CAR DEF

DEFINITIONS & MEASUREMENTS

FOREWORD

CONTENTS

REVISION RECORD

LIST of EFFECTIVE PAGES

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FOREWORD

1. The Civil Aviation Authority Bahamas is known in these regulations as the "Authority".

2. Unless otherwise specified in 3(a) – (e) below, CAR DEF addresses all definitions and abbreviations used in the Civil Aviation Regulations. In addition this regulation addresses the ICAO Annex 5 Units of Measurement to be used in Air and Ground Operations. The regulations are made under the Civil Aviation Authority Act – 2021.

3. [CAR DEF includes definitions from ICAO Annexes up to and including those amended in November 2022.]

4. Additional definitions specific to the following CARs are contained within that regulation.

   (a) CAR DG (Dangerous Goods)

   (b) CAR ENV (Environmental)

   (c) CAR FAC (Facilitation)

   (d) CAR MED (Aeromedical)

   (e) CAR SEC (Security)

   (f) CAR CNS (Communications, Navigation and Surveillance)

5. Paragraphs and sub-paragraphs with new, amended and corrected text will be enclosed within square brackets until a subsequent amendment is issued.

   Note: The use of the male gender implies all genders.

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REVISION RECORD

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CHAPTER 1

DEFINITIONS

Accelerate-stop distance available (ASDA) means the length of the take-off run available plus the length of stopway, if provided.

Accepting unit. Air traffic control unit next to take control of an aircraft.

Accident. An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

(a) a person is fatally or seriously injured as a result of:

— being in the aircraft, or

— direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or

— direct exposure to jet blast,

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

(b) the aircraft sustains damage or structural failure which:

— adversely affects the structural strength, performance or flight characteristics of the aircraft, and

— would normally require major repair or replacement of the affected component,

except for engine failure or damage, when the damage is limited to a single engine, (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or

(c) the aircraft is missing or is completely inaccessible.

Note 1: For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified, by ICAO, as a fatal injury.

Note 2: An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

Accident Investigation Authority. The authority designated by a State as responsible for aircraft accident and incident investigations within the context of ICAO Annex 13. In the Bahamas this is the Aircraft Accident Investigation Authority.

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

Accredited representative. A person designated by a State, on the basis of his or her qualifications, for the purpose of participating in an investigation conducted by another State. Where the State has established an accident investigation authority, the designated accredited representative would normally be from that authority.

Accuracy. 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 (or 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.

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. A group of competencies with their associated description and performance criteria adapted from an ICAO competency framework that an organisation uses to develop competency-based training and assessment for a given role.

ADS-C agreement. 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).

[Advanced aircraft. An aircraft with equipment in addition to that required for a basic aircraft for a given take-off, approach or landing operation.]

Adviser. A person appointed by a State, on the basis of his or her qualifications, for the purpose of assisting its accredited representative in an investigation.

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

Advisory route. 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.

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.

Note: An aerodrome can be a heliport. Refer also to "heliport" for helicopter operations.

Aerodrome beacon. Aeronautical beacon used to indicate the location of an aerodrome from the air.

Aerodrome certificate. A certificate issued by the appropriate authority under applicable regulations for the operation of an aerodrome.

Aerodrome control service. Air traffic control service for aerodrome traffic.

Aerodrome control tower. A unit established to provide air traffic control service to aerodrome traffic.

Aerodrome elevation. The elevation of the highest point of the landing area.

Aerodrome identification sign. A sign placed on an aerodrome to aid in identifying the aerodrome from the air.

Aerodrome mapping data (AMD). Data collected for the purpose of compiling aerodrome mapping information for aeronautical uses.

Note: Aerodrome mapping data are collected for purposes that include the improvement of the user's situational awareness, surface navigation operations, training, charting and planning.

Aerodrome mapping database (AMDB). A collection of aerodrome mapping data organised and arranged as a structured data set.

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 reference point. The designated geographical location of an aerodrome.

Aerodrome traffic. 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 density.

(a) Light. Where the number of movements in the mean busy hour is not greater than 15 per runway or typically less than 20 total aerodrome movements.

(b) Medium. Where the number of movements in the mean busy hour is of the order of 16 to 25 per runway or typically between 20 to 35 total aerodrome movements.

(c) Heavy. Where the number of movements in the mean busy hour is of the order of 26 or more per runway or typically more than 35 total aerodrome movements.

Note 1: The number of movements in the mean busy hour is the arithmetic mean over the year of the number of movements in the daily busiest hour.

Note 2: Either a take-off or a landing constitutes a movement.

Aerodrome traffic zone. An airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic.

Aeronautical beacon. An aeronautical ground light visible at all azimuths, either continuously or intermittently, to designate a particular point on the surface of the earth.

Aeronautical fixed service (AFS). 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 ground light. Any light specially provided as an aid to air navigation, other than a light displayed on an aircraft.

Aeronautical Information Publication (AIP). A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

Aeronautical mobile service (RR S1.32). 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). 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.

Aeronautical telecommunication station. A station in the aeronautical telecommunication service.

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.

Aeroplane reference field length. The minimum field length required for take-off at maximum certificated take-off mass, sea level, standard atmospheric conditions, still air and zero runway slope, as shown in the appropriate aeroplane flight manual prescribed by the certificating authority or equivalent data from the aeroplane manufacturer. Field length means balanced field length for aeroplanes, if applicable, or take-off distance in other cases.

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

Agreement summary. 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 the State of the Operator for commercial air transport operations.

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 1: From 26 November, 2026, when the word aircraft is used, it includes the remotely piloted aircraft.

Note 2: Refer also to definitions of Advanced Aircraft and Basic Aircraft in respect to CAR OPS 1, OPS 2A, OPS 2H and OPS 3 requirements.]

Aircraft avionics. 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. 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 classification number (ACN). A number expressing the relative effect of an aircraft on a pavement for a specified standard subgrade category. (Until 27th November 2024)

Aircraft classification rating (ACR). A number expressing the relative effect of an aircraft on a pavement for a specified standard subgrade category. (As of 28th November 2024)

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.

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 security search. A thorough inspection of the interior and exterior of the aircraft for the purpose of discovering suspicious objects, weapons, explosives or other dangerous devices, articles or substances.

Aircraft stand. A designated area on an apron intended to be used for parking an aircraft.

Aircraft tracking. 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 of. All aircraft of the same basic design including all modifications thereto except those modifications which result in a change in handling or flight characteristics.

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.

Air-ground communication. Two-way communication between aircraft and stations or locations on the surface of the earth.

Air-ground control radio station. 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. 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 specific commercial air transport operations

Airship. A power-driven lighter-than-air aircraft**.**

Airside. The movement area of an airport, adjacent terrain and buildings or portions thereof, access to which is controlled.

Air-taxiing. 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. All aircraft in flight or operating on the manoeuvring area of an aerodrome.

Air traffic advisory service. 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. 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 controller schedule. A plan for allocating air traffic controller duty periods and non-duty periods over a period of time, otherwise referred to as a roster.

Air traffic control service. 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. A generic term meaning variously, area control centre, approach control unit or aerodrome control tower.

Air traffic flow management (ATFM). 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. 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. 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. 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. 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. A control area or portion thereof established in the form of a corridor.

[Airworthiness Directive (AD). A regulatory document which identifies aeronautical products in which an unsafe condition exists, and where the condition is likely to exist or develop in other aeronautical products of the same type design. It prescribes mandatory corrective actions to be taken or the conditions or limitations under which the aeronautical products may continue to be operated.

Note: The AD is the common form of mandatory continuing airworthiness information mentioned in Airworthiness regulations and ICAO Annex 8.]

Airworthy.

[Until 25 November, 2026, the status of an aircraft, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation.

As of 26 November, 2026, **t**he 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.]

ALERFA. The code word used to designate an alert phase.

Alerting service. A service provided to notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

Alert phase. A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

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 be able to 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 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. Alternate heliports include the following:

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

(b) **En-route alternate**. A heliport at which a helicopter would be able to land after experiencing an abnormal or emergency condition while en route.

(c) **Destination alternate**. An alternate heliport to which a helicopter may proceed 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. The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

Anticipated operating conditions.

[Until 25 November, 2026, 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.

As of 26 November, 2026, 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 or remote pilot station 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 and remote pilot station, 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.]

Approach and landing phase — helicopters. 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 balked landing point.

Approach control service. Air traffic control service for arriving or departing controlled flights.

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

Approach phase (Engine emissions). The operating phase defined by the time during which the engine is operated in the approach operating mode.

Appropriate airworthiness requirements.

[Until 25 November, 2026, the comprehensive and detailed airworthiness codes established, adopted or accepted by a Contracting State for the class of aircraft, engine or propeller under consideration.

As of 26 November, 2026, 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.]

Appropriate ATS authority. 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.

Approval (Dangerous Goods). An authorisation granted by an appropriate national authority for:

(a) the transport of dangerous goods forbidden on passenger and/or cargo aircraft where the Technical Instructions state that such goods may be carried with an approval; or

(b) other purposes as provided for in the Technical Instructions.

Note: In the absence of a specific reference in the Technical Instructions allowing the granting of an approval, an exemption may be sought.

Approved. Accepted by a Contracting State as suitable for a particular purpose.

Approved maintenance organisation means an organisation approved by a Contracting State, in accordance with the requirements of Annex 8, Part II, Chapter 6 - Maintenance Organisation Approval, to perform maintenance of aircraft, engine, propeller or parts thereof and operating under supervision approved by that State.

Note: Nothing in this definition is intended to preclude the approval of the organisation and its supervision by more than one State.

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

Approved training organisation. An organisation approved by and operating under the supervision of a Contracting State in accordance with the requirements of ICAO Annex 1, 1.2.8.2 and Appendix 2 to perform flight crew approved training

Apron. 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. A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.

Area control centre. A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

Area control service. Air traffic control service for controlled flights in control areas.

Area navigation (RNAV) means 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. An ATS route established for the use of aircraft capable of employing area navigation.

Arresting System. A system designed to decelerate an aeroplane overrunning the runway.

Associated aircraft systems. Those aircraft systems drawing electrical/pneumatic power from an auxiliary power unit during ground operations.

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

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

Authority means the Civil Aviation Authority of The Bahamas and is the competent body responsible for the safety regulation of civil aviation.

Note: This definition should not be confused with the term "authority" as in authorisation.

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 terminal information service (ATIS). 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 (4-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.

Autonomous aircraft. An unmanned aircraft that does not allow pilot intervention in the management of the flight.

Autonomous operation. An operation during which a remotely piloted aircraft is operating without pilot intervention in the management of the flight.

Autonomous runway incursion warning system (ARIWS). A system which provides autonomous detection of a potential incursion or of the occupancy of an active runway and a direct warning to a flight crew or a vehicle operator.

Auxiliary power unit (APU). A self-contained power unit on an aircraft providing electrical/pneumatic power to aircraft systems during ground operations or in-flight separate from the propulsion engine/s.

Aviation document means a licence, permit, certificate, authorisation or other document, issued in accordance with the Civil Aviation Act.

[Aviation Security. Safeguarding civil aviation against acts of unlawful interference. This objective is achieved by a combination of measures and human and material resources.]

Background check. A check of a person's identity and previous experience, including criminal history and any other security related information relevant for assessing the person's suitability, in accordance with national legislation.

Balked landing. A landing manoeuvre that is unexpectedly discontinued at any point below the obstacle clearance altitude/height (OCA/H).

Balloon. A non-power-driven lighter-than-air aircraft.

Note: For the purposes of the CARs, a hot-air airship, although engine-driven, is also considered a balloon.

Barrette. Three or more aeronautical ground lights closely spaced in a transverse line so that from a distance they appear as a short bar of light.

Base turn. 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. An aircraft which has the minimum equipment required to perform the intended take-off, approach or landing operation.]

Basic Instrument Training Device (BITD) means a ground-based training device which represents the student pilot's station of a class of aeroplanes. It may use screen-based instrument panels and spring-loaded flight controls, providing a training platform for at least the procedural aspects of instrument flight.

Bypass ratio. 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. As of 26 November, 2026, the data link between the remotely piloted aircraft and the remote pilot station for the purposes of managing the flight.

C2 Link interruption. As of 26 November, 2026, 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.

C2 Link specification. As of 26 November, 2026, the minimum performance to be achieved by the C2 Link equipment in conformity with the applicable airworthiness system design requirements.]

Cabin Crew Member means a crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the commander 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).

Capacitor discharge light. A lamp in which high-intensity flashes of extremely short duration are produced by the discharge of electricity at high voltage through a gas enclosed in a tube.

Cargo. Any property carried on an aircraft other than mail, stores and accompanied or mishandled baggage.

Category A. With respect to helicopters, means a multi-engine helicopter designed with engine and system isolation features 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.

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

Category of aircraft means a categorisation of aircraft according to specified basic characteristics, for example aeroplane, powered-lift, helicopter, airship, sailplane, free balloon.

