785(f), Appendix 2 to ANTR OPS 1.175, ANTR OPS 1.1220, Appendix 1 to ANTR OPS 3.175, Appendix 1 to ANTR OPS 3.785(f), Appendix 2 to ANTR OPS 3.state of the principal.175, ANTR OPS 1.1220 and CAP 01.

‘Standard Atmosphere’ See ‘Atmosphere, International Standard’.

‘State of Design’ means the State having jurisdiction over organization responsible for the type design.

‘State of Design of Modification’ means the State having jurisdiction over the individual or organization responsible for the design of the modification or repair of an aircraft, engine or propeller.

‘State of Manufacture’ † means the State having jurisdiction over the organization responsible for the final assembly of the aircraft, engine or propeller.

† Applicable until 25 November 2026.

‘State of Manufacture’ †† means the State having jurisdiction over the organization responsible for the final assembly of the aircraft, remote pilot station, engine or propeller.

†† Applicable as of 26 November 2026.

‘State of the Aerodrome’ means the State in whose territory the aerodrome is located.

Note: State of the Aerodrome includes heliports and landing locations.

‘State of The Operator’ means the State in which the operator’s principal place of business is located or if he has no such place of business, the operator’s permanent residence.

‘State of Registry’ means the State on whose register the aircraft is entered.

Note: In the case of the registration of aircraft of an international operating agency on other than a national basis, the States constituting the agency are jointly and severally bound to assume the obligations which, under the Chicago Convention, attach to a State of Registry. See, in this regard, the Council Resolution of 14 December 1967 on Nationality and Registration of Aircraft Operated by International Operating Agencies which can be found in Policy and Guidance Material on the Economic Regulation of International Air Transport (Doc 9587).

‘State of the principal location of a general aviation operator’ means the State in which the operator of a general aviation aircraft has its principal place of business or, if there is no such place of business, its permanent residence.

Note: Guidance concerning the options for the principal location of a general aviation operator is contained in the Manual on the Implementation of Article 83 bis of the Convention on International Civil Aviation (Doc 10059).

‘State Safety Programme’ means an integrated set of regulations and activities aimed at improving safety.

‘Station declination’ means an alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

‘Stopway’ means an area beyond the take-off runway, no less wide than the runway and centred upon the extended centreline of the runway, able to support the aeroplane during an abortive take-off, without causing structural damage to the aeroplane, and designated by the airport authorities for use in decelerating the aeroplane during an abortive take-off.

‘Subsonic aeroplane’ means an aeroplane incapable of sustaining level flight at speeds exceeding flight Mach number of 1.

‘Supernumeraries’ – means the ~~company employees~~ person(s) who are not acting in the capacity of a flight crew or a flight attendant and in general, not trained or qualified to act as a flight crew or a flight attendant and not listed on the load manifest as a flight crew member/flight attendant subject to compliance with respective regulation at ANTR OPS 1

‘Supplemental oxygen’ means the additional oxygen required to protect each occupant against the adverse effects of excessive cabin altitude and to maintain acceptable physiological conditions.

‘Switchover’ †† means the act of transferring the active datalink path between the RPS and the RPA from one of the links or networks that constitutes the C2 Link to another link or network that constitutes the C2 Link.

†† Applicable as of 26 November 2026.

‘Synthetic Flight Trainer’ means any one of the following three types of apparatus in which flight conditions are simulated on the ground:

- a) **A Flight Simulator**, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated.
- b) **A Flight Procedures Trainer**, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and performance and flight characteristics of aircraft of a particular class.
- c) **A Basic Instrument Flight Trainer**, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft flight in instrument flight conditions.

‘Synthetic Vision System (SVS)’ means a system to display data-derived synthetic images of the external scene from the perspective of the flight deck.

‘Take-off and Initial Climb Phase’ means that part of flight from the start of take-off to 300 m (1 000 ft) above the elevation of the FATO, if the flight is planned to exceed this height, or to the end of the climb in the other cases.

‘Take-off Decision Point (TDP)’ means the point used in determining take-off performance from which, an engine failure occurring at this point, either a rejected take-off may be made or take-off safely continued.

Note: TDP applies only to helicopters operating in performance Class 1.

‘Take-off phase’, in respect to Environmental Protection, means the operating phase defined by the time during which the engine is operated at the rated thrust.

‘Take-off surface’ means that part of the surface of an aerodrome which the aerodrome authority has declared available for the normal ground or water run of aircraft taking off in a particular direction.

‘Target Level of Safety (TLS)’ means a generic term representing the level of risk which is considered acceptable in particular circumstances.

‘Taxi/ground idle’ means the operating phases involving taxi and idle between the initial starting of the propulsion engine(s) and the initiation of the take-off roll and between the time of runway turn-off and final shutdown of all propulsion engine(s).

‘Taxiing’ means movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.

‘Taxiway’ means a defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including:

- a) **Aircraft stand taxi lane.** A portion of an apron designated as a taxiway and intended to provide access to aircraft stands only.

- b) Apron taxiway. A portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron.
- c) Rapid exit taxiway. A taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimizing runway occupancy times.

‘Terminal control area’ means a control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

‘Take-off safety speed’ means a referenced airspeed obtained after lift-off at which the required one-engine-inoperative climb performance can be achieved.

‘Terms associated with probabilities’ (for engines):–

Note: Because an Effect can only be assessed in relation to a complete aircraft and as, for airworthiness purposes, each category of Effect is related to a particular frequency of occurrence, the definitions and associated numerical values are given in aircraft terms (hours in flight).

Frequency of occurrences:–

- a) **‘Reasonably Probable’** means unlikely to occur often during the operation of each aircraft of the type but which may occur several times during the total operational life of each aircraft of the types in which the engine may be installed.

Note: Where numerical values are used this may normally be interpreted as a probability in the range 10^{-3} to 10^{-5} per hour of flight.

- b) **‘Remote’** means unlikely to occur to each aircraft during its total operational life but may occur several times when considering the total operational life of a number of aircraft of the type in which the engine is installed.

Note: Where numerical values are used this may normally be interpreted as a probability in the range 10^{-5} to 10^{-7} per hour of flight.

- c) **‘Extremely Remote’** means unlikely to occur when considering the total operational life of a number of aircraft of the type in which the engine is installed, but nevertheless, has to be regarded as being possible.

Note: Where numerical values are used this may normally be interpreted as a probability in the range 10^{-7} to 10^{-9} per hour of flight.

‘Terrain’ means the surface of the Earth containing naturally occurring relief features such as mountains, hills, ridges, valleys etc.

‘Threat’ means events or errors that occur beyond the influence of an operational person, increase operational complexity and must be managed to maintain the margin of safety.

‘Threat Management’ means the process of detecting and responding to threats with countermeasures that reduce or eliminate the consequences of threats, and mitigate the probability of errors or undesired states.

‘Threshold time’ means the range, expressed in time, established by the State of the Operator, to an en-route alternate aerodrome, whereby any time beyond requires a specific approval for EDTO approval from the State of the Operator.

‘Total Equivalent Static Power’ (turbine engines) means:–

Total equivalent static power kW (S.I. Units) =

$$\frac{\text{Propeller shaft power} + \text{Static jet thrust (N)}}{15}$$

Total equivalent static power (horse-power) (Non-S.I. Units) =

$$\frac{\text{Propeller shaft HP} + \text{Static jet thrust (lbf)}}{2.6}$$

‘Total estimated elapsed time’ means for IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

‘Total vertical error (TVE)’ means the vertical geometric difference between the actual pressure altitude flown by an aircraft and its assigned pressure altitude (flight level).

‘Track’ means the projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).

‘Traffic avoidance advice’ means advice provided by an air traffic services unit specifying manoeuvres to assist a pilot to avoid a collision.

‘Traffic information’ means information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision.

‘Transfer of control point’ means a defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control position to the next.

‘Transferring unit’ means air traffic control unit in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit along the route of flight.

‘Transition Altitude’ means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.

‘True airspeed’ means the airspeed of an aircraft relative to undisturbed air. True airspeed is equal to equivalent airspeed multiplied by $(p_0/p)^{1/2}$.

‘TSO’ means Technical Standard Order, which is a detailed airworthiness specification issued by Competent Authority to ensure compliance with the requirements of the applicable Regulation as a minimum performance standard for specified articles.

Note: ETSO means European Technical Standard Order issued by EASA

Turbine Engines:– Power/thrust definitions applicable to engines for aeroplanes and helicopters:–

Note 1: The performance data are provided by the engine constructor and give the power and/or thrust produced by an engine under specified conditions (e.g. intake efficiency, forward speed, atmospheric temperature) when operating within the limitations (e.g. rpm, exhaust gas temperature) which have been approved for use with the defined power/thrust condition.

Note 2: Definitions of power/thrust in terms of usage and duration (and the use of these to form the basis of certain Flight Manual limitations) is not intended to remove the pilot's right to judge whether and to what extent such limitations may be ignored in emergency conditions.

- a) **‘Maximum Contingency Power and/or Thrust’** means the power and/or thrust identified in the performance data for use when a power-unit has failed or been shut down during take-off, baulked landing or prior to a discontinued approach and limited in use for a continuous period of not more than 2½ minutes.

Note: The 2½ minute period for use of maximum contingency power and/or thrust is additional to the 5 minute or 10 minute period at take-off power and/or thrust (see c.) and may be added to the take-off limitation at any point in time.

- b) **‘Maximum Contingency Power and/or Thrust Rating’** means the minimum test bed acceptance power and/or thrust, as stated in the engine type certificate data sheet, of series and newly overhauled engines when running at the specified conditions and within the appropriate acceptance limitations.
- c) **‘Take-off Power and/or Thrust’** means the power and/or thrust identified in the performance data for use during take-off, discontinued approach and baulked landing; and
- i) for aeroplanes and helicopters, limited in use to a continuous period of not more than 5 minutes; and
 - ii) for aeroplanes only (when specifically requested), limited in use to a continuous period of not more than 10 minutes in the event of a power-unit having failed or been shut down.
- d) **‘Take-off Power and/or Thrust Rating’** means the minimum test bed acceptance power and/or thrust as stated in the engine type certificate data sheet, of series and newly overhauled engines when running at the specified conditions and within the appropriate acceptance limitations.
- e) **‘Intermediate Contingency Power and/or Thrust’** means the power and/or thrust identified in the performance data for use after take-off when a power-unit has failed or been shut down, during periods of unrestricted duration.
- f) **‘Intermediate Contingency Power and/or Thrust Rating’** means the minimum test bed acceptance power and/or thrust, as stated in the engine type certificate data sheet, of series and newly overhauled engines when running at the specified conditions and within the appropriate acceptance limitations.
- g) **‘30-Minute Contingency Power’** (applicable to multi-engined helicopters only) means the power identified in the performance data for use after take-off when an engine has failed or been shut down, and limited in scheduled use for a total period of not more than 30 minutes in any one flight.
- h) **‘30-Minute Contingency Power Rating’** (applicable to multi-engined helicopters only) means the minimum test bed acceptance power, as stated in the engine type certificate data sheet, of series and overhauled engines when running at the specified conditions and within the appropriate acceptance limitations.
- i) **‘Maximum Continuous Power and/or Thrust’** means the power and/or thrust identified in the performance data for use during periods of unrestricted duration.

Note: It should not be assumed that the maximum permitted continuous power and/or thrust is appropriate to normal operations. The power to be used in such conditions can only be arrived at by discussion between the constructors and operators, due regard being paid to the effect of such factors as the type of operation envisaged, the route and climatic conditions, together with the overhaul period and overhaul costs which it is desired to achieve.

- j) **‘Maximum Continuous Power and/or Thrust Rating’** means the minimum test bed acceptance power and/or thrust, as stated in the engine type certificate data sheet, of series and newly overhauled engines when running at the specified conditions and within the appropriate acceptance limitations.

~~**‘Type Certificate’** means a document issued by a Contracting State to define the design of an aircraft type and to certify that this design meets the appropriate airworthiness requirements of that State.~~

Type Certificate † A document issued by a Contracting State to define the design of an aircraft, engine or propeller type and to certify that this design meets the appropriate airworthiness requirements of that State.

Note: In some Contracting States a document equivalent to a Type Certificate may be issued for an engine or propeller type.

† Applicable until 25 November 2026.

Type Certificate †† A document issued by a Contracting State to define the design of an aircraft, remote pilot station, engine or propeller type and to certify that this design meets the appropriate airworthiness requirements of that State.

Note 1: ††† In some Contracting States a document equivalent to a Type Certificate may be issued for an engine or propeller type.

Note 2: †† A document equivalent to a Type Certificate may be issued for a remote pilot station type.

†† Applicable as of 26 November 2026.

††† As of 26 November 2026, this Note becomes Note 1.

‘Type design’ † means the set of data and information necessary to define an aircraft, engine or propeller type for the purpose of airworthiness determination.

† Applicable until 25 November 2026.

Type design †† means the set of data and information necessary to define an aircraft, remote pilot station, engine or propeller type for the purpose of airworthiness determination.

†† Applicable as of 26 November 2026.

‘Ultimate load’ means the limit load multiplied by the appropriate factor of safety.

‘Unburned hydrocarbons’ means the total of hydrocarbon compounds of all classes and molecular weights contained in a gas sample, calculated as if they were in the form of methane.

‘Uncertainty phase’ means a situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

‘Unforeseen’ means operational circumstance, not anticipated or predicted event, such as unforecast weather, equipment malfunction, or air traffic delay that is beyond the control of the operator.

‘Unmanned free balloon’ means a non-power-driven, unmanned, lighter-than-air aircraft in free flight.

Note: Unmanned free balloons are classified as heavy, medium or light

‘Variable Pitch Propellers’ means a propeller, the pitch setting of which changes or can be changed, when the propeller is rotating or stationary. This includes:–

- a) A propeller, the pitch setting of which is directly under the control of the flight crew (controllable pitch propeller).
- b) A propeller, the pitch setting of which is controlled by a governor or other automatic means which may be either integral with the propeller or a separately mounted equipment and which may or may not be controlled by the flight crew (constant speed propeller).
- c) A propeller, the pitch setting of which may be controlled by a combination of the methods of a. and b.

‘Variations’ means the action of issuing on a one-off basis against a technical requirement or standard as opposed to a regulation/order, operators may also apply for a variation to any current approval or permission.

‘VFR’ means the symbol used to designate the visual flight rules.

‘VFR flight’ means a flight conducted in accordance with the visual flight rules.

‘Visibility’ means visibility for aeronautical purposes 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;
- b) the greatest distance at which lights in the vicinity of 1,000 candelas can be seen and identified against an unlit background.

Note 1: The two distances have different values in air of a given extinction coefficient, and the latter b) varies with the background illumination. The former a) is represented by the meteorological optical range (MOR).

Note 2: The definition applies to the observations of visibility in local routine and special reports, to the observations of prevailing and minimum visibility reported in METAR and SPECI and to the observations of ground visibility.

‘Visual Meteorological Conditions (VMC)’ means meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling * equal to or better than specified minima.

Note: The specified minima are contained in Chapter 4 of Annex 2.

*** - As defined in ICAO Annex 2**

‘Visual Reference’ means in respect of an aircraft on an approach to a runway, means that section of the approach area of the runway or those visual aids that, when viewed by the pilot of the aircraft, enables the pilot to make an assessment of the aircraft position and the rate of change of position, relative to the nominal flight path.

‘VMC’ means the symbol used to designate visual meteorological conditions.

‘VTOSS’ (helicopter) means the minimum speed at which climb shall be achieved with the critical engines inoperative, the remaining engines operating within approved operating limits.

Note: The speed referred to above may be measured by instrument indications or achieved by a procedure specified in the flight manual.

‘Waypoint’ means a specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

Fly-by waypoint. A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or

Flyover waypoint. A waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

Wet runway. ‡‡ The runway surface is covered by any visible dampness or water up to and including 3 mm deep within the intended area of use.