Category of flight test (see Flight test category)

Category of operation (Remotely Piloted Aircraft)

(a) '**Open**' category (low risk): Authorisation required by the Authority. Safety is ensured through compliance with operational limitations, mass limitations as a proxy of energy, product safety requirements and a minimum set of operational rules.

(b) '**Specific**' category (medium risk): Authorisation by the Authority, following a risk assessment performed by the operator. A manual of operations lists the risk mitigation measures.

(c) '**Certified**' category (higher risk): Authorisation required by the Authority. Requirements comparable to those for manned aviation. Oversight by the Authority (issue of licences and approval of maintenance, operations, training, ATM/ANS and aerodromes organisations, design and approval of foreign organisations).

Causes. Actions, omissions, events, conditions, or a combination thereof, which led to the accident or incident. The identification of causes does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

Ceiling. The height above the ground or water of the base of the lowest layer of cloud below 6 000 metres (20 000 feet) covering more than half the sky.

Certification (security) A formal evaluation and confirmation by or on behalf of the appropriate authority for aviation security that a person possesses the necessary competencies to perform assigned functions to an acceptable level as defined by the appropriate authority.

Certification Specification (CS) means airworthiness codes under EASA.

Certified aerodrome. An aerodrome whose operator has been granted an aerodrome certificate.

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

Changeover point. The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.

Class of aeroplane means a categorisation of single-pilot aeroplanes not requiring a type rating.

Class of balloon means a categorisation of balloons taking into account the lifting means used to sustain flight.

Clearance limit. The point to which an aircraft is granted an air traffic control clearance.

Clearway. A defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height.

Climb phase (Engine emissions). The operating phase defined by the time during which the engine is operated in the climb operating mode.

Cockpit crew zone. The part of the cabin that is exclusively designated for flight crew use.

COMAT. Operator material carried on an operator's aircraft for the operator's own purposes.

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

Command and control (C2) link. The data link between the remotely piloted aircraft and the remote pilot station for the purposes of managing the flight.

[Note: As of 26 November 2026, this term will be renamed C2 Link.]

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.

Note: Not applicable to The Bahamas.

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

Competency. A dimension of human performance that is used to reliably predict successful performance on the job. A competency is manifested and observed through behaviours that mobilize the relevant knowledge, skills and attitudes to carry out activities or tasks under specified conditions.

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

Complex motor-powered aircraft means:

(a) an aeroplane:

- with a maximum certificated take-off mass exceeding 5700 kg, or
- certificated for a maximum passenger seating configuration of more than nineteen, or
- certificated for operation with a minimum crew of at least two pilots, or
- equipped with (a) turbojet engine(s) or more than one turboprop engine, or

(b) a helicopter certificated:

- for a maximum take-off mass exceeding 3 175 kg, or
- for a maximum passenger seating configuration of more than nine, or
- for operation with a minimum crew of at least two pilots, or

(c) a tilt rotor aircraft.

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

Conference communications. Communication facilities whereby direct speech conversation may be conducted between three or more locations simultaneously.

Configuration (as applied to the aeroplane). 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.

Congested area. In relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes.

Congested hostile environment. A hostile environment within a congested area.

Consignment. One or more packages of dangerous goods accepted by an operator from one shipper at one time and at one address, receipted for in one lot and moving to one consignee at one destination address.

Conspicuity. Quality of an aircraft (e.g. lighting or paint scheme), allowing it to be easily seen or noticed by others (e.g. by pilots, ATCOs, aerodrome personnel).

Contaminated runway. (refer Runway Surface Conditions)

Continuing airworthiness

[Up to 25 November, 2026, means the set of processes by which an aircraft, engine, propeller or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life.

As of 26 November, 2026, means the set of processes by which an aircraft, remote pilot station, engine, propeller or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life.]

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

Continuous descent final approach (CDFA). A technique, consistent with stabilized approach procedures, for flying the final approach segment (FAS) of an instrument non-precision approach (NPA) 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.

Contributing factors. Actions, omissions, events, conditions, or a combination thereof, which, if eliminated or avoided, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

Control area. A controlled airspace extending upwards from a specified limit above the earth.

Controlled aerodrome. 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. An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

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

Controlled flight. Any flight which is subject to an air traffic control clearance.

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

Control zone. 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.

Corporate aviation operation. The non-commercial operation or use of aircraft by a company for the carriage of passengers or goods as an aid to the conduct of company business, flown by a professional pilot(s) employed to fly the aircraft.

Note: The term "aircraft" is used to indicate that a corporate aviation operation using a mix of aeroplanes and helicopters is subject to CAR OPS 2A, Part II as long as at least one aeroplane is involved.

Credit. 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 engine(s). Any engine whose failure 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 engine. In this case, the expression "the critical engine" means one of those critical engines.

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

Cruise climb. 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 commander or a co-pilot to obtain planned rest.

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

Current flight plan. The flight plan, including changes, if any, brought about by subsequent clearances.

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

D The largest overall dimension of the helicopter when rotor(s) are turning measured from the most forward position of the main rotor tip path plane to the most rearward position of the tail rotor tip path plane or helicopter structure.

Design D. The D of the design helicopter.

D-value. A limiting dimension, in terms of "D", for a heliport, helideck or shipboard heliport, or for a defined area within.

Danger area. An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified 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.

Dangerous goods accident. An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.

Dangerous goods incident. An occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardizes the aircraft or its occupants is also deemed to constitute a dangerous goods incident.

Data link communications. A form of communication intended for the exchange of messages via a data link.

Data accuracy. A degree of conformance between the estimated or measured value and the true value.

Data integrity assurance level. A degree of assurance that an aeronautical data and its value has not been lost or altered since the origination or authorised amendment.

Data quality. A degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution and integrity (or equivalent assurance level, traceability, timeliness, completeness and format).

Date of manufacture. 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. 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 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. 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.

[Declared distances – aerodromes]

(a) Take-off run available (TORA). The length of runway declared available and suitable for the ground run of an aeroplane taking off.

(b) Take-off distance available (TODA). The length of the take-off run available plus the length of the clearway, if provided.

(c) Accelerate-stop distance available (ASDA). The length of the take-off run available plus the length of the stopway, if provided.

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

Declared distances — heliports

(a) Take-off distance available (TODAH). The length of the FATO plus the length of helicopter clearway (if provided) declared available and suitable for helicopters to complete the take-off.

(b) Rejected take-off distance available (RTODAH). The length of the FATO declared available and suitable for helicopters operated in performance class 1 to complete a rejected take-off.

(c) Landing distance available (LDAH). The length of the FATO plus any additional area declared available and suitable for helicopters to complete the landing manoeuvre from a defined height.

De-icing/anti-icing facility. A facility where frost, ice or snow is removed (de-icing) from the aeroplane to provide clean surfaces, and/or where clean surfaces of the aeroplane receive protection (anti-icing) against the formation of frost or ice and accumulation of snow or slush for a limited period of time.

De-icing/anti-icing pad. An area comprising an inner area for the parking of an aeroplane to receive de-icing/anti-icing treatment and an outer area for the manoeuvring of two or more mobile de-icing/anti-icing equipment.

Defined point after take-off (DPATO). The point, within the take-off and initial climb phase, before which the helicopters 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.

Defined point before landing (DPBL). The point, within the approach and landing phase, after which the helicopters 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.

Dependent parallel approaches. Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are prescribed.

Derivative version. 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 certificating authority, have not changed.

Derived version of a CO_2-certified aeroplane. An aeroplane which incorporates changes in type design that either increase its maximum take-off mass, or that increase its CO2 emissions evaluation metric value by more than:

(a) 1.35 per cent at a maximum take-off mass of 5700 kg, decreasing linearly to;

(b) 0.75 per cent at a maximum take-off mass of 60 000 kg, decreasing linearly to;

(c) 0.70 per cent at a maximum take-off mass of 600 000 kg; and

(d) a constant 0.70 per cent at maximum take-off masses greater than 600 000 kg.

Derived version of a non-CO2-certified aeroplane. An individual aeroplane that conforms to an existing Type Certificate, but which is not certified to Annex 16, Volume III, and to which changes in type design are made prior to the issuance of the aeroplane's first certificate of airworthiness that increase its CO2 emissions evaluation metric value by more than 1.5 per cent or are considered to be significant CO2 changes.

Derived version of a helicopter. 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.

Derived version of an aeroplane. 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.

Designated postal operator. Any governmental or non-governmental entity officially designated by a Universal Postal Union (UPU) member country to operate postal services and to fulfil the related obligations arising from the acts of the UPU Convention on its territory.

Design landing mass. 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. 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. 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.

DETRESFA. The code word used to designate a distress phase.

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

Discrete source damage. 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.

Displaced threshold. A threshold not located at the extremity of a runway.

Disruptive passenger. A passenger who fails to respect the rules of conduct at an airport or on board an aircraft or to follow the instructions of the airport staff or crew members and thereby disturbs the good order and discipline at an airport or on board the aircraft.

Dry runway (refer Runway Surface Conditions)

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

Duty (Air Operator) 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 (Air Traffic Controllers). Any task that an air traffic controller is required by the air traffic services provider to perform. These tasks include those performed during time-in-position, administrative work and training.

Duty period (Air Operator) 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.

Duty period. (Air Traffic Controller) means a period which starts when an air traffic controller is required by an air traffic services provider to report for or to commence a duty and ends when that person is free from all duties.

Dynamic load-bearing surface. A surface capable of supporting the loads generated by a helicopter in motion.

[EASA means European Union Aviation Safety Agency.]

EDTO critical fuel. 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.

EDTO-significant system. 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.

Effective intensity. The effective intensity of a flashing light is equal to the intensity of a fixed light of the same colour which will produce the same visual range under identical conditions of observation.

Electronic flight bag (EFB). 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. A heliport located on a raised structure on land.

Ellipsoid height (Geodetic height). The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.

Elongated. When used with TLOF or FATO, elongated means an area which has a length more than twice its width.

Emergency Locator Transmitter (ELT) is 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;

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

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

(c) 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.

(d) 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. 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/rotors (if applicable).

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. 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.

Equivalent procedure. A test or analysis procedure which, while differing from the one specified in ICAO Annex 16, in the technical judgement of the certificating authority yields effectively the same CO2 emissions evaluation metric value as the specified procedure.

Error. An action or inaction by an operational person that leads to deviations from organisational or the operational persons intentions or expectations.

Error management. The process of detecting errors and responding to them with countermeasures that reduce or eliminate the consequences of errors and mitigate the probability of further errors or undesired states.

Estimated off-block time. 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.

Exemption. A relief from compliance with the requirement(s) of airworthiness or environmental standards, or operating rules, based on the determination by a civil aviation authority that granting such relief will not adversely affect safety.

Exemption (Dangerous Goods). An authorisation, other than an approval, granted by an appropriate national authority providing relief from the provisions of the Technical Instructions.

Exhaust nozzle. In the exhaust emissions sampling of gas turbine engines where the jet effluxes are not mixed (as in some turbofan engines, for example) the nozzle considered is that for the gas generator (core) flow only. Where, however, the jet efflux is mixed the nozzle considered is the total exit nozzle.

Expected approach time. The time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing.

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

Exhaust nozzle. In the exhaust emissions sampling of gas turbine engines where the jet effluxes are not mixed (as in some turbofan engines, for example) the nozzle considered is that for the gas generator (core) flow only. Where, however, the jet efflux is mixed the nozzle considered is the total exit nozzle.

Extended diversion time operations (EDTO). 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.

Extended flight over water. A flight operated over water at a distance of more than 93 km (50 NM), or 30 minutes at normal cruising speed, whichever is the lesser, away from land suitable for making an emergency landing.

External equipment (helicopter). 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.

Factor of safety. A design factor used to provide for the possibility of loads greater than those assumed, and for uncertainties in design and fabrication.

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 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.

Filed flight plan. The flight plan as filed with an ATS unit by the pilot or a designated representative, without any subsequent changes.

Final approach. 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). 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). That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

Fireproof. The capability to withstand the application of heat by a flame for a period of 15 minutes.

Fireproof material. 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. The capability to withstand the application of heat by a flame for a period of 5 minutes.

Fixed light. A light having constant luminous intensity when observed from a fixed point.

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

Note: Flight crew member also means flight crew member of a remotely piloted aircraft system (RPAS).

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 is a crew member.

Flight duty period (RPA remote crew member). A period which commences when a remote crew member is required to report for duty that includes a flight or a series of flights and which finishes when the remote crew member's duty ends.

Flight information centre. A unit established to provide flight information service and alerting service.

Flight information region. An airspace of defined dimensions within which flight information service and alerting service are provided.

Flight information service. A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

Flight level. A surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013.2 hectopascals (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.

Note: Flight manuals may be Aircraft, Aeroplane or Rotorcraft, as applicable.

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 commander 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.

Note 1: Crash protected flight recorders comprise four systems:

(a) a flight data recorder (FDR),

(b) a cockpit voice recorder (CVR),

(c) an airborne image recorder (AIR) and

(d) a data link recorder (DLR).

Note 2:Light weight flight recorders comprise four systems:

(a) an aircraft data recording system (ADRS),

(b) a cockpit audio recording system (CARS),

(c) an airborne image recording system (AIRS) and

(d) a data link recording system (DLRS).

Note 3: In the case of remotely piloted aircraft, it also includes any type of recorder installed in a remote pilot station for the purpose of complementing accident/incident investigation.

Note 4: Automatic deployable flight recorder (ADFR). A combination flight recorder installed on the aircraft which is capable of automatically deploying from the aircraft.

Flight safety documents system. A set of interrelated 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 operators 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) A flight simulator, which provides an accurate representation of the flight deck of a particular aircraft type, or an accurate representation of the RPAS, 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;

Note: Under CAR LIC, a Full Flight Simulator (FFS) means a full size replica of a specific type or make, model and series aircraft flight deck, including the assemblage of all equipment and computer programmes necessary to represent the aircraft in ground and flight operations, a visual system providing an out-of-the-flight deck view, and a force cueing motion system.

(b) A flight procedures trainer, which provides a realistic flight deck environment, or realistic RPAS 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;

Note: Under CAR LIC, a Flight Training Device' (FTD) means a full size replica of a specific aircraft type's instruments, equipment, panels and controls in an open flight deck area or an enclosed aircraft flight deck, including the assemblage of equipment and computer software programmes necessary to represent the aircraft in ground and flight conditions to the extent of the systems installed in the device. It does not require a force cueing motion or visual system, except in the case of helicopter FTD levels 2 and 3, where visual systems are required.

(c) 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.

(d) Under CAR LIC, a Flight and Navigation Procedures Trainer (FNPT) means a training device which represents the flight deck or cockpit environment, including the assemblage of equipment and computer programmes necessary to represent an aircraft type or class in flight operations to the extent that the systems appear to function as in an aircraft.

Flight simulator. See Flight simulation training device.

Flight test – Category 1 means

(a) Initial flight(s) of a new type of aircraft or of an aircraft of which flight and/or handling characteristics may have been significantly modified;

(b) Flights during which it can be envisaged to potentially encounter flight characteristics significantly different from those already known;

(c) Flights to investigate novel or unusual aircraft design features or techniques;

(d) Flights to determine or expand the flight envelope;

(e) Flights to determine the regulatory performances, flight characteristics and handling qualities when flight envelope limits are approached; and

(f) Flight test training for Category 1 flight tests.

Flight test – Category 2

(a) Flights not classified as Category 1 on an aircraft whose type is not yet certified;

(b) Flights which are not classified Category 1 on an aircraft of an already certified type, after embodiment of a not yet approved modification and which:

(1) require an assessment of the general behaviour of the aircraft; or

(2) require an assessment of basic crew procedures, when a new or modified system is operating or is needed; or

(3) are required to intentionally fly outside of the limitations of the currently approved operational envelope, but within the investigated flight envelope.

(c) Flight test training for Category 2 flight tests.

Flight time

(a) for **aeroplanes**, touring motor gliders and powered-lift, it means the total time from the moment an aircraft 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.

(b) for **helicopters**, it 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;

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

(d) for **sailplanes** (gliders), it means the total time from the moment the sailplane commences the ground run in the process of taking off until the moment the sailplane finally comes to a rest at the end of flight;

(e) for **balloons**, it means the total time from the moment the basket leaves the ground for the purpose of taking off until the moment it finally comes to a rest at the end of the flight.

(f) [for **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.

Note: As of 26 November 2026, command and control links will be renamed C2 Link.]

Flight time under Instrument Flight Rules means all flight time during which the aircraft is being operated under the Instrument Flight Rules.

Flight visibility. The visibility forward from the cockpit of an aircraft in flight.

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

Foreign Object Debris (FOD). An inanimate object within the movement area which has no operational or aeronautical function and which has the potential to be a hazard to aircraft operations.

Frangible object. An object of low mass designed to break, distort or yield on impact so as to present the minimum hazard to aircraft.

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

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

Geoid. The equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents.

Note: The geoid is irregular in shape because of local gravitational disturbances (wind tides, salinity, current, etc.) and the direction of gravity is perpendicular to the geoid at every point.

Geoid undulation. The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid.

Note: In respect to the World Geodetic System — 1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation.

Glider. 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. 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. 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 arrival at, and departure from, an airport, other than air traffic services.

Ground visibility. The visibility at an aerodrome as reported by an accredited observer or by automatic systems.

Group of balloons means a categorisation of balloons, taking into account the size or capacity of the envelope.

Gyroplane. 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. The act of passing piloting control from one remote pilot station to another.

Hazard. A condition or an object with the potential to cause or contribute to an aircraft incident or accident.

Hazard beacon. An aeronautical beacon used to designate a danger to air navigation.

Heading. 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.

Heavier-than-air aircraft. Any aircraft deriving its lift in flight chiefly from aerodynamic forces.

Height. The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

Helicopter. 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".

Helicopter air taxiway. A defined path on the surface established for the air taxiing of helicopters.

Helicopter clearway. A defined area on the ground or water, selected and/or prepared as a suitable area over which a helicopter operated in performance class 1 may accelerate and achieve a specific height.

Helicopter ground taxiway. A defined path on a heliport intended for the ground movement of helicopters and that may be combined with an air taxi-route to permit both ground and air taxiing.

Helicopter stand. A defined area intended to accommodate a helicopter for purposes of: loading or unloading passengers, mail or cargo; fuelling, parking or maintenance; and, where air taxiing operations are contemplated, the TLOF.

Helicopter taxi-route. A defined path established for the movement of helicopters from one part of a heliport to another.

(a) An air taxi-route. A marked taxi-route intended for air taxiing.

(b) A ground taxi-route. A taxi-route centred on a taxiway.

Helideck. A heliport located on a fixed or floating offshore facility such as an exploration and/or production unit used for the exploitation of oil or gas or a vessel.

Heliport. 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: 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 elevation. The elevation of the highest point of the FATO.

Heliport operating minima. 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, 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) appropriate to the type and/or category of the operation.

Heliport reference point (HRP). The designated location of a heliport or a landing location.

Holding bay. A defined area where aircraft can be held, or bypassed, to facilitate efficient surface movement of aircraft.

Holdover time. The estimated time the anti-icing fluid (treatment) will prevent the formation of ice and frost and the accumulation of snow on the protected (treated) surfaces of an aeroplane.

Hostile environment. 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.

Hot spot. A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

Human factors principles means principles which apply to aeronautical design, certification, training operations and maintenance 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. 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.

Identification beacon. An aeronautical beacon emitting a coded signal by means of which a particular point of reference can be identified.

IFR. The symbol used to designate the instrument flight rules.

IFR flight. A flight conducted in accordance with the instrument flight rules.

IMC. The symbol used to designate instrument meteorological conditions.

INCERFA. The code word used to designate an uncertainty phase.

Incident. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

Incompatible. Describing dangerous goods which, if mixed, would be liable to cause a dangerous evolution of heat or gas or produce a corrosive substance.

Independent parallel approaches. Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are not prescribed.

Independent parallel departures. Simultaneous departures from parallel or near-parallel instrument runways.

Industry codes of practice. 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 Organisations Standards and Recommended Practices, other aviation safety requirements and the best practices deemed appropriate.

In-flight security officer. A person who is authorised by the government of the State of the Operator and the government of the State of Registration to be deployed on an aircraft with the purpose of protecting that aircraft and its occupants against acts of unlawful interference. This excludes persons employed to provide exclusive personal protection for one or more specific people travelling on the aircraft, such as personal bodyguards.

Instrument approach operations. 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:

(1) a ground-based radio navigation aid; or

(2) computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of these.

Instrument approach procedure (IAP). 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:

(a) **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) 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 CDFA refer to PANS-OPS (Doc. 8168) Vol. I, Section 1.7

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

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

Note 1: Instrument approach operations shall be classified based on the designed lowest operating minima below which an approach operation shall only be continued with the required visual reference as follows:

(a) Type A: a minimum descent height or decision height at or above 75 m (250 ft); and

(b) Type B: a decision height below 75 m (250 ft). Type B instrument approach operations are categorized as:

(1) Category I (CAT I): a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800 m or a runway visual range not less than 550 m;

(2) Category II (CAT II): a decision height lower than 60 m (200 ft), but not lower than 30 m (100 ft) and a runway visual range not less than 300 m; and

(3) Category III (CAT III): a decision height lower than 30 m (100 ft) or no decision height and a runway visual range less than 300 m or no runway visual range limitation.

Note 2: Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach operation would be conducted in accordance with the requirements of the most demanding category (e.g. an operation with a DH in the range of CAT II but with an RVR in the range of CAT III would be considered a CAT III operation or an operation with a DH in the range of CAT II but with an RVR in the range of CAT I would be considered a CAT II operation).

Note 3: 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 operation the required visual reference is the runway environment.

Instrument flight procedure design service. A service established for the design, documentation, validation, maintenance and periodic review of instrument flight procedures necessary for the safety, regularity and efficiency of air navigation.

Instrument flight time. 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. Time during which a pilot is practising, on the ground, simulated instrument flight in a flight simulation training device approved by the Licensing Authority.

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.

Instrument runway. One of the following types of runways intended for the operation of aircraft using instrument approach procedures:

(a) Non-precision approach runway. A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type A and a visibility not less than 1 000 m.

(b) Precision approach runway, category I. A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) not lower than 60 m (200 ft) and either a visibility not less than 800 m or a runway visual range not less than 550 m.

(c) Precision approach runway, category II. A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) lower than 60 m (200 ft) but not lower than 30 m (100 ft) and a runway visual range not less than 300 m.

(d) Precision approach runway, category III. A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) lower than 30 m (100 ft), or no decision height and a runway visual range less than 300 m or no runway visual range limitations.

Instrument time. Instrument flight time or instrument ground time.

Integrated survival suit. A survival suit which meets the combined requirements of the survival suit and life jacket.

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

Integrity classification (aeronautical data). Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is classified as:

(a) routine data: there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

(b) essential data: there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and

(c) critical data: there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

Intermediate holding position. A designated position intended for traffic control at which taxiing aircraft and vehicles shall stop and hold until further cleared to proceed, when so instructed by the aerodrome control tower.

International NOTAM office. An office designated by a State for the exchange of NOTAM internationally.

International operating agency. An agency of the kind contemplated in Article 77 of the Convention.

Investigation. A process conducted for the purpose of accident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and/or contributing factors and, when appropriate, the making of safety recommendations.

Investigator-in-charge. A person charged, on the basis of his or her qualifications, with the responsibility for the organisation, conduct and control of an investigation.

Isolated aerodrome. A destination aerodrome for which there is no destination alternate aerodrome suitable for a given aeroplane type.

Known consignor. A consignor who originates cargo or mail for its own account and whose procedures meet common security rules and standards sufficient to allow the carriage of cargo or mail on any aircraft.

Landing area. That part of a movement area intended for the landing or take-off of aircraft.

Landing decision point (LDP). The point used in determining landing performance from which, an engine failure occurring at this point, the landing may be safely continued or a balked landing initiated.

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

Landing direction indicator. A device to indicate visually the direction currently designated for landing and for take-off.

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

Landing location. A marked or unmarked area that has the same physical characteristics as a visual heliport final approach and take-off area (FATO).

Landing surface. 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, classified as an aeroplane with a take-off mass of more than 5700 kg (12,500 pounds).

Laser-beam critical flight zone (LCFZ). Airspace in the proximity of an aerodrome but beyond the LFFZ where the irradiance is restricted to a level unlikely to cause glare effects.

Laser-beam free flight zone (LFFZ). Airspace in the immediate proximity of the aerodrome where the irradiance is restricted to a level unlikely to cause any visual disruption.

Laser-beam sensitive flight zone (LSFZ). Airspace outside, and not necessarily contiguous with, the LFFZ and LCFZ where the irradiance is restricted to a level unlikely to cause flash-blindness or after-image effects.

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

Licensing Authority. The Authority designated by a Contracting State as responsible for the licensing of personnel.

Lighting system reliability. The probability that the complete installation operates within the specified tolerances and that the system is operationally usable.

Likely (Medical) means with a probability of occurring that is unacceptable to the medical assessor.

Limit loads. The maximum loads assumed to occur in the anticipated operating conditions.

Load factor. The ratio of a specified load to the weight of the aircraft, the former being expressed in terms of aerodynamic forces, inertia forces, or ground reactions.

Low-visibility operations (LVO). 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.

Maintenance means the performance of tasks on an aircraft, engine, propeller or associated part required

[up to 25 November, 2026, to ensure the continued 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.

as of 26 November, 2026, means the performance of tasks on an aircraft, remote pilot station, engine, propeller or associated part required to ensure the continued 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.]

Maintenance organisations 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. 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 in accordance with appropriate airworthiness requirements.

[**Mandatory Continuing Airworthiness Information (MCAI)**. The mandatory requirements for the modification, replacement of parts, or inspection of aircraft and amendment of operating limitations and procedures for the safe operation of the aircraft. Among such information is that issued by Contracting States in the form of airworthiness directives.]

Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Marker. An object displayed above ground level in order to indicate an obstacle or delineate a boundary.