~~‡‡ Applicable as of 5th November 2021.~~

ANTR 1.2 Abbreviations and symbols

1.2.1 Abbreviations

‘AC’	-	Advisory Circular.
‘ACAS’	-	Airborne Collision Avoidance System
‘ADRS’	-	Aircraft Data Recording System
‘ADS’	-	Automatic Dependant Surveillance
‘ADS-C’	-	Automatic Dependent Surveillance — Contract
‘AEO’	-	All Engine Operative
‘AFCS’	-	Automatic Flight Control System
‘AGA’	-	Aerodromes, Air routes and Ground Aids
‘AIG’	-	Accident Investigation and Prevention
‘AIR’	-	Airborne Image Recording
‘AIRS’	-	Airborne Image Recording System
‘AOC’	-	Aeronautical Operational Control in respect to ATC
‘AOC’	-	Air Operator Certificate
‘APCH’	-	Approach
‘APU’	-	Auxiliary Power Unit.

‘AR’	-	Authorisation Required
‘ARINC’	-	Aeronautical Radio, Incorporated
‘ASDA’	-	Accelerate Stop Distance Available
‘ASE’	-	Altimetry System Error
‘ASIA/PAC’	-	Asia Pacific
‘ATC’	-	Air Traffic Control
ATM’	-	Air Traffic Management
‘ATN’	-	Aeronautical Telecommunication Network
‘ATS’	-	Air Traffic Service
‘BTPD’	-	Body Temperature, Pressure, Dry, i.e. 37°C, ambient pressure and no water vapour.
‘BTPS’	-	Body Temperature, Pressure, Saturated, i.e. 37°C, ambient pressure and saturated with water vapour at 47 mmHg partial pressure.
‘CARS’	-	Cockpit Audio Recording System
‘CAS’	-	Calibrated Airspeed.
‘CAT I’	-	Category I
‘CAT II’	-	Category II
‘CAT III’	-	Category III
‘cm’	-	Centimetre
‘CDL’	-	Configuration Deviation List
‘CFIT’	-	Controlled Flight into Terrain
‘COMAT’	-	Operator Material
‘CPDLC’	-	Controller-Pilot Data Link Communications
‘CVR’	-	Cockpit Voice Recorder
‘CVS’	-	Combined Vision System
‘DA’	-	Decision Altitude
‘DA/H’	-	Decision Altitude/Height
‘DC’	-	Device Control
‘D-FIS’	-	Data Link-Flight Information Services

‘DH’	-	Decision Height
‘DLR’	-	Data Link Recorder
‘DLRS’	-	Data Link Recording System
‘DME’	-	Distance Measuring Equipment
‘DSTRK’	-	Desired Track
‘EAS’	-	Equivalent Airspeed.
‘EASA’	-	European Aviation Safety Agency
‘EDTO’	-	Extended Diversion Time Operations
‘EFB’	-	Electronic Flight Bag
‘EFIS’	-	Electronic Flight Instrument System
‘EGT’	-	Exhaust Gas Temperature
‘EICAS’	-	Engine Indication and Crew Alerting System
‘ELT’	-	Emergency Locator Transmitter
‘ELT(AD)’	-	Automatic Deployable ELT
‘ELT(AF)’	-	Automatic Fixed ELT
‘ELT(AP)’	-	Automatic Portable ELT
‘ELT(S)’	-	Survival ELT
‘EPR’	-	Engine Pressure Ratio
‘EUROCAE’	-	European Organization for Civil Aviation Equipment
‘FANS’	-	Future Air Navigation System
‘FATO’	-	Final Approach and Take-Off Area
‘FDAU’	-	Flight Data Acquisition Unit
‘FDR’	-	Flight Data Recorder
‘FL’	-	Flight Level
‘FM’	-	Frequency Modulation
‘FMS’	-	Flight Management System
‘ft’	-	Foot
‘ft/min’	-	Feet per minute

‘g’	-	Normal acceleration
‘GCAS’	-	Ground Collision Avoidance System
‘GNSS’	-	Global Navigation Satellite System
‘GPWS’	-	Ground Proximity Warning System
‘hPa’	-	Hectopascal
‘HUD’	-	Head-Up Display
‘IAS’	-	Indicated Airspeed.
‘ICAO’	-	International Civil Aviation Organisation.
‘IFR’	-	Instrument Flight Rules.
‘IGE’	-	In-Ground Effect
‘ILS’	-	Instrument Landing System.
‘IMC’	-	Instrument Meteorological Conditions
‘inHg’	-	Inch of Mercury
‘INS’	-	Inertial Navigation System
‘ISA’	-	International Standard Atmosphere
‘JAR’	-	Joint Aviation Requirements.
‘kg’	-	Kilogram
‘kg/m²’	-	Kilogram per metre squared
‘km’	-	Kilometre
‘km/h’	-	Kilometre per hour
‘kt’	-	Knot
‘kt/s’	-	Knots per second
‘lb’	-	Pound
‘LDAH’	-	Landing Distance Available
‘LDRH’	-	Landing Distance Required
‘LED’	-	Light Emitting Diode
‘LDP’	-	Landing Decision Point with respect to rotorcraft.
‘M’	-	Mach number.

‘mb’	-	Millibar
‘MDA’	-	Minimum Descent Altitude
‘MDA/H’	-	Minimum Descent Altitude / Height
‘MDH’	-	Minimum Descent Height
‘MEL’	-	Minimum Equipment List
‘MHz’	-	Megahertz
‘MIL Spec’	-	USA Military Specification.
‘MLS’	-	Microwave Landing System
‘MMEL’	-	Master Minimum Equipment List
‘MNPS’	-	Minimum Navigation Performance Specifications
‘MOPS’	-	Minimum Operational Performance Specification
‘m’	-	Metre
‘m/s’	-	Metres per second
‘m/s²’	-	Metres per second squared
‘N’	-	Newton
‘N1’	-	Low pressure compressor speed (two-stage compressor); fan speed (three-stage compressor)
‘N2’	-	High pressure compressor speed (two-stage compressor); intermediate pressure compressor speed (three-stage compressor)
‘N3’	-	High pressure compressor speed (three stage compressor)
‘NAT HLA’	-	North Atlantic High Level Airspace
‘NAV’	-	Navigation
‘NM’	-	Nautical Mile
‘NPA’	-	Notice of Proposed Amendment.
‘NTPD’	-	Normal Temperature, Pressure, Dry, i.e. 21°C, 760 mmHg and no water vapour.
‘NVIS’	-	Night Vision Imaging Systems
‘OCA’	-	Obstacle Clearance Altitude
‘OCA/H’	-	Obstacle Clearance Altitude/Height
‘OCH’	-	Obstacle Clearance Height

‘OEI’	-	One Engine Inoperative.
‘OGE’	-	Out of Ground Effect
‘PANS’	-	Procedures for Air Navigation Services
‘PBC’	-	Performance-Based Communication
‘PBN’	-	Performance-Based Navigation
‘PBS’	-	Performance-Based Surveillance
‘PM’	-	Pilot Monitoring
‘PF’	-	Pilot Flying
‘PNF’	-	Pilot Not Flying
‘PNR’	-	Point of No Return
‘psi’	-	Pound per Square Inch
‘R’	-	Rotor Radius
‘RCP’	-	Required Communication Performance
‘RNAV’	-	Area Navigation
‘RNP’	-	Required Navigation Performance
‘rpm’	-	Revolutions per minute.
‘RSP’	-	Required Surveillance Performance
‘RTCA’	-	Radio Technical Commission for Aeronautics
‘RVR’	-	Runway Visual Range
‘RVSM’	-	Reduced Vertical Separation Minima
‘SICASP’	-	Secondary Surveillance Radar Improvements and Collision Avoidance Systems Panel
‘SOP’	-	Standard Operating Procedures
‘SST’	-	Supersonic Transport
‘STOL’	-	Short Take-Off and Landing
‘STPD’	-	Standard Temperature, Pressure, Dry, i.e. 0°C, 760 mmHg and no water vapour.
‘SVS’	-	Synthetic Vision System
‘T₄’	-	Engine Exhaust Gas Temperature
‘TAS’	-	True Airspeed.

‘TLOF’	-	Touchdown and Lift-Off Area
‘TODAH’	-	Take-Off Distance Available
‘TODRH’	-	Take-Off Distance Required
‘TSO’	-	Technical Standard Order.
‘TDP’	-	Take-off Decision Point with respect to rotorcraft.
‘TVE’	-	Total Vertical Error
‘UTC’	-	Coordinated Universal Time
‘V_A’	-	Design manoeuvring speed.
‘V_B’	-	Design speed for maximum gust intensity.
‘V_C’	-	Design cruising speed.
‘V_D/M_D’	-	Design diving speed.
‘V_{DF}/M_{DF}’	-	Demonstrated flight diving speed.
‘V_F’	-	Design flap speed.
‘V_{F1}’	-	Design flap speed for procedure flight conditions.
‘V_{FC}/M_{FC}’	-	Maximum speed for stability characteristics.
‘V_{FE}’	-	Maximum flap extended speed.
‘V_{FTO}’	-	Final take-off speed.
‘VFR’	-	Visual Flight Rules.
‘V_H’	-	Maximum speed in level flight with maximum continuous power.
‘VHF’	-	Very high frequency.
‘V_{LE}’	-	Maximum landing gear extended speed.
‘V_{LO}’	-	Maximum landing gear operating speed.
‘V_{LOF}’	-	Lift-off speed.
‘VMC’	-	Visual Meteorological Conditions
‘V_{MC}’	-	Minimum control speed with the critical engine inoperative.
‘V_{MCA}’	-	Minimum control speed, take-off climb.

‘V_{MCG}’	-	Minimum control speed, on or near ground.
‘V_{MCL}’	-	Minimum control speed, approach and landing.
‘V_{MO}/M_{MO}’	-	Maximum operating limit speed.
‘V_{MU}’	-	Minimum unstick speed.
VNAV’	-	Vertical Navigation
‘V_{NE}’	-	Never-exceed speed.
‘V_R’	-	Rotation speed.
‘V_{RA}’	-	Rough airspeed.
‘V_{REF}’	-	Reference landing speed.
‘V_S’	-	Stall speed or the minimum steady flight speed at which the aeroplane is controllable.
‘V_{SO}’	-	Stall speed or the minimum steady flight speed in the landing configuration.
‘V_{S1}’	-	Stall speed or the minimum steady flight speed obtained in a specified configuration.
‘V_{S1g}’	-	One-g stall speed at which the aeroplane can develop a lift force (normal to the flight path) equal to its weight.
‘V_T’	-	Maximum aerotow speed (CS–22 only).
‘V_T’	-	Threshold speed.
‘VTOL’	-	Vertical take-off and landing
‘V_{Tmax}’	-	Maximum threshold speed.
‘V_{TOSS}’	-	Take-off safety speed for Category A rotorcraft.
‘V_W’	-	Maximum winch-launch speed (CS–22 only).
‘V_Y’	-	Speed for best rate of climb.
‘V₁’	-	Take-off decision speed.
‘V₂’	-	Take-off safety speed.
‘V_{2min}’	-	Minimum take-off safety speed.
‘V₃’	-	Steady initial climb speed with all engines operating.

‘WXR - Weather

1.2.2 Symbols

‘°C’ - Degrees Celsius

‘%’ - Per cent

‘CO’ - Carbon monoxide

‘Dp’ - The mass of any gaseous pollutant emitted during the reference emissions landing and take-off cycle

‘Fn’ - Thrust in International Standard Atmosphere (ISA), sea level conditions, for the given operating mode

‘Foo’ - Rated thrust

‘F*oo’ - Rated thrust with afterburning applied

‘HC’ - Unburned hydrocarbons (see definition)

‘NO’ - Nitric oxide

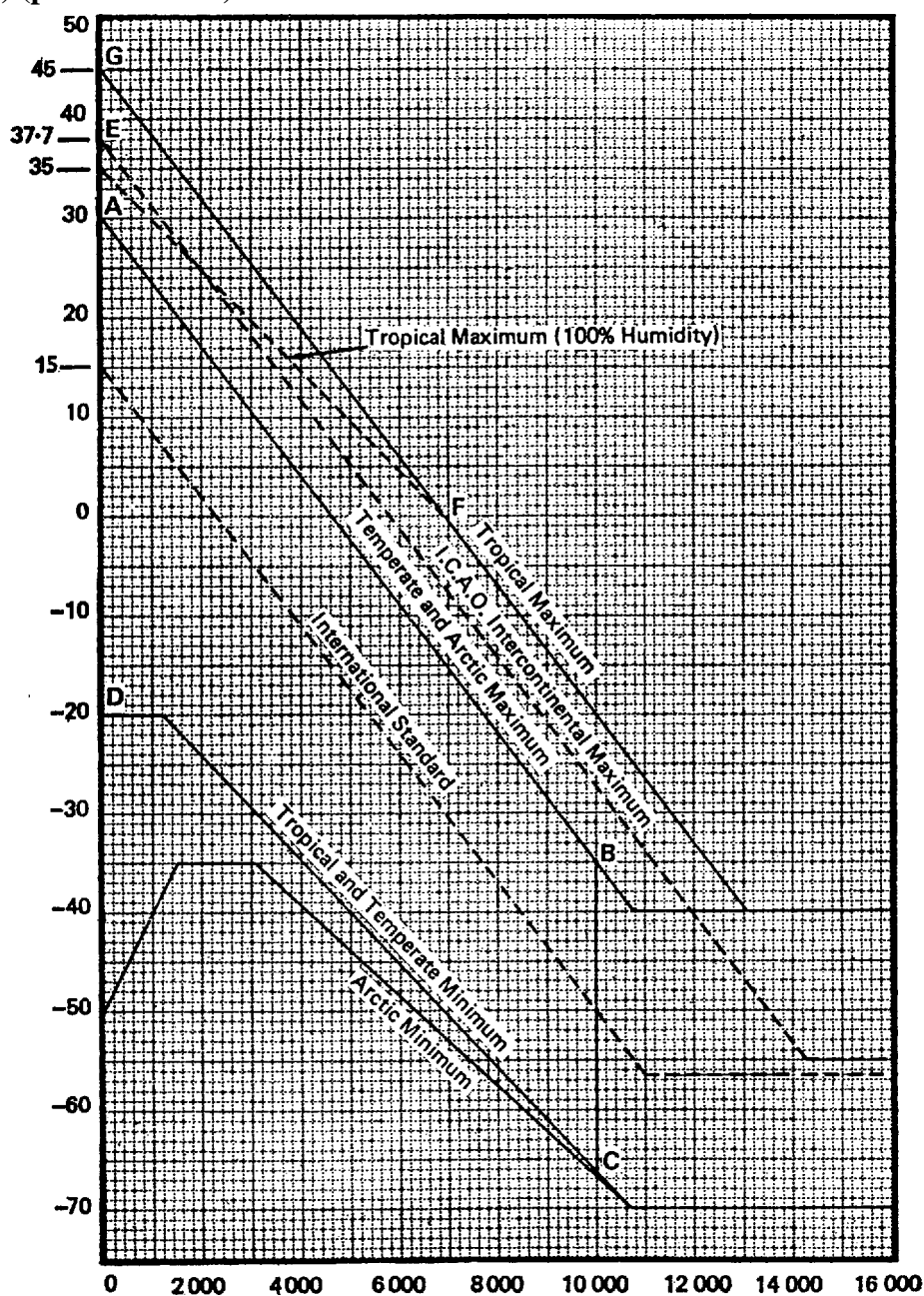
‘NO₂’ - Nitrogen dioxide

‘NO_x’ - Oxides of nitrogen (see definition)

‘SN’ - Smoke Number (see definition)

‘π_{oo}’ - Reference pressure ratio (see definition)

ALTITUDE (m) (pressure basis)