Marking. A symbol or group of symbols displayed on the surface of the movement area in order to convey aeronautical information.

Master Minimum Equipment List (MMEL) means a master list (including a preamble) appropriate to an aircraft type which determines those instruments, items of equipment or functions that, while maintaining the level of safety intended in the applicable airworthiness certification specifications, may temporarily be inoperative either due to the inherent redundancy of the design, and/or due to specified operational and maintenance procedures, conditions and limitations, and in accordance with the applicable procedures for continued airworthiness.

Maximum certificated take-off mass (MCTOM) means the maximum take-off weight authorised by the Certificate of Airworthiness. This mass may be found in the Aircraft Flight Manual, including any supplement that affects the aircraft MCTOM.

Note: Maximum take-off mass may also mean the highest of all take-off masses for the type design configuration. Mass and weight mean the same.

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

Maximum mass means the maximum certificated take-off mass (see above).

Maximum passenger seating capacity. The maximum certificated number of passengers for the aeroplane type design.

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

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

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

Meteorological office. An office designated to provide meteorological service for international air navigation.

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

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

Minimum Equipment List (MEL) means a list (including a preamble) which provides for the operation of aircraft, under specified conditions, with particular instruments, items of equipment or functions inoperative at the commencement of flight. This list is prepared by the operator for his own particular aircraft taking account of their aircraft definition and the relevant operational and maintenance conditions in accordance with a procedure approved by the Authority.

Model aircraft. An aircraft, the total weight of which does not exceed 25 kg (55 lbs) that is mechanically driven or launched into flight for recreational purposes and that is not designed to carry persons or other living creatures.

Modification. 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.

Monitoring. 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. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).

Multi-crew cooperation (MCC) means the functioning of the flight crew as a team of cooperating members led by the pilot-in-command.

Multi-pilot aircraft:

(a) for aeroplanes, it means aeroplanes certificated for operation with a minimum crew of at least two pilots;

(b) for helicopters, airships and powered-lift aircraft, it means the type of aircraft which is required to be operated with a co-pilot as specified in the flight manual or by the air operator certificate or equivalent document.

Multi-pilot operation

(a) for aeroplanes, it means an operation requiring at least 2 pilots using multi-crew cooperation in either multi-pilot or single-pilot aeroplanes;

(b) for helicopters, it means an operation requiring at least 2 pilots using multi-crew cooperation on multi-pilot helicopters.

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:

(a) 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.

(b) 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.

Near-parallel runways. Non-intersecting runways whose extended centre lines have an angle of convergence/divergence of 15 degrees or less.

Night means the hours between the end of evening civil twilight and the beginning of morning civil twilight.

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

[Nominal C2 Link state. As of 26 November, 2026, 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.]

Non-congested hostile environment. A hostile environment outside a congested area.

Non-duty period. A continuous and defined period of time, subsequent to and/or prior to duty periods, during which the air traffic controller is free of all duties.

Non-hostile environment. 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.

Non-instrument runway. A runway intended for the operation of aircraft using visual approach procedures or an instrument approach procedure to a point beyond which the approach may continue in visual meteorological conditions.

Non-volatile particulate matter (nvPM). Emitted particles that exist at a gas turbine engine exhaust nozzle exit plane that do not volatilize when heated to a temperature of 350°C.

Normal flight zone (NFZ). Airspace not defined as LFFZ, LCFZ or LSFZ but which must be protected from laser radiation capable of causing biological damage to the eye.

NOTAM. 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.

Observable behaviour (OB). A single role-related behaviour that can be observed and may or may not be measurable.

Obstacle. All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

(a) are located on an area intended for the surface movement of aircraft; or

(b) extend above a defined surface intended to protect aircraft in flight; or

(c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

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".

Obstacle free zone (OFZ). The airspace above the inner approach surface, inner transitional surfaces, and balked landing surface and that portion of the strip bounded by these surfaces, which is not penetrated by any fixed obstacle other than a low-mass and frangible mounted one required for air navigation purposes.

Offshore operations. 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. 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. A credit authorised for operations with an advanced aircraft enabling a lower aerodrome operating minimum than would normally be authorised for a basic aircraft, based upon the performance of advanced aircraft systems utilizing the available external infrastructure.]

Operational flight plan means the operators 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.

Operational personnel means personnel involved in aviation activities who are in a position to report safety information.

Note: Such personnel include, but are not limited to: flight crews; air traffic controllers; aeronautical station operators; maintenance technicians; personnel of aircraft design and manufacturing organisations; cabin crews; flight dispatchers, apron personnel and ground handling personnel.

Operations in performance Class 1. Operations with performance such that, in the event of a critical 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. Operations with performance such that, in the event of critical 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. Operations with performance such that, in the event of an engine failure at any time during the flight, a forced landing will be required by the helicopter.

Operations Manual means the 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 either the air operator certificate (AOC) or RPAS operator certificate (ROC) and subject to the conditions in the Operations Manual.

Operator (Commercial Air Transport) means the person, organisation or enterprise engaged in or offering to engage in an aircraft operation.

Operator (General Aviation/Private/RPAS) means the person or entity, not being an air carrier, who has continual effective disposal of the use or operation of the aircraft. The natural or legal person in whose name the aircraft is registered shall be presumed to be the operator, unless that person can prove that another person is the operator, or the person who at the relevant time has the management of the aircraft or exercises operational control of the aircraft. (Refer above to definition of "operational control")

Note 1:Management of an aircraft will typically involve some or all of the following activities:

- *maintenance management;*
- *employment of flight crew;*
- *preparation and maintenance of operations manual;*
- *responsibility for entering into contracts for particular operations;*
- *flight planning, fuelling and repairing the aircraft;*
- *keeping the required aircraft etc. log books;*
- *briefing the flight crew;*
- *control of the operation in the sense of deciding when the aircraft will take off, where it will go, and what it will carry;*
- *the ability to abort the operation.*

Note 2:In the context of remotely piloted aircraft, an aircraft operation includes the remotely piloted aircraft system.

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

Optimum conditions. The combinations of altitude and airspeed within the approved operating envelope defined in the aeroplane flight manual that provides the highest specific air range value at each reference aeroplane mass.

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.

Organisation responsible for the type design.

[Up to 25 November, 2026, means the organisation that holds the type certificate, or equivalent document, for an aircraft, engine or propeller type, issued by a Contracting State.

As of 26 November, 2026, means the organisation that holds the type certificate, or equivalent document, for an aircraft, remote pilot station, engine or propeller type, issued by a Contracting State.]

Ornithopter. 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. 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. These aircraft do not meet the Standards of Annex 8.

Orthometric height. Height of a point related to the geoid, generally presented as an MSL elevation.

Other training devices (OTD) means training aids other than flight simulators, flight training devices or flight and navigation procedures trainers which provide means for training where a complete flight deck environment is not necessary.

Outer main gear wheel span means the distance between the outside edges of the main gear wheels.

Overpack. An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage.

Note: A unit load device is not included in this definition.

Oxides of nitrogen. 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.

Package. The complete product of the packing operation consisting of the packaging and its contents prepared for transport.

Packaging. Receptacles and any other components or materials necessary for the receptacle to perform its containment function.

Passenger aircraft. An aircraft that carries any person other than a crew member, an operators employee in an official capacity, an authorised representative of an appropriate national authority or a person accompanying a consignment or other cargo.

Pavement classification number (PCN). A number expressing the bearing strength of a pavement. (Until 27 November 2024).

Pavement classification rating (PCR). A number expressing the bearing strength of a pavement. (As of 27 November 2024).

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

Note1: The PBAOM is derived by considering the combined capabilities of the aircraft and available ground facilities.

Note 2:PBAOM may be based on operational credits.

Note 3:PBAOM are not limited to PBN operations.]

Performance-based communication (PBC). Communication based on performance specifications applied to the provision of air traffic services.

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

Performance Class 1 helicopter. A helicopter with performance such that, in case of engine failure, it is able to land on the rejected take-off area or safely continue the flight to an appropriate landing area.

Performance Class 2 helicopter. A helicopter with performance such that, in case of 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. A helicopter with performance such that, in case of engine failure at any point in the flight profile, a forced landing must be performed.

Performance criteria. Statements used to assess whether the required levels of performance have been achieved for a competency. A performance criterion consists of an observable behaviour, condition(s) and a competency standard.

Performance model. An analytical tool or method validated from corrected flight test data that can be used to determine the SAR values for calculating the CO_2 emissions evaluation metric value at the reference conditions.

Pilot flying (PF). The pilot whose primary task is to control and manage the flight path. The secondary tasks of the PF are to perform non-flight path related actions (radio communications, aircraft systems, other operational activities, etc.) and to monitor other crewmembers.

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

Note: For the purpose of non-commercial air transport operations where no operator exists, the term operator in this definition is taken to be the aircraft owner.

Pilot-in-command under supervision means co-pilot performing, under the supervision of the commander, the duties and functions of a pilot-in-command, in accordance with a method of supervision acceptable to the Authority responsible for licensing.

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 crewmembers.

Pilot not flying (PNF) 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 (to). To manipulate the flight controls of an aircraft during flight time.

Point-in-space approach (PinS). The Point-in-space approach is based on GNSS and is an approach procedure designed for helicopter only. It is aligned with a reference point located to permit subsequent flight manoeuvring or approach and landing using visual manoeuvring in adequate visual conditions to see and avoid obstacles.

Point-in-space (PinS) visual segment. This is the segment of a helicopter PinS approach procedure from the MAPt to the landing location for a PinS "proceed visually" procedure. This visual segment connects the Point-in-space (PinS) to the landing location.

Point of no return. 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. 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 nonrotating aerofoil(s) for lift during horizontal flight.

Powered sailplane means an aircraft equipped with one or more engines having, with engines inoperative, the characteristics of a sailplane.

Powerplant. 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.

Preliminary Report. The communication used for the prompt dissemination of data obtained during the early stages of the investigation.

Pressure altitude means an atmospheric pressure expressed in terms of altitude, which corresponds to that pressure in the standard atmosphere.

Pressurised aircraft means an aircraft the pressure in the cabin of which is controlled by mechanical means.

Primary runway(s). Runway(s) used in preference to others whenever conditions permit.

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 are exercised;

Note: Principal place of business can also be interpreted as meaning the State in which the administrative headquarters and the operators financial, operational and maintenance management are based.

Printed communications. 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.

Private pilot means a pilot who holds a licence which prohibits the piloting of aircraft in operations for which remuneration is given, with the exclusion of instruction or examination activities, as established in CAR LIC.

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.

Proficiency check means the demonstration of skill to revalidate or renew ratings, and including such oral examination as may be required.

Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

Protection area. A defined area surrounding a stand intended to reduce the risk of damage from helicopters accidentally diverging from the stand.

Protected flight zones. Airspace specifically designated to mitigate the hazardous effects of laser radiation.

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). As of 26 November, 2026 means a statement of the QoS achieved or delivered to the RPAS operator by the C2CSP.

Quality of service required (QoSR). As of 26 November, 2026 means 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.

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

Radio navigation service. 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. A form of radio communication primarily intended for the exchange of information in the form of speech.

Rated air traffic controller. An air traffic controller holding a licence and valid ratings appropriate to the privileges to be exercised.

Rated thrust. For engine emissions purposes, the maximum take-off thrust approved by the certificating authority for use under normal operating conditions at ISA sea level static conditions, and without the use of water injection. Thrust is expressed in kilonewtons

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

Recertification. 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 geometric factor. An adjustment factor based on a measurement of aeroplane fuselage size derived from a two-dimensional projection of the fuselage.

Reference pressure ratio. 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.

Regulated agent. An agent, freight forwarder or any other entity who conducts business with an operator and provides security controls that are accepted or required by the appropriate authority in respect of cargo or mail.

Rejected take-off area. A defined area on a heliport suitable for helicopters operating in performance class 1 to complete a rejected take-off.

Remote co-pilot. 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 RPS for the sole purpose of receiving flight instruction.

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

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

Remote pilot station (RPS). The component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft.

Remotely piloted aircraft (RPA). An unmanned aircraft, which is piloted from a remote pilot station.

Remotely piloted aircraft observer. A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

Remotely piloted aircraft system (RPAS). A remotely piloted aircraft, its associated remote pilot station(s), the required command and control links and any other components as specified in the type design.

[Note: As of 26 November 2026, command and control links will be renamed C2 Link.]

RPAS operator certificate (ROC). A certificate authorising an operator to carry out specified RPAS operations.

Rendering (a Certificate of Airworthiness) valid. 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. 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.

Renewal (of, e.g. a rating or certificate) means the administrative action taken after a rating or certificate has lapsed for the purpose of renewing the privileges of the rating or certificate for a further specified period consequent upon the fulfilment of specified requirements.

Repair means the restoration of an aircraft, engine, propeller or associated part to an airworthy condition in accordance with the appropriate airworthiness requirements after it has been damaged or subjected to wear.