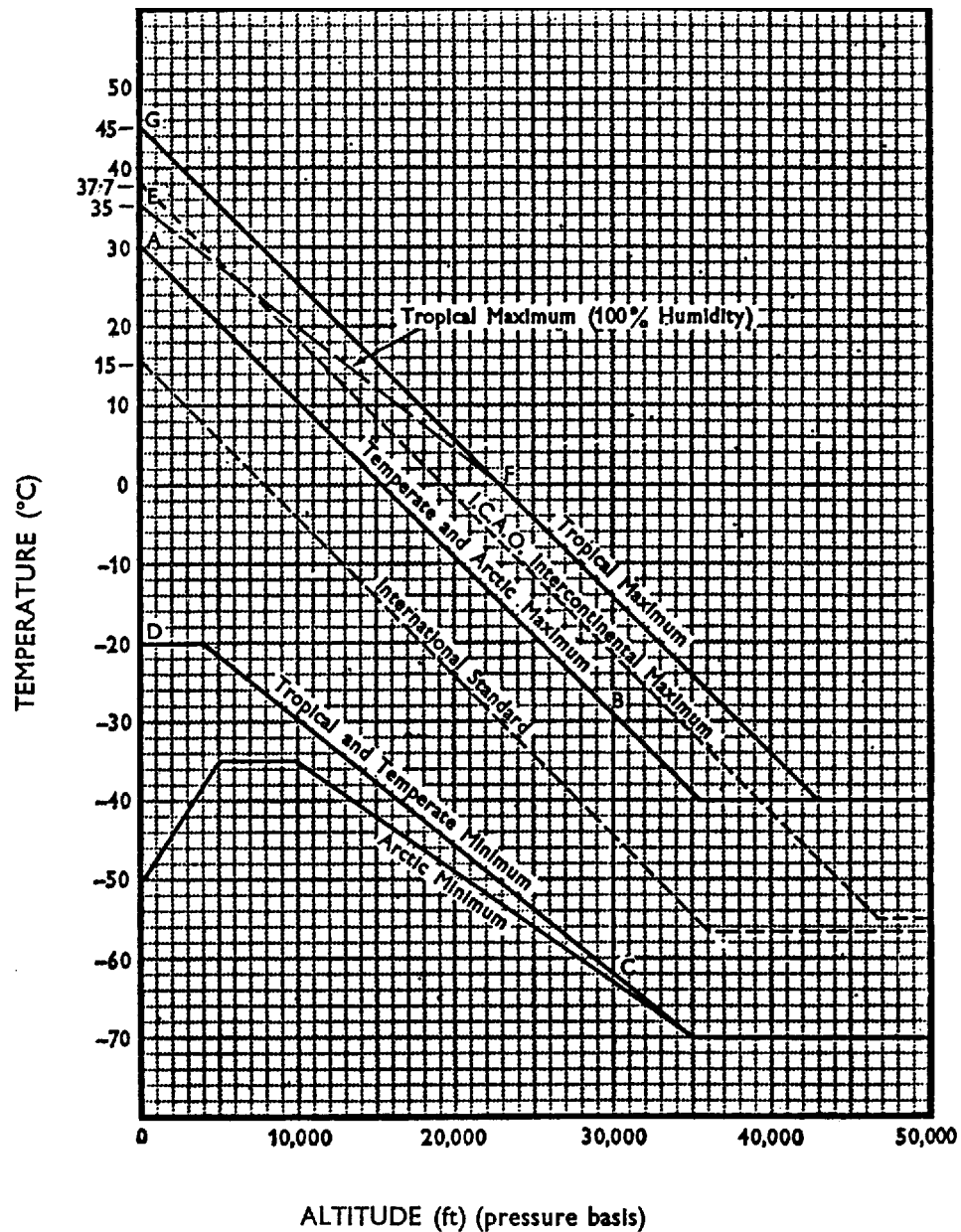


STANDARD CLIMATES – S.I. UNITS

Fig. 1

NOTES: (1) This diagram gives envelope conditions for design purposes; it does not constitute an accurate representation of any particular climate.

(2) The line BC has no significance other than as illustrating the text.



STANDARD CLIMATES – NON S.I. UNITS

Fig. 1

- NOTES: (1) This diagram gives envelope conditions for design purposes; it does not constitute an accurate representation of any particular climate.
- (2) The line BC has no significance other than as illustrating the text.

TABLE 1
RELATIVE PRESSURES AND DENSITIES – S.I. UNITS

Air density at sea-level (barometer 1.013250×10^3 Pa
temp 15°C) is 1.2250 kg/m^3

Altitude (Pressure Basis) m	Relative Densities Associated with Conditions Stated					
	Relative Pressures (I.C.A.O.)	International Standard (I.C.A.O.)	Tropical Maximum	Temperature and Arctic Maximum	Tropical and Temperature Minimum	Arctic Minimum
0	1.000	1.000	0.906	0.951	1.138	1.291
500	0.942	0.953	0.862	0.905	1.072	1.190
1000	0.887	0.907	0.820	0.862	1.010	1.097
1500	0.835	0.864	0.780	0.820	0.955	0.011
2000	0.785	0.822	0.741	0.779	0.908	0.949
2500	0.737	0.781	0.703	0.740	0.862	0.892
3000	0.692	0.742	0.668	0.703	0.818	0.837
3500	0.649	0.705	0.633	0.667	0.776	0.792
4000	0.608	0.669	0.600	0.632	0.735	0.750
4500	0.570	0.634	0.568	0.599	0.696	0.709
5000	0.533	0.601	0.538	0.568	0.659	0.670
5500	0.498	0.569	0.509	0.537	0.623	0.633
6000		0.466	0.539	0.481	0.508	0.589
6500	0.435	0.509	0.454	0.480	0.556	0.563
7000	0.405	0.481	0.428	0.453	0.525	0.531
7500	0.378	0.454	0.404	0.428	0.495	0.500
8000	0.351	0.429	0.380	0.403	0.466	0.470
8500	0.327	0.404	0.358	0.380	0.439	0.442
9000	0.303	0.381	0.337	0.357	0.412	0.415
9500	0.282	0.358	0.316	0.336	0.388	0.389
10000	0.261	0.337	0.297	0.316	0.364	0.365
10500	0.242	0.317	0.279	0.296	0.341	0.341
11000	0.223	0.297	0.261	0.276		0.317
11500	0.206	0.275	0.244	0.255		0.293
12000	0.191	0.254	0.229	0.236		0.271
12500	0.176	0.235	0.214	0.218		0.250
13000	0.163	0.217	0.201	0.201		0.231
13500	0.151	0.200		0.186		0.214
14000	0.139	0.185		0.172		0.197
14500	0.129	0.171		0.159		0.182
15000	0.119	0.158		0.147		0.169

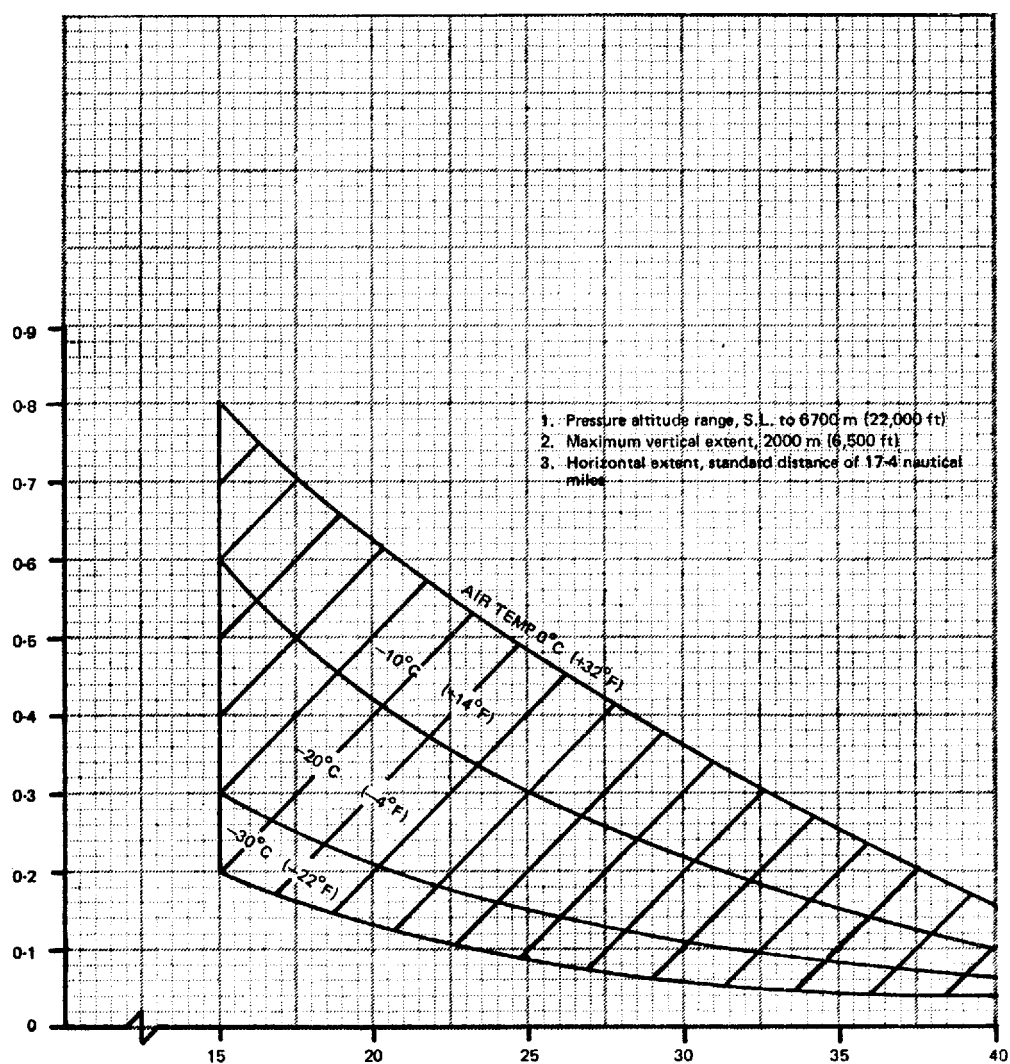
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TABLE 1

RELATIVE PRESSURES AND DENSITIES – NON S.I. UNITS

Air density at sea-level (barometer 29.92 in (1013.2 mbar) temp 15°C) is
0.002378 slugs/ft³

Altitude (Pressure Basis) ft	Relative Densities Associated with Conditions Stated					
	Relative Pressures (I.C.A.O.)	International Standard (I.C.A.O.)	Tropical Maximum	Temperate and Arctic Maximum	Tropical and Temperate Minimum	Arctic Minimum
0	1.000	1.000	0.906	0.951	1.138	1.291
1000	0.964	0.971	0.879	0.923	1.098	1.229
2000	0.930	0.943	0.853	0.896	1.058	1.169
3000	0.896	0.915	0.827	0.869	1.020	1.112
4000	0.864	0.888	0.802	0.843	0.983	1.058
5000	0.832	0.862	0.778	0.818	0.953	1.007
6000	0.801	0.836	0.754	0.793	0.923	0.970
7000	0.772	0.811	0.731	0.769	0.895	0.934
8000	0.743	0.786	0.708	0.745	0.868	0.899
10000	0.688	0.738	0.664	0.699	0.814	0.832
12000	0.636	0.693	0.623	0.656	0.763	0.779
14000	0.587	0.650	0.583	0.615	0.714	0.728
16000	0.542	0.609	0.545	0.575	0.668	0.680
18000	0.499	0.570	0.509	0.538	0.624	0.634
20000	0.460	0.533	0.475	0.502	0.583	0.590
22000	0.422	0.498	0.443	0.469	0.543	0.550
24000	0.388	0.464	0.413	0.437	0.504	0.511
26000	0.355	0.432	0.384	0.407	0.470	0.474
28000	0.325	0.403	0.357	0.378	0.437	0.440
30000	0.297	0.374	0.331	0.351	0.405	0.407
32000	0.271	0.347	0.306	0.326	0.375	0.377
33000	0.259	0.334	0.295	0.313	0.361	0.362
34000	0.247	0.322	0.283	0.302	0.347	0.348
35000	0.235	0.310	0.273	0.290		0.334
36000	0.224	0.298	0.262	0.277		0.318
37000	0.214	0.284	0.252	0.264		0.303
38000	0.204	0.271	0.242	0.252		0.289
39000	0.194	0.258	0.232	0.240		0.275
40000	0.185	0.246	0.223	0.229		0.263
41000	0.176	0.235	0.214	0.218		0.250
42000	0.168	0.224	0.206	0.208		0.238
44000	0.153	0.203		0.189		0.217
46000	0.139	0.185		0.171		0.197
48000	0.126	0.168		0.156		0.179
50000	0.114	0.152		0.141		0.162

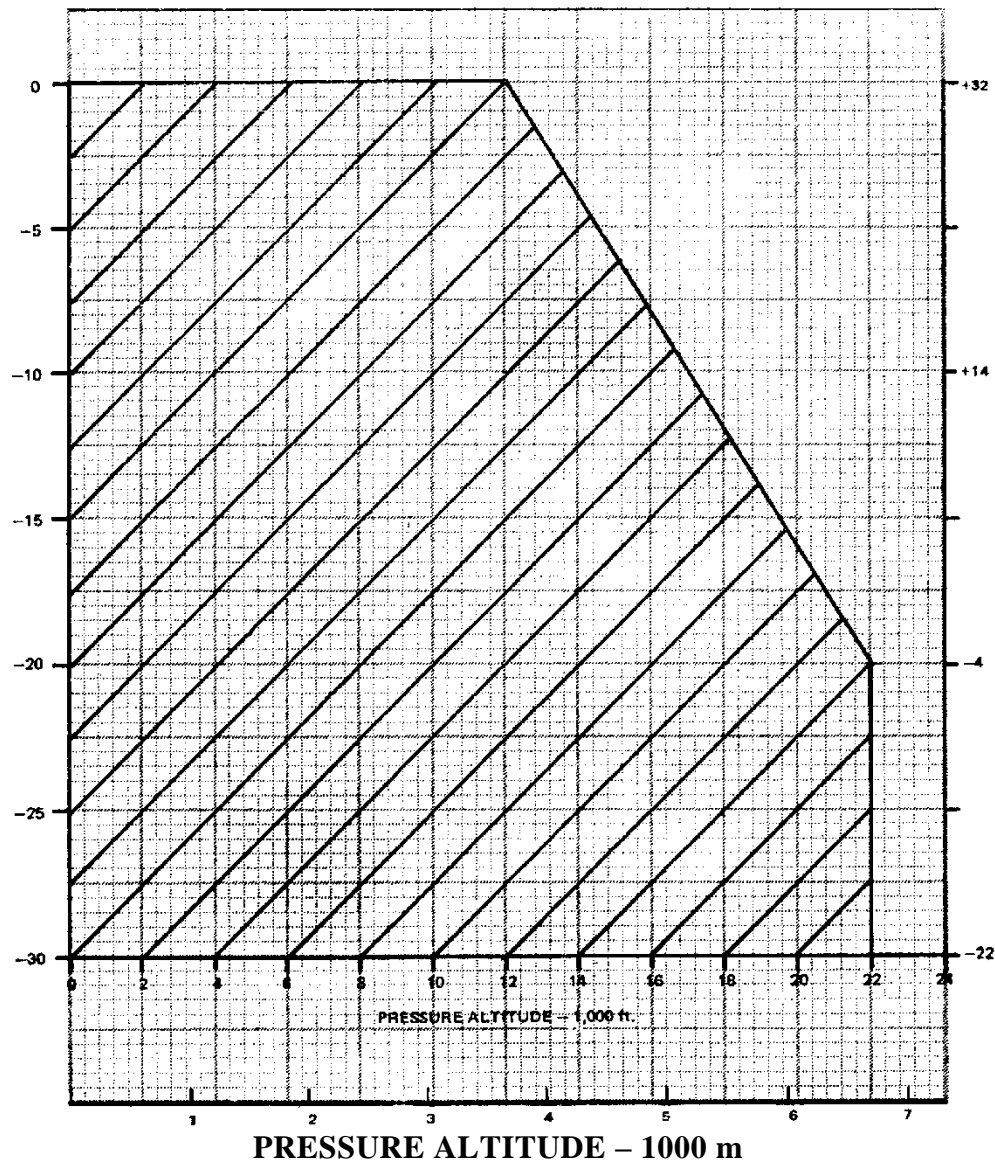


MEAN EFFECTIVE DROPLET DIAMETER – MICRONS

CONTINUOUS MAXIMUM (STRATIFORM CLOUDS)
 ATMOSPHERIC ICING CONDITIONS
 LIQUID WATER CONTENT VS MEAN EFFECTIVE DROP DIAMETER