Repetitive flight plan (RPL). 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. 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. 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. A unit responsible for promoting efficient organisation of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

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

Revalidation (of, e.g. a rating or certificate) means the administrative action taken within the period of validity of a rating or certificate which allows the holder to continue to exercise the privileges of a rating or certificate for a further specified period consequent upon the fulfilment of specified requirements.

Road. An established surface route on the movement area meant for the exclusive use of vehicles.

Road-holding position. A designated position at which vehicles may be required to hold.

Rotorcraft. A power-driven heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors.

Route sector means a flight comprising take-off, departure, cruise of not less than 15 minutes, arrival, approach and landing phases.

RPA observer. A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

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

Runway condition assessment matrix (RCAM). A matrix allowing the assessment of the runway condition code, using associated procedures, from a set of observed runway surface condition(s) and pilot report of braking action.

Runway condition code (RWYCC). A number describing the runway surface condition to be used in the runway condition report.

Note: The purpose of the runway condition code is to permit an operational aeroplane performance calculation by the flight crew. Procedures for the determination of the runway condition code are described in the PANS-Aerodromes (Doc 9981).

Runway condition report (RCR). A comprehensive standardized report relating to runway surface conditions and its effect on the aeroplane landing and take-off performance.

Runway end safety area (RESA). An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway.

Runway guard lights. A light system intended to caution pilots or vehicle drivers that they are about to enter an active runway.

Runway-holding position. 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 strip. A defined area including the runway and stopway, if provided, intended:

(a) to reduce the risk of damage to aircraft running off a runway; and

(b) to protect aircraft flying over it during take-off or landing operations.

Runway surface condition(s). A description of the condition(s) of the runway surface used in the runway condition report which establishes the basis for the determination of the runway condition code for aeroplane performance purposes.

Note 1: The runway surface conditions used in the runway condition report establish the performance requirements between the aerodrome operator, aeroplane manufacturer and aeroplane operator.

Note 2: Aircraft de-icing chemicals and other contaminants are also reported but are not included in the list of runway surface condition descriptors because their effect on runway surface friction characteristics and the runway condition code cannot be evaluated in a standardized manner.

Note 3: Procedures on determining runway surface conditions are available in the PANS-Aerodromes (Doc 9981).

(a) **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.

(b) **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.

(c) **Slippery wet runway**. A wet runway where the surface friction characteristics of a significant portion of the runway has been determined to be degraded.

(d) **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.

(e) **Runway surface condition descriptors**. One of the following elements on the surface of the runway:

Note: The descriptions for e) i) to e) viii), below, are used solely in the context of the runway condition report and are not intended to supersede or replace any existing WMO definitions.

(i) **Compacted snow**. Snow that has been compacted into a solid mass such that aeroplane tires, at operating pressures and loadings, will run on the surface without significant further compaction or rutting of the surface.

(ii) **Dry snow**. Snow from which a snowball cannot readily be made.

(iii) **Frost**. Frost consists of ice crystals formed from airborne moisture on a surface whose temperature is below freezing. Frost differs from ice in that the frost crystals grow independently and therefore have a more granular texture.

Note 1: Below freezing refers to air temperature equal to or less than the freezing point of water (0 degree Celcius).

Note 2: Under certain conditions frost can cause the surface to become very slippery and it is then reported appropriately as reduced braking action.

(iv) **Ice**. Water that has frozen or compacted snow that has transitioned into ice, in cold and dry conditions.

(v) **Slush**. Snow that is so water saturated that water will drain from it when a handful is picked up or will splatter if stepped on forcefully.

(vi) **Standing water**. Water of depth greater than 3 mm.

Note: Running water of depth greater than 3 mm is reported as standing water by convention.

(vii) **Wet ice**. Ice with water on top of it or ice that is melting.

Note: Freezing precipitation can lead to runway conditions associated with wet ice from an aeroplane performance point of view. Wet ice can cause the surface to become very slippery. It is then reported appropriately as reduced braking action in line with procedures in the PANS-Aerodromes (Doc 9981).

(viii) **Wet snow**. Snow that contains enough water content to be able to make a well-compacted, solid snowball, but water will not squeeze out.

Runway turn pad. A defined area on a land aerodrome adjacent to a runway for the purpose of completing a 180-degree turn on a runway.

Runway-type FATO. A FATO having characteristics similar in shape to a runway.

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 injures to persons in the aircraft or on the surface.

Safety. The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

Safety area. A defined area on a heliport surrounding the FATO which is free of obstacles, other than those required for air navigation purposes, and intended to reduce the risk of damage to helicopters accidentally diverging from the FATO.

Safety data. A defined set of facts or set of safety values collected from various aviation related sources, which is used to maintain or improve safety.

Note: Such safety data is collected from proactive or reactive safety-related activities, including but not limited to:

(a) accident or incident investigations;

(b) safety reporting;

(c) continuing airworthiness reporting;

(d) operational performance monitoring;

(e) inspections, audits, surveys; or

(f) safety studies and reviews.

Safety information. Safety data processed, organised or analysed in a given context so as to make it useful for safety management purposes.

Safety management system means a systematic approach to managing safety, including the necessary organisational structures, accountability, responsibilities, policies and procedures.

Safety oversight. A function performed by a State to ensure that individuals and organisations performing an aviation activity comply with safety-related national laws and regulations.

Safety performance. A State or a service provider's safety achievement as defined by its safety performance targets and safety performance indicators.

Safety performance indicator. A data-based parameter used for monitoring and assessing safety performance.

Safety performance target. The State or service provider's planned or intended target for a safety performance indicator over a given period that aligns with the safety objectives.

Safety recommendation. A proposal of an accident investigation authority based on information derived from an investigation, made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident. In addition to safety recommendations arising from accident and incident investigations, safety recommendations may result from diverse sources, including safety studies.

Safety risk. The predicted probability and severity of the consequences or outcomes of a hazard.

Safety-sensitive personnel. 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 which 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 (see also glider).

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

Screening. The application of technical or other means which are intended to identify and/or detect weapons, explosives or other dangerous devices, articles or substances which may be used to commit an act of unlawful interference.

[Security. (refer to Aviation Security).]

Security audit. An in-depth compliance examination of all aspects of the implementation of the national civil aviation security programme.

Security control. A means by which the introduction of weapons, explosives or other dangerous devices, articles or substances which may be used to commit an act of unlawful interference can be prevented.

[Security culture. A set of security-related norms, values, attitudes and assumptions that are inherent in the daily operation of an organisation and are reflected by the actions and behaviours of all entities and personnel within the organisation.]

Security inspection. An examination of the implementation of relevant national civil aviation security programme requirements by an airline, airport, or other entity involved in security.

Security restricted area. Those areas of the airside of an airport which are identified as priority risk areas where in addition to access control, other security controls are applied.

[Note: Such areas will normally include, inter alia, all commercial aviation passenger departure areas between the screening checkpoint and the aircraft, the ramp, baggage make-up areas, including those where aircraft are being brought into service and screened baggage and cargo are present, cargo sheds, mail centres, airside catering and aircraft cleaning premises.]

Security survey. An evaluation of security needs including the identification of vulnerabilities which could be exploited to carry out an act of unlawful interference, and the recommendation of corrective actions.

Security test. A covert or overt trial of an aviation security measure which simulates an attempt to commit an unlawful act.

Self-sustaining powered sailplane. A powered aeroplane with available engine power which allows it to maintain level flight but not to take off under its own power.

Series of flights. 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.

Segregated airspace. Airspace of specified dimensions allocated for exclusive use to a specific user(s).

Segregated parallel operations. Simultaneous operations on parallel or near-parallel instrument runways in which one runway is used exclusively for approaches and the other runway is used exclusively for departures.

Serious incident. An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down.

Note: The difference between an accident and a serious incident lies only in the result.

Serious injury. An injury which is sustained by a person in an accident and which:

(a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or

(b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or

(c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or

(d) involves injury to any internal organ; or

(e) involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or

(f) involves verified exposure to infectious substances or injurious radiation.

Shipboard heliport. A heliport located on a ship that may be purpose or non-purpose-built. A purpose-built shipboard heliport is one designed specifically for helicopter operations. A non-purpose-built shipboard heliport is one that utilizes an area of the ship that is capable of supporting a helicopter but not designed specifically for that task.

Shoulder. An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.

SIGMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations.

Sign.

(a) Fixed message sign. A sign presenting only one message.

(b) Variable message sign. A sign capable of presenting several predetermined messages or no message, as applicable.

Signal area. An area on an aerodrome used for the display of ground signals.

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

Significant (Medical) means to a degree or of a nature that is likely to jeopardize flight safety.

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

Note: There are three categories of significant points: ground-based navigation aid, intersection and waypoint. In the context of this definition, intersection is a significant point expressed as radials, bearings and/or distances from ground- based navigation aids.

Single-pilot aircraft means an aircraft certificated for operation by one pilot.

Skill test means the demonstration of skill for a licence or rating issue, including such oral examination as may be required.

Small aeroplane means an aircraft of a maximum certified take-off mass of 5700 kg or less.

Smoke. The carbonaceous materials in exhaust emissions which obscure the transmission of light.

Smoke Number. The dimensionless term quantifying smoke emissions.

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

Solo flight time — remotely piloted aircraft systems. Flight time during which a student remote pilot is controlling the RPAS, acting solo.

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

Specific air range. The distance an aeroplane travels in the cruise flight phase per unit of fuel consumed.

[Specific approval. A specific approval is an approval which is documented in the Operations Specifications for commercial air transport operations or in the list of specific approvals for non-commercial operations.]

Standard atmosphere. An atmosphere defined as follows:

(a) the air is a perfect dry gas;

(b) the physical constants are:

— Sea level mean molar mass:
$M_0 = 28.964\,420 \times 10^{-3}$ kg mol^{-1}

— Sea level atmospheric pressure:
$P_0 = 1\,013.250$ hPa

— Sea level temperature:
$t_0 =$ 15°C
$T_0 =$ 288.15 K

— Sea level atmospheric density:
$\rho_0 =$ 1.225 0 kg m^{-3}

— Temperature of the ice point:
$T_i =$ 273.15 K

— Universal gas constant:
$R^* =$ 8.314 32 JK^{-1}mol^{-1}

(c) the temperature gradients are:

Geopotential altitude (km)		*Temperature gradient (Kelvin per standard geopotential kilometre)*
From	*To*	
–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 9.80665 $m^2\ s^{-2}$.

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

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

(d) Approximate altitudes in the Standard Atmosphere corresponding to the values of absolute pressure are as follows;

Absolute pressure	Metres	Feet
700 hPa	3 000	10 000
620 hPa	4 000	13 000
376 hPa	7 600	25 000

State of the Aerodrome. The State in whose territory the aerodrome is located.

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

State of Design means the State having jurisdiction over organisation responsible for the type design**.**

[**State of Design of Modification**. The State having jurisdiction over the individual or organisation 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 organisation responsible for the final assembly of the aircraft.

State of Occurrence. The State in the territory of which an accident or incident occurs.

State of Origin (Dangerous Goods). The State in the territory of which the cargo consignment was first loaded on an aircraft.

State of the Operator means the State in which the operator has his principal place of business or if he has no such place of business, his permanent residence.

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

State of the principal location of a general aviation operator. 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.

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

Static load-bearing surface. A surface capable of supporting the mass of a helicopter situated upon it.

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

Sterile Flight Crew Compartment (also referred to as Sterile Cockpit or Sterile Flight Deck) means any period of time when the flight crew members are not disturbed or distracted, except for matters critical to the safe operation of the aircraft or the safety of the occupants. The period of time involves the operation of an aircraft during taxi, take-off and landing, and all other flight operations conducted below 10 000

feet, except cruise flight, whereby flight crew members conduct only those duties required for the safe operation of the aircraft.

Stopway. A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.

Student pilot-in-command (SPIC) means a student pilot acting as pilot-in-command on a flight with an instructor where the latter will only observe the student pilot and shall not influence or control the flight of the aircraft.

Subsonic aeroplane. An aeroplane incapable of sustaining level flight at speeds exceeding flight Mach number of 1.

Surface-level heliport. A heliport located on the ground or on a structure on the surface of the water.

Surveillance. The State activities through which the State proactively verifies through inspections and audits that aviation licence, certificate, authorisation or approval holders continue to meet the established requirements and function at the level of competency and safety required by the State.

Switch-over time (light). The time required for the actual intensity of a light measured in a given direction to fall from 50 per cent and recover to 50 per cent during a power supply changeover, when the light is being operated at intensities of 25 per cent or above.

Synthetic Training Device (STD) (Refer to Flight Synthetic Training Device)

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. That part of the 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). 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 a take-off safely continued.

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

Take-off phase (Engine emissions). The operating phase defined by the time during which the engine is operated at the rated thrust.

Take-off runway. A runway intended for take-off only.

Take-off surface. 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) is a generic term representing the level of risk which is considered acceptable in particular circumstances.

Taxi/ground idle. 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. Movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.

Taxiway. 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.

Taxiway intersection. A junction of two or more taxiways.

Taxiway strip. An area including a taxiway intended to protect an aircraft operating on the taxiway and to reduce the risk of damage to an aircraft accidentally running off the taxiway.