Fig. 2

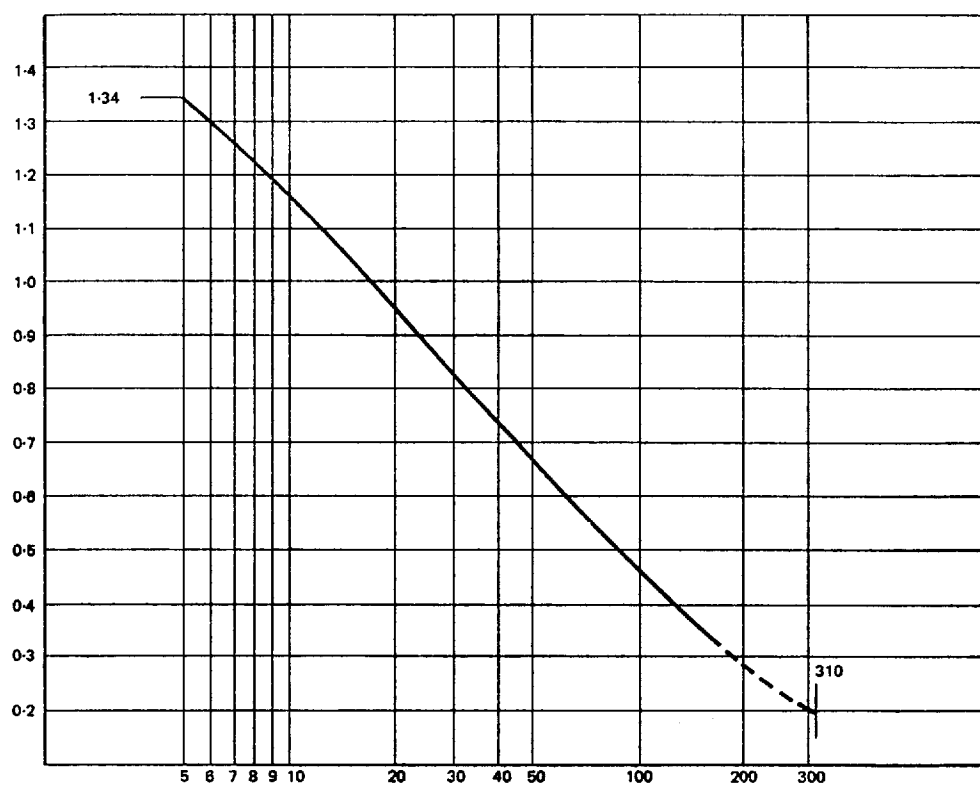
NOTES: Source of data – NACATN No. 1855, Class III–M, Continuous Maximum.



CONTINUOUS MAXIMUM (STRATIFORM CLOUDS)
ATMOSPHERIC ICING CONDITIONS
AMBIENT TEMPERATURE VS PRESSURE ALTITUDE

Fig. 3

NOTES: Source of data – NACATN No. 2569.

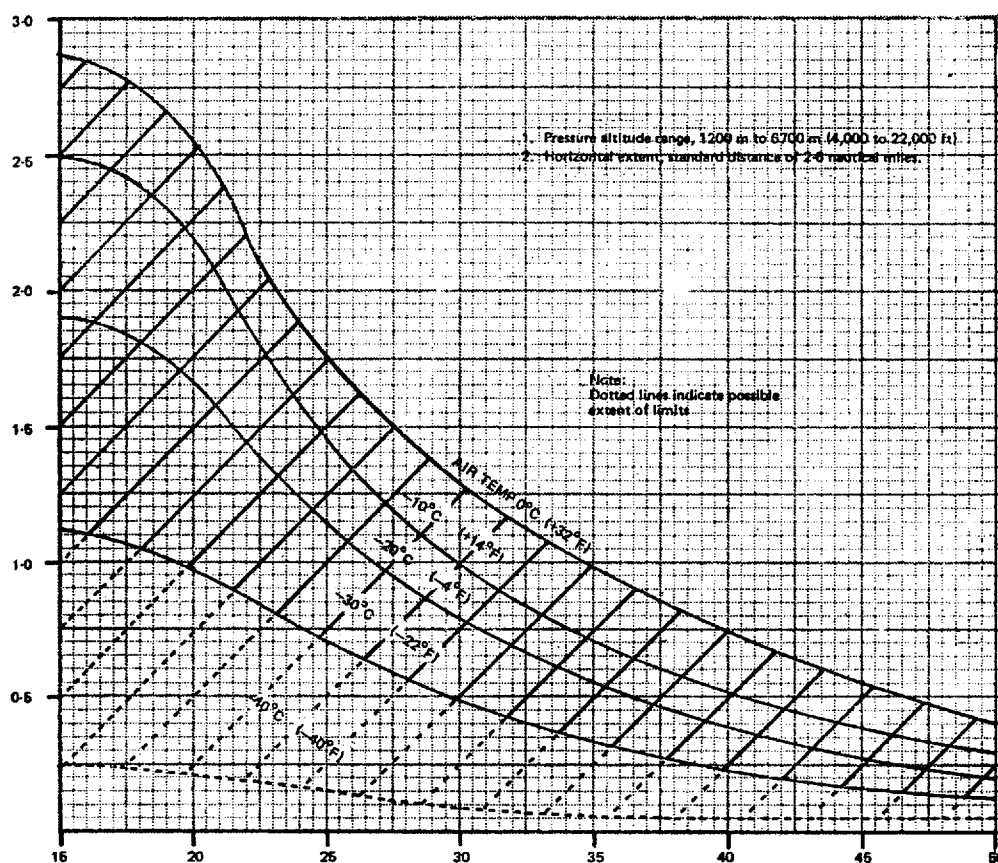


CLOUD HORIZONTAL EXTENT – NAUTICAL MILES

CONTINUOUS MAXIMUM (STRATIFORM CLOUDS)
ATMOSPHERIC ICING CONDITIONS
LIQUID WATER CONTENT FACTOR VS CLOUD HORIZONTAL DISTANCE

Fig. 4

NOTES: Source of data – NACATN No. 2738.