Technical Instructions. The Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284), approved and issued periodically in accordance with the procedure established by the ICAO Council.

Terminal control area. A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

Threat. 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. The process of detecting threats and responding to them with countermeasures that reduce or eliminate the consequences of threats and mitigate the probability of errors or undesired states.

Threshold. The beginning of that portion of the runway usable for landing.

Threshold time. 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 from the State of the Operator.

Tilt-rotor. A powered-lift capable of vertical take-off, vertical landing, and sustained low-speed flight, which depends principally on engine-driven rotors mounted on tiltable nacelles for the lift during these flight regimes and on nonrotating aerofoil(s) for lift during high-speed flight.

Time-in-position. The period of time when an air traffic controller is exercising the privileges of the air traffic controller's licence at an operational position.

Total estimated elapsed time. 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).

Touchdown positioning circle (TDPC). A touchdown positioning marking (TDPM) in the form of a circle used for omnidirectional positioning in a TLOF.

Touchdown positioning marking (TDPM). A marking or set of markings providing visual cues for the positioning of helicopters.

Touchdown zone. The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.

Touring Motor Glider (TMG) means a specific class of powered sailplane having an integrally mounted, non-retractable engine and a non-retractable propeller. It shall be capable of taking off and climbing under its own power according to its flight manual.

Track. 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. Advice provided by an air traffic services unit specifying manoeuvres to assist a pilot to avoid a collision.

Traffic information. 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.

Training Flight Instruction received from a flight training organisation in an aircraft or aircraft simulator for the issuance of a licence or rating. A training flight does not include recurrent training, ground training, a demonstration flight for marketing purposes, or any military training.

Transfer of control point. 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. 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. The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.

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.

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

Type of aircraft means a categorisation of aircraft requiring a type rating as determined in the operational suitability data established in accordance with CAR 21, and which include all aircraft of the same basic design including all modifications thereto except those which result in a change in handling or flight characteristics.

Ultimate load. The limit load multiplied by the appropriate factor of safety.

Unburned hydrocarbons. 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. A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

Unmanned free balloon. A non-power-driven, unmanned, lighter-than-air aircraft in free flight.

UN number. The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances.

Unit load device. Any type of freight container, aircraft container, aircraft pallet with a net, or aircraft pallet with a net over an igloo.

Note: An overpack is not included in this definition.

Usability factor. The percentage of time during which the use of a runway or system of runways is not restricted because of the crosswind component.

Note: Crosswind component means the surface wind component at right angles to the runway centre line.

VFR. The symbol used to designate the visual flight rules.

VFR flight. A flight conducted in accordance with the visual flight rules.

Visual line-of-sight (VLOS) operation. An operation in which the remote pilot or RPA observer maintains direct unaided visual contact with the remotely piloted aircraft.

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

VMC. The symbol used to designate visual meteorological conditions.

VTOSS. The minimum speed at which climb shall be achieved with the critical engine inoperative, the remaining engines operating within approved operating limits.

Waypoint. 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 (refer Runway Surface Conditions)

Wildlife hazard. Potential hazard of aircraft damage due to collisions with birds or animals at or around the aerodrome.

Winching area. An area provided for the transfer by helicopter of personnel or stores to or from a ship.

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CHAPTER 2

ABBREVIATIONS

AC	-	Alternating current
AC	-	Advisory Circular
ACN	-	Aircraft classification number (until 27th November 2024)
ACR	-	Aircraft classification rating (as of 28th November 2024)
ACAS	-	Airborne Collision Avoidance System
ADP	-	Airside driver permit
ADREP	-	Accident/Incident data reporting
ADRS	-	Aircraft Data Recording System
ADS	-	Automatic Dependant Surveillance
ADS-C	-	Automatic Dependent Surveillance — Contract
AeMC	-	Aeromedical Centre
AFCS	-	Automatic Flight Control System
AFM	-	Aeroplane Flight Manual (or Aircraft Flight Manual)
AGA	-	Aerodromes, air routes and ground aids
AIG	-	Accident investigation and prevention
AIP	-	Aeronautical information publication
AIR(S)	-	Airborne Image Recorder (System)
AIS	-	Aeronautical information service
ALS	-	Approach light system
AMC	-	Alternate means of compliance
AME	-	Aeromedical Examiner
AMSL	-	Above mean sea level
AOC	-	Aeronautical operational control in respect to ATC
AOC	-	Air Operator Certificate
APU	-	Auxiliary Power Unit

APV	-	Approach with vertical guidance
AR	-	Aviation Regulation
ASDA	-	Accelerate stop distance available
ASE	-	Altimetry system error
ATC	-	Air Traffic Control
ATM	-	Air Traffic Management
ATPL	-	Airline Transport Pilot Licence
ATO	-	Approved training organisation
ATS	-	Air Traffic Service
AVG	-	Average
AWK	-	Aerial Work
AWO	-	All Weather Operations
BALS	-	Basic approach light system
BANS	-	Bahamas Air Navigation Services
BCAA	-	Bahamas Civil Aviation Authority
BITD	-	Basic instrument training device
BVLOS		Beyond visual line of sight
[C2	-	Command and control]
CAA	-	Civil Aviation Authority
CAME	-	Continuing airworthiness management exposition
CAR	-	Civil Aviation Regulation(s)
CARS	-	Cockpit Audio Recording System
CAS	-	Calibrated airspeed
CAT I	-	Category I (ILS)
CAT II	-	Category II (ILS)
CAT III	-	Category III (ILS)

CBT	-	Computer based training
CDFA	-	Continuous descent final approach
CG	-	Centre of gravity
cm	-	Centimetre
CDL	-	Configuration Deviation List
CFIT	-	Controlled flight into terrain
CMV	-	Converted meteorological visibility
CO2	-	Carbon dioxide
CNS	-	Communications, navigation and surveillance
COM	-	Communications
COMAT	-	Operator Material
CPDLC	-	Controller-pilot data link communications
CPL	-	Commercial Pilot Licence
CRM	-	Crew resource management
CS	-	Certification Specifications (EASA)
CVR	-	Cockpit voice recorder
CVS	-	Combined Vision System
DA	-	Decision altitude
DA/H	-	Decision altitude/height
DC	-	Device control
DFIS	-	Data link-flight information services
DIFFS	-	Deck integrated firefighting system
DH	-	Decision height
DLR(S)	-	Data Link Recorder (System)
DME	-	Distance measuring equipment
DSTRK	-	Desired track
E	-	Modulus of elasticity

EAS	-	Equivalent airspeed
EASA	-	[European Union Aviation Safety Agency]
ECAM	-	Electronic centralized aircraft monitor
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
ERA	-	En-route alternate
EUROCAE	-	European Organisation for Civil Aviation Equipment
EVS	-	Enhanced vision system
FAA	-	Federal Aviation Administration (USA)
FAF	-	Final Approach Fix
FALS	-	Full approach light system
FAR	-	Federal Aviation Regulation (USA)
FAS	-	Fixed application system
FATO	-	Final approach and take-off area
FDAU	-	Flight data acquisition unit
FDR	-	Flight data recorder
FFAS	-	Fixed foam application system
FFS	-	Full flight simulator
FGS	-	Flight guidance system

FL	-	Flight level
FM	-	Frequency modulation
FMS	-	Flight management system
FMS	-	Fixed monitor system (in respect to firefighting)
FNPT	-	Flight and navigation procedures trainer
FOD	-	Foreign object debris
FRMS	-	Fatigue risk management system
FSTD	-	Flight synthetic training device
ft	-	Foot
ft/min	-	Feet per minute
FTD	-	Flight training device
FTL	-	Flight and duty time limitations
g	-	Normal acceleration
g_0	-	Standard acceleration due to gravity at sea level and a geodetic latitude of 45.5 degrees, 9.80665 (m/s^2)
GBAS	-	Ground-based augmentation system
GCAS	-	Ground collision avoidance system
GLS	-	GNSS landing system
GMP	-	General Medical Practitioner
GNSS	-	Global navigation satellite system
GPWS	-	Ground proximity warning system
HIALS	-	High intensity approach light system
hPa	-	Hectopascal
HUD	-	Head-up display
HUDLS	-	Head-up display landing system
HZ	-	Hertz (cycle per second)
IAS	-	Indicated airspeed

ICAO	-	International Civil Aviation Organisation
IFR	-	Instrument flight rules
[IGE	-	In-ground effect]
ILS	-	Instrument landing system
IMC	-	Instrument meteorological conditions
INS	-	Inertial navigation system
IALS	-	Intermediate approach light system
[ ]		
ISA	-	International standard atmosphere
kg	-	Kilogram
kg/m^2	-	Kilogram per metre squared
km	-	Kilometre
km/h	-	Kilometre per hour
kt	-	Knot
kt/s	-	Knots per second
lb	-	Pound
LDA	-	Landing distance available
LIFUS	-	Line flying under supervision
LLZ	-	Localizer
LNAV	-	Lateral navigation
LoA	-	Letter of agreement
LRNS	-	Long range navigation system
LVP	-	Low Visibility Procedures
LVTO	-	Low visibility take-off
m	-	Metre
M	-	Mach number
MAPt	-	Missed Approach Point
MCC	-	Multi-crew Cooperation

MCTOM	-	Maximum Certified Take-off Mass
MDA	-	Minimum Descent Altitude
MDA/H	-	Minimum Descent Altitude/Height
MDH	-	Minimum Descent Height
MEL	-	Minimum Equipment List
MET	-	Meteorological service
MHz	-	Megahertz
MIALS	-	Medium intensity approach light system
MLS	-	Microwave Landing System
MMEL	-	Master Minimum Equipment List
MOPS	-	Minimum Operational Performance Specification
m/s	-	Metres per second
m/s2	-	Metres per second squared
MTOM	-	Maximum take-off mass (kg)
N	-	Newton
N_1	-	Low pressure compressor speed (two-stage compressor); fan speed (three-stage compressor)
N_2	-	High pressure compressor speed (two-stage compressor); intermediate pressure compressor speed (three-stage compressor)
N_3	-	High pressure compressor speed (three stage compressor)
NAA	-	National Aviation Authority
NALS	-	No approach light system
NAT HLA	-	North Atlantic High Level Airspace
NAV	-	Navigation
NM	-	Nautical mile
NOTAM	-	Notice to Airmen
NPA	-	Non precision approach
NVIS	-	Night Vision Imaging System

OAT	-	Outside air temperature
OCA	-	Obstacle clearance altitude
OCA/H	-	Obstacle clearance altitude/height
OCH	-	Obstacle clearance height
OEI	-	One-engine-inoperative
OFS	-	Obstacle-free sector
[OGE	-	Out of ground effect]
OM	-	Operations Manual
OML	-	Outer mould line
OLS	-	Obstacle limitation surface
PANS	-	Procedures for Air Navigation Services
PAPI	-	Precision approach path indicator
PAR	-	Precision Approach Radar
PBC	-	Performance-based communication
PBN	-	Performance-based navigation
PBS	-	Performance-based surveillance
PCN	-	Pavement classification number (until 27th November 2024)
PCR	-	Pavement classification rating (as of 28th November 2024)
PDP	-	Pre-determined point
PF	-	Pilot flying
PFAS	-	Portable foam application system
PM	-	Pilot monitoring
RA	-	Resolution Advisory
RCP	-	Required communication performance
RCF	-	Reduced Contingency Fuel
RCLL	-	Runway centreline lights
RCP	-	Required Communication Performance

RFFS	-	Rescue and Fire Fighting Service
RFM	-	Rotorcraft Flight Manual
RGF	-	Reference geometric factor
RNAV	-	Area navigation
RNP	-	Required Navigation Performance
ROD	-	Rate of descent
RPA	-	Remotely piloted aircraft
RPAS	-	Remotely piloted aircraft system
RPS	-	Remotely pilot station
rpm	-	Revolutions per minute
RSP	-	Required surveillance performance
RSS	-	Root sum of squares
RTOD	-	Rejected take-off distance
RTZL	-	Runway touchdown zone lights
RVR	-	Runway Visual Range
RVSM	-	Reduced vertical separation minima
SAp	-	Stabilised approach
SAR	-	Search and rescue
SAR	-	Specific air range
SARPs	-	Standards and recommended practices
SDCPS	-	Safety data collection and processing systems
SICASP	-	Secondary Surveillance Radar Improvements and Collision Avoidance Systems Panel
SMM	-	Safety management manual
SMP	-	Safety management panel
SMS	-	Safety management system
SOP	-	Standard operating procedures

SRA	-	Surveillance radar approach
SSP	-	State Safety Programme
SST	-	Supersonic transport
STD	-	Synthetic training device
STOL	-	Short take-off and landing
SVS	-	Synthetic Vision System
TAS	-	True airspeed
TAWS	-	Terrain Awareness Warning System
TCAS	-	Traffic Alert and Collision Avoidance System
THR	-	Threshold
TLA	-	Thrust lever angle
TLS	-	Target level of safety
TMG	-	Touring motor glider
TODA	-	Take-off Distance Available
TORA	-	Take-off Run Available
TSO	-	Technical Standard Order
TVE	-	Total vertical error
UTC	-	Coordinated universal time
V_A	-	Design manoeuvring speed
V_{AT}	-	Threshold speed
V_{AT}max	-	Maximum threshold 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
V_H	-	Maximum speed in level flight with maximum continuous power.
V_{LE}	-	Maximum landing gear extended speed
V_{LO}	-	Maximum landing gear operating speed
V_{LOF}	-	Lift-off speed
VLOS		Visual line of sight
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
$V_{S1}g$	-	One-g stall speed at which the aeroplane can develop a lift force (normal to the flight path) equal to its weight.
V_1	-	Take-off decision speed

V_2	-	Take-off safety speed
V_2min	-	Minimum take-off safety speed
V_3	-	Steady initial climb speed with all engines operating
VDF	-	Very high frequency direction finding system
VFR	-	Visual flight rules
VHF	-	Very high frequency
VOR	-	VHF omnidirectional radio range
VTOL	-	Vertical take-off and landing
W_f	-	Total aeroplane fuel flow (kg/h)
WHMP	-	Wildlife hazard management programme
WIP	-	Work in progress
WXR	-	Weather
ZFT	-	Zero flight time
ZFTT	-	Zero flight time training

CHAPTER 3

SYMBOLS

°C	-	Degrees Celsius
α	-	Density
%	-	Per cent
=	-	Equals
’	-	Minute of arc
μ	-	Friction coefficient
>	-	Greater than
<	-	Less than
±	-	Plus or minus

Note: Refer to Chapter 4 for units of measurement to be used in air and ground operations.