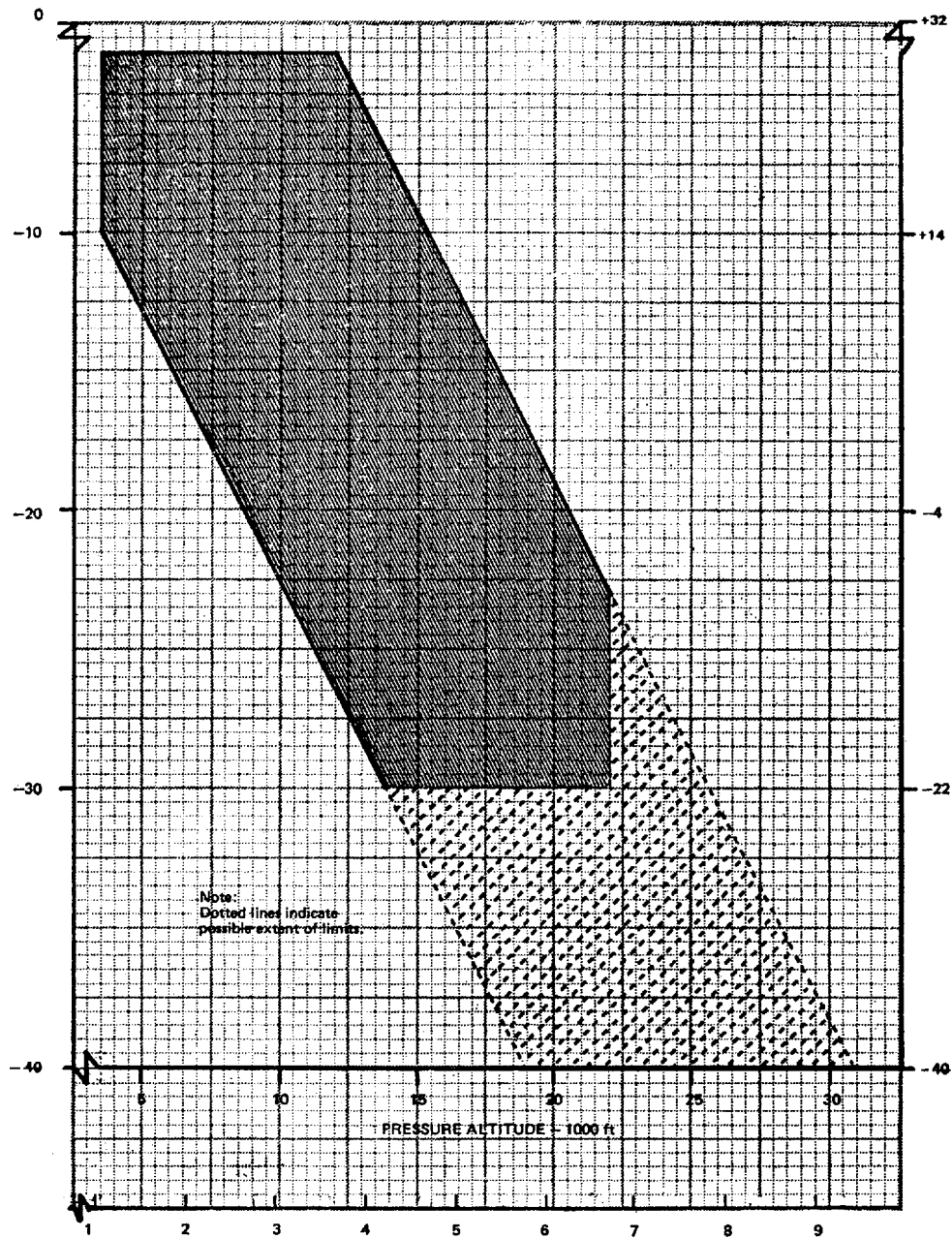


MEAN EFFECTIVE DROPLET DIAMETER – MICRONS

INTERMITTENT MAXIMUM (CUMULIFORM CLOUDS)
ATMOSPHERIC ICING CONDITIONS
LIQUID WATER CONTENT VS MEAN EFFECTIVE DROP DIAMETER

Fig. 5

NOTE: Source of data – NACA TN N. 1855, Class II-M, Intermittent Maximum

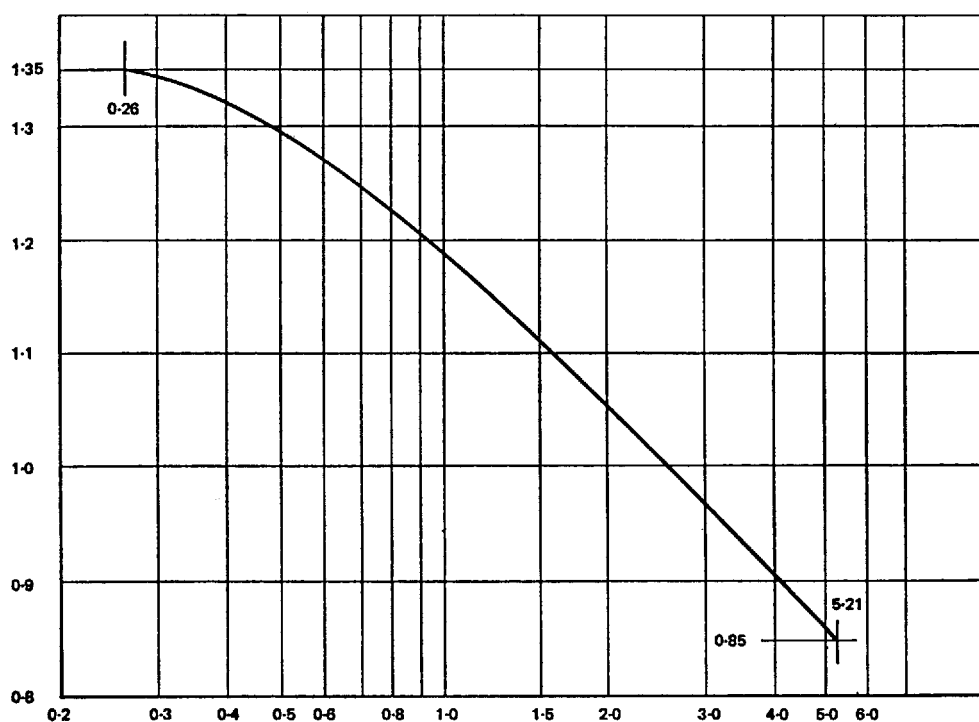


PRESSURE ALTITUDE – 1000 m

INTERMITTENT MAXIMUM (CUMULIFORM CLOUDS)
ATMOSPHERIC ICING CONDITIONS
AMBIENT TEMPERATURE VS PRESSURE ALTITUDE

Fig. 6

NOTE: Source of data – NACATN No. 2569.



CLOUD HORIZONTAL EXTENT – NAUTICAL MILES

INTERMITTENT MAXIMUM (CUMULIFORM CLOUDS)
 ATMOSPHERIC ICING CONDITIONS
 VARIATION OF LIQUID WATER CONTENT FACTOR WITH
 CLOUD HORIZONTAL EXTENT

Fig. 7

Source of data – NACATN No. 2738.

SECTION 2

ACCEPTABLE MEANS OF COMPLIANCE (AMC)/INTERPRETATIVE & EXPLANATORY MATERIAL (IEM)

IEM 1.1

Authority

See ANTR 1.1

In this context, 'regulation' means not only the drafting of requirements, but also, though not limited to, such activities as implementation, interpretation and application of the statutory aviation requirements.

IEM 1.1

Class

See ANTR 1.1

Aeroplane classes may comprise aeroplanes having different type certification bases or be variants of certificated types. The establishment of class ratings for single pilot aeroplanes not requiring a type rating is set out in ANTR Part II.

IEM 1.1

Climates, standard

See ANTR 1.1

Climatic conditions:

- a. The standard climatic conditions are intended primarily for use in designing aircraft structure and equipment which should remain airworthy when subjected to the appropriate conditions.
- b. Aircraft performance will vary considerably within the defined climates. It is not intended that any one stated performance should be achievable throughout the whole envelope of conditions but rather that sufficient performance data should be scheduled for an operator to determine the performance which will be achieved in particular conditions.
- c. The climatic conditions given are conditions of the free atmosphere. The temperatures achieved in an aircraft in these atmospheric conditions may be considerably higher. In the absence of precise information as to the surface finish, ventilation and type of engine, etc., the following maximum ambient temperatures should be assumed:

	Temperate and Arctic	Tropical
i. in the interior of an aircraft;	45°C	60°C
ii. for portions of the outer covering liable to be in the sun and parts attached directly to such covering;	55°C	80°C
iii. in an engine compartment for parts not attached directly to the engine.	100°C	100°C

NOTE: Parts connected to the engine may attain higher temperatures.

IEM 1.1

Commander

See ANTR 1.1

The requirements for the commander's functions and responsibilities are found in ANTR-OPS.

IEM 1.1

Commercial Air Transportation

See ANTR 1.1

Commercial Air Transportation is intended to cover Aerial Work and Corporate Aviation.

IEM 1.1

Pilot Flying

See ANTR 1.1

This is a task assignment only and should not be confused with the command authority of the pilot-in-command