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CHAPTER 4

UNITS OF MEASUREMENT TO BE USED IN AIR AND GROUND OPERATIONS

1. DEFINITIONS

When the following terms are used concerning the units of measurement to be used in all aspects of international civil aviation air and ground operations, they have the following meanings.

Ampere (A). The ampere is that constant electric current which, if maintained in two straight parallel conductors of infinite length, of negligible circular cross-section, and placed 1 metre apart in a vacuum, would produce between these conductors a force equal to 2×10^{-7} newton per metre of length.

Becquerel (Bq). The activity of a radionuclide having one spontaneous nuclear transition per second.

Candela (cd). The luminous intensity, in the perpendicular direction, of a surface of 1/600 000 square metre of black body at the temperature of freezing platinum under a pressure of 101 325 newtons per square metre.

Celsius temperature ($t°_C$). The Celsius temperature is equal to the difference $t°_C = T - T_0$ between two thermodynamic temperatures T and T_0 where T_0 equals 273.15 kelvin.

Coulomb (C). The quantity of electricity transported in 1 second by a current of 1 ampere.

Degree Celsius (°C). The special name for the unit kelvin for use in stating values of Celsius temperature.

Farad (F). The capacitance of a capacitor between the plates of which there appears a difference of potential of 1 volt when it is charged by a quantity of electricity equal to 1 coulomb.

Foot (ft). The length equal to 0.304 8 metre exactly.

Gray (Gy). The energy imparted by ionizing radiation to a mass of matter corresponding to 1 joule per kilogram.

Henry (H). The inductance of a closed circuit in which an electromotive force of 1 volt is produced when the electric current in the circuit varies uniformly at a rate of 1 ampere per second.

Hertz (Hz). The frequency of a periodic phenomenon of which the period is 1 second.

Human performance. Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

Joule (J). The work done when the point of application of a force of 1 newton is displaced a distance of 1 metre in the direction of the force.

Kelvin (K). A unit of thermodynamic temperature which is the fraction 1/273.16 of the thermodynamic temperature of the triple point of water.

Kilogram (kg). The unit of mass equal to the mass of the international prototype of the kilogram.

Knot (kt). The speed equal to 1 nautical mile per hour.

Litre (L). A unit of volume restricted to the measurement of liquids and gases which is equal to 1 cubic decimetre.

Lumen (lm). The luminous flux emitted in a solid angle of 1 steradian by a point source having a uniform intensity of 1 candela.

Lux (lx). The illuminance produced by a luminous flux of 1 lumen uniformly distributed over a surface of 1 square metre.

Metre (m). The distance travelled by light in a vacuum during 1/299 792 458 of a second.

Mole (mol). The amount of substance of a system which contains as many elementary entities as there are atoms in 0.012 kilogram of carbon-12.

Note: When the mole is used, the elementary entities must be specified and may be atoms, molecules, ions, electrons, other particles or specified groups of such particles.

Nautical mile (NM). The length equal to 1 852 metres exactly.

Newton (N). The force which when applied to a body having a mass of 1 kilogram gives it an acceleration of 1 metre per second squared.

Ohm (Ω). The electric resistance between two points of a conductor when a constant difference of potential of 1 volt, applied between these two points, produces in this conductor a current of 1 ampere, this conductor not being the source of any electromotive force.

Pascal (Pa). The pressure or stress of 1 newton per square metre.

Radian (rad). The plane angle between two radii of a circle which cut off on the circumference an arc equal in length to the radius.

Second (s). The duration of 9 192 631 770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium-133 atom.

Siemens (S). The electric conductance of a conductor in which a current of 1 ampere is produced by an electric potential difference of 1 volt.

Sievert (Sv). The unit of radiation dose equivalent corresponding to 1 joule per kilogram.

Steradian (sr). The solid angle which, having its vertex in the centre of a sphere, cuts off an area of the surface of the sphere equal to that of a square with sides of length equal to the radius of the sphere.

Tesla (T). The magnetic flux density given by a magnetic flux of 1 weber per square metre.

Tonne (t). The mass equal to 1 000 kilograms.

Volt (V). The unit of electric potential difference and electromotive force which is the difference of electric potential between two points of a conductor carrying a constant current of 1 ampere, when the power dissipated between these points is equal to 1 watt.

Watt (W). The power which gives rise to the production of energy at the rate of 1 joule per second.

Weber (Wb). The magnetic flux which, linking a circuit of one turn, produces in it an electromotive force of 1 volt as it is reduced to zero at a uniform rate in 1 second.

2. APPLICABILITY

These regulations shall be applicable to all aspects of international civil aviation air and ground operations.

Note: These regulations contain specifications for the use of a standardized system of units of measurement in international civil aviation air and ground operations. This standardized system of units of measurement is based on the International System of Units (SI) and certain non-SI units considered necessary to meet the specialized requirements of international civil aviation.

3. STANDARD APPLICATION OF UNITS OF MEASUREMENT

3.1 SI units

3.1.1 The International System of Units developed and maintained by the General Conference of Weights and Measures (CGPM) shall, subject to the provisions of 3.2 and 3.3, be used as the standard system of units of measurement for all aspects of international civil aviation air and ground operations.

3.1.2 Prefixes

The prefixes and symbols listed in Table 3-1 shall be used to form names and symbols of the decimal multiples and sub- multiples of SI units.

Note: As used herein the term SI unit is meant to include base units and derived units as well as their multiples and sub-multiples.

Table 3-1. SI unit prefixes

Multiplication factor		*Prefix*	*Symbol*
1 000 000 000 000 000 000	$= 10^{18}$	exa	E
1 000 000 000 000 000	$= 10^{15}$	peta	P
1 000 000 000 000	$= 10^{12}$	tera	T
1 000 000 000	$= 10^{9}$	giga	G
1 000 000	$= 10^{6}$	mega	M
1 000	$= 10^{3}$	kilo	k
100	$= 10^{2}$	hecto	h
10	$= 10^{1}$	deca	da
0.1	$= 10^{-1}$	deci	d
0.01	$= 10^{-2}$	centi	c
0.001	$= 10^{-3}$	milli	m
0.000 001	$= 10^{-6}$	micro	μ
0.000 000 001	$= 10^{-9}$	nano	n
0.000 000 000 001	$= 10^{-12}$	pico	p
0.000 000 000 000 001	$= 10^{-15}$	femto	f
0.000 000 000 000 000 001	$= 10^{-18}$	atto	a

3.2 Non-SI units

3.2.1 Non-SI units for permanent use with the SI

The non-SI units listed in Table 3-2 shall be used either in lieu of, or in addition to, SI units as primary units of measurement but only as specified in Table 3-4.

Table 3-2. Non-SI units for use with the SI

Specific quantities in Table 3-4 related to	*Unit*	*Symbol*	*Definition (in terms of SI units)*
mass	tonne	t	$1\ t = 10^3\ kg$
plane angle	degree	°	$1° = (\pi/180)$ rad
	minute	'	$1' = (1/60)° = (\pi/10\ 800)$ rad
	second	"	$1'' = (1/60)' = (\pi/648\ 000)$ rad
temperature	degree Celsius	°C	1 unit °C = 1 unit K[a)]
time	minute	min	1 min = 60 s
	hour	h	1 h = 60 min = 3 600 s
	day	d	1 d = 24 h = 86 400 s
	week, month, year	—	
volume	litre	L	$1\ L = 1\ dm^3 = 10^{-3} m^3$

3.2.2 Non-SI alternative units permitted for temporary use with the SI

The non-SI units listed in Table 3-3 shall be permitted for temporary use as alternative units of measurement but only for those specific quantities listed in Table 3-4.

Note: It is intended that the use of the non-SI alternative units listed in Table 3-3 and applied as indicated in Table 3-4 will eventually be discontinued in accordance with individual unit termination dates established by ICAO.

3.3 Application of Specific Units

3.3.1 The application of units of measurement for certain quantities used in international civil aviation air and ground operations shall be in accordance with Table 3-4.

Note: Table 3-4 is intended to provide standardization of units (including prefixes) for those quantities commonly used in air and ground operations. Basic Annex provisions apply for units to be used for quantities not listed.

Table 3-3. Non-SI alternative units permitted for temporary use with the SI

Specific quantities in Table 3-4 related to	*Unit*	*Symbol*	*Definition (in terms of SI units)*
distance (long)	nautical mile	NM	1 NM = 1 852 m
distance (vertical)[a]	foot	ft	1 ft = 0.304 8 m
speed	knot	kt	1 kt = 0.514 444 m/s

a) altitude, elevation, height, vertical speed.

Table 3-4. Standard application of specific units of measurement

Ref. No.	*Quantity*	*Primary unit (symbol)*	*Non-SI alternative unit (symbol)*
1.	***Direction/Space/Time***		
1.1	altitude	m	ft
1.2	area	m^2	
1.3	distance (long)[a]	km	NM
1.4	distance (short)	m	
1.5	elevation	m	ft
1.6	endurance	h and min	
1.7	height	m	ft
1.8	latitude	° ′ ″	
1.9	length	m	
1.10	longitude	° ′ ″	
1.11	plane angle (when required, decimal subdivisions of the degree shall be used)	°	
1.12	runway length	m	
1.13	runway visual range	m	
1.14	tank capacities (aircraft)[b]	L	
1.15	time	s min h d week month year	
1.16	visibility[c]	km	
1.17	volume	m^3	
1.18	wind direction (wind directions other than for a landing and take-off shall be expressed in degrees true; for landing and take-off wind directions shall be expressed in degrees magnetic)	°	

2. *Mass-related*

2.1	air density	kg/m^3	
2.2	area density	kg/m^2	
2.3	cargo capacity	kg	
2.4	cargo density	kg/m^3	
2.5	density (mass density)	kg/m^3	
2.6	fuel capacity (gravimetric)	kg	
2.7	gas density	kg/m^3	
2.8	gross mass or payload	kg t	
2.9	hoisting provisions	kg	
2.10	linear density	kg/m	
2.11	liquid density	kg/m^3	
2.12	mass	kg	
2.13	moment of inertia	$kg \cdot m^2$	
2.14	moment of momentum	$kg \cdot m^2/s$	
2.15	momentum	kg · m/s	

3. *Force-related*

3.1	air pressure (general)	kPa	
3.2	altimeter setting	hPa	
3.3	atmospheric pressure	hPa	
3.4	bending moment	kN · m	
3.5	force	N	
3.6	fuel supply pressure	kPa	
3.7	hydraulic pressure	kPa	
3.8	modulus of elasticity	MPa	
3.9	pressure	kPa	
3.10	stress	MPa	
3.11	surface tension	mN/m	
3.12	thrust	kN	
3.13	torque	N · m	
3.14	vacuum	Pa	

4. *Mechanics*

4.1	airspeed[4)]	km/h	kt
4.2	angular acceleration	rad/s^2	
4.3	angular velocity	rad/s	
4.4	energy or work	J	
4.5	equivalent shaft power	kW	
4.6	frequency	Hz	
4.7	ground speed	km/h	kt
4.8	impact	J/m^2	
4.9	kinetic energy absorbed by brakes	MJ	
4.10	linear acceleration	m/s^2	
4.11	power	kW	
4.12	rate of trim	°/s	
4.13	shaft power	kW	
4.14	velocity	m/s	
4.15	vertical speed	m/s	ft/min
4.16	wind speed[3)]	m/s	kt

5. *Flow*

5.1	engine airflow	kg/s
5.2	engine waterflow	kg/h
5.3	fuel consumption (specific)	
	piston engines	kg/(kW · h)
	turbo-shaft engines	kg/(kW · h)
	jet engines	kg/(kN · h)
5.4	fuel flow	kg/h
5.5	fuel tank filling rate (gravimetric)	kg/min
5.6	gas flow	kg/s
5.7	liquid flow (gravimetric)	g/s
5.8	liquid flow (volumetric)	L/s
5.9	mass flow	kg/s
5.10	oil consumption	
	gas turbine	kg/h
	piston engines (specific)	g/(kW · h)
5.11	oil flow	g/s
5.12	pump capacity	L/min
5.13	ventilation airflow	m^3/min
5.14	viscosity (dynamic)	Pa · s
5.15	viscosity (kinematic)	m^2/s

6. *Thermodynamics*

6.1	coefficient of heat transfer	W/(m^2 · K)
6.2	heat flow per unit area	J/m^2
6.3	heat flow rate	W
6.4	humidity (absolute)	g/kg
6.5	coefficient of linear expansion	$°C^{-1}$
6.6	quantity of heat	J
6.7	temperature	°C

7. *Electricity and magnetism*

7.1	capacitance	F
7.2	conductance	S
7.3	conductivity	S/m
7.4	current density	A/m^2
7.5	electric current	A
7.6	electric field strength	C/m^2
7.7	electric potential	V
7.8	electromotive force	V
7.9	magnetic field strength	A/m
7.10	magnetic flux	Wb
7.11	magnetic flux density	T
7.12	power	W
7.13	quantity of electricity	C
7.14	resistance	Ω

8. *Light and related electromagnetic radiations*

8.1	illuminance	lx
8.2	luminance	cd/m^2
8.3	luminous exitance	lm/m^2
8.4	luminous flux	lm
8.5	luminous intensity	cd
8.6	quantity of light	lm · s
8.7	radiant energy	J
8.8	wavelength	m

9. ***Acoustics***

9.1	frequency	Hz
9.2	mass density	kg/m^3
9.3	noise level	dB[e)]
9.4	period, periodic time	s
9.5	sound intensity	W/m^2
9.6	sound power	W
9.7	sound pressure	Pa
9.8	sound level	dB[f)]
9.9	static pressure (instantaneous)	Pa
9.10	velocity of sound	m/s
9.11	volume velocity (instantaneous)	m^3/s
9.12	wavelength	m

10. ***Nuclear physics and ionizing radiation***

10.1	absorbed dose	Gy
10.2	absorbed dose rate	Gy/s
10.3	activity of radionuclides	Bq
10.4	dose equivalent	Sv
10.5	radiation exposure	C/kg
10.6	exposure rate	C/kg - s

a) As used in navigation, generally in excess of 4 000 m.
b) Such as aircraft fuel, hydraulic fluids, water, oil and high pressure oxygen vessels.
c) Visibility of less than 5 km may be given in m.
d) Airspeed is sometimes reported in flight operations in terms of the ratio MACH number.
e) A conversion of 1 kt = 0.5 m/s is used in ICAO Annexes for the representation of wind speed.
f) The decibel (dB) is a ratio which may be used as a unit for expressing sound pressure level and sound power level. When used, the reference level must be specified.

CHAPTER 5

SYMBOLS AND UNITS USED IN ENVIRONMENTAL PROTECTION

Note: Many of the following definitions and symbols are specific to aircraft noise certification. Some of the definitions and symbols may also apply to purposes beyond aircraft noise certification.

1.1 Velocity

Symbol	*Unit*	*Meaning*
c_R	m/s	*Reference speed of sound*. Speed of sound at a reference temperature condition (25ºC).
c_{HR}	m/s	*Reference speed of sound at the altitude of the aeroplane*. The reference speed of sound corresponding to the ambient temperature – assuming a lapse rate of 0.65°C per 100 m – for a standard day at the aeroplane reference height above mean sea level.
M_{ATR}	—	*Helicopter rotor reference advancing blade tip Mach number*. The sum of the reference rotor rotational tip speed and the reference speed of the helicopter, divided by the reference speed of sound.
M_H	—	*Propeller helical tip Mach number*. The square root of the sum of the square of the propeller test rotational tip speed and the square of the test airspeed of the aeroplane, divided by the test speed of sound.
M_{HR}	—	*Propeller reference helical tip Mach number*. The square root of the sum of the square of the propeller reference rotational tip speed and the square of the reference speed of the aeroplane, divided by the reference speed of sound.
Best R/C	m/s	*Best rate of climb*. The certificated maximum take-off rate of climb at the maximum power setting and engine speed.
V_{AR}	km/h	*Adjusted reference speed*. On a non-standard test day, the helicopter reference speed adjusted to achieve the same advancing tip Mach number as the reference speed at reference conditions.
V_{CON}	km/h	*Maximum airspeed in conversion mode*. The never-exceed airspeed of a tilt-rotor when in conversion mode.
V_G	km/h	*Ground speed*. The aircraft velocity relative to the ground.
V_{GR}	km/h	*Reference ground speed*. The aircraft true velocity relative to the ground in the direction of the ground track under reference conditions. V_{GR} is the horizontal component of the reference aircraft speed V_R.
V_{MCP}	km/h	*Maximum airspeed in level flight*. The maximum airspeed of a tilt-rotor in level flight when operating in aeroplane mode at maximum continuous power.
V_{MO}	km/h	*Maximum operating airspeed*. The maximum operating limit airspeed of a tilt- rotor that may not be deliberately exceeded.
VNE	km/h	*Never-exceed airspeed.* The maximum operating limit airspeed that may not be deliberately exceeded.
VR	km/h	*Reference speed.* The aircraft true velocity at reference conditions in the direction of the reference flight path.

		Note: This symbol should not be confused with the symbol commonly used for aeroplane take-off rotation speed.
VREF	km/h	*Reference landing airspeed. The speed of the aeroplane, in a specific landing configuration, at the point where it descends through the landing screen height, in the determination of the landing distance for manual landings*
VS	km/h	*Stalling airspeed.* The minimum steady airspeed in the landing configuration.
Vtip	m/s	*Tip speed.* The rotational speed of a rotor or propeller tip at test conditions, excluding the aircraft velocity component.
VtipR	m/s	*Reference tip speed.* The rotational speed of a rotor or propeller tip at reference conditions, excluding the aircraft velocity component.
VY	km/h	*Speed for best rate of climb.* The test airspeed for best take-off rate of climb.
V2	km/h	*Take-off safety speed.* The minimum airspeed for a safe take-off.

1.2 Time

Symbol	*Unit*	*Meaning*
t_0	s	*Reference duration*. The length of time used as a reference in the integration equation for computing EPNL, where t_0 = 10 s.
t_R	s	*Reference reception time*. The reference time of reception calculated from time of reference aircraft position and distance between aircraft and microphone used in the integrated procedure.
Δt	s	*Time increment.* The equal time increment between one-third octave band spectra, where Δt = 0.5 s.
δt_R	s	*Reference time increment*. The effective duration of a time increment between reference reception times associated with PNLT points used in the integrated method.

1.3 Indices

Symbol	*Unit*	*Meaning*
i	—	*Frequency band index.* The numerical indicator that denotes any one of the 24 one-third octave bands with nominal geometric mean frequencies from 50 to 10 000 Hz.
k	—	*Time increment index*. The numerical indicator that denotes any one of the 0.5 second spectra in a noise time history. For the integrated method, the adjusted time increment associated with each value of *k* will likely vary from the original 0.5 second time increment when projected to reference conditions.
k_F	—	*First time increment identifier*. Index of the first 10 dB-down point in the discrete measured PNLT time history.
k_{FR}	—	*Reference first time increment identifier*. Index of the first 10 dB-down point in the discrete PNLT time history for the integrated method.
k_L	—	*Last time increment identifier*. Index of the last 10 dB-down point in the discrete measured PNLT time history.

k_{LR}	—	*Reference last time increment identifier*. Index of the last 10 dB-down point in the discrete PNLT time history for the integrated method.
k_M	—	*Maximum PNLTM time increment index*. Time increment index of PNLTM.
t	s	*Elapsed time.* The length of time measured from a reference zero.
t_1	s	*Time of first 10 dB-down point*. The time of the first 10 dB-down point in a continuous function of time. (See k_F.)
t_2	s	*Time of last 10 dB-down point.* The time of the last 10 dB-down point in a continuous function of time. (See k_L.)

1.4 Noise Metrics

Symbol	*Unit*	*Meaning*
EPNL	EPNdB	*Effective perceived noise level.* A single-number evaluator for an aircraft pass-by, accounting for the subjective effects of aircraft noise on human beings, consisting of an integration over the noise duration of the perceived noise level (PNL) adjusted for spectral irregularities (PNLT), normalized to a reference duration of 10 seconds.
$EPNL_A$	EPNdB	*Approach EPNL.* Effective perceived noise level at the aeroplane approach reference measurement points.
$EPNL_F$	EPNdB	*Flyover EPNL*. Effective perceived noise level at the aeroplane flyover reference measurement points.
EPNLL	EPNdB	*Lateral EPNL. Effective perceived noise level at the aeroplane lateral reference measurement points.*
LAE	dB SEL	*Sound exposure level (SEL). A single event noise level for an aircraft pass-by, consisting of an integration over the noise duration of the A-weighted sound level (dBA), normalized to a reference duration of 1 second.*
LAS	dB(A)	*Slow A-weighted sound level. Sound level with frequency weighting A and time weighting S for a specified instance in time.*
LASmax	dB(A)	*Maximum slow A-weighted sound level. The maximum value of LAS over a specified time interval.*
LASmaxR	dB(A)	*Reference maximum slow A-weighted sound level. The maximum value of LAS over a specified time interval corrected to reference conditions.*
LIMITA	EPNdB	*Approach EPNL limit. The maximum permitted noise level at the aeroplane approach reference measurement points.*
LIMITF	EPNdB	*Flyover EPNL limit. The maximum permitted noise level at the aeroplane flyover reference measurement points.*
LIMITL	EPNdB	*Lateral EPNL limit. The maximum permitted noise level at the aeroplane lateral reference measurement points.*
n	noy	*Perceived noisiness. The perceived noisiness of a one-third octave band sound pressure level in a given spectrum.*
N	noy	*Total perceived noisiness. The total perceived noisiness of a given spectrum calculated from the 24 values of n.*
PNL	PNdB	*Perceived noise level. A perception-based noise evaluator representing the subjective effects of broadband noise received at a given point in time during*

		an aircraft pass-by. It is the noise level empirically determined to be equally as noisy as a 1 kHz one-third octave band sample of random noise.
PNLT	TPNdB	*Tone-corrected perceived noise level. The value of the PNL of a given spectrum adjusted for spectral irregularities.*
PNLTR	TPNdB	*Reference tone-corrected perceived noise level. The value of PNLT adjusted to reference conditions.*
PNLTM	TPNdB	*Maximum tone-corrected perceived noise level. The maximum value of PNLT in a specified time history, adjusted for the bandsharing adjustment ΔB.*
PNLTMR	TPNdB	*Reference maximum tone-corrected perceived noise level. The maximum value of PNLTR in a specified time history, adjusted for the bandsharing adjustment ΔB in the simplified method and ΔBR in the integrated method.*
SPL	dB	*Sound pressure level. The level of sound, relative to the reference level of 20 μPa, at any instant of time that occurs in a specified frequency range. The level is calculated as ten times the logarithm to the base 10 of the ratio of the time-mean- square pressure of the sound to the square of the reference sound pressure of 20 μPa.* *Note: Typical aircraft noise certification usage refers to a specific one-third octave band, e.g. SPL(i,k) for the i-th band of the k-th spectrum in an aircraft noise time-history.*
SPL_R	dB	*Reference sound pressure level*. The one-third octave band sound pressure levels adjusted to reference conditions.
SPL_S	dB	*Slow weighted sound pressure level*. The value of one-third octave band sound pressure levels with time weighting S applied.
Δ_1	TPNdB	*PNLTM adjustment.* In the simplified adjustment method, the adjustment to be added to the measured EPNL to account for noise level changes due to differences in atmospheric absorption and noise path length, between test and reference conditions at PNLTM.
	dB(A)	For propeller-driven aeroplanes not exceeding 8 618 kg, the adjustment to be added to L_{ASmax} to account for noise level changes due to the difference between test and reference aeroplane heights.
Δ_2	TPNdB	*Duration adjustment.* In the simplified adjustment method, the adjustment to be added to the measured EPNL to account for noise level changes due to the change in noise duration, caused by differences between test and reference aircraft speed and position relative to the microphone.
	dB(A)	For propeller-driven aeroplanes not exceeding 8 618 kg, the adjustment to be added to L_{ASmax} to account for the propeller helical tip Mach number.
Δ_3	TPNdB	*Source noise adjustment.* In the simplified or integrated adjustment method, the adjustment to be added to the measured EPNL to account for noise level changes due to differences in source noise generating mechanisms, between test and reference conditions.
	dB(A)	For propeller-driven aeroplanes not exceeding 8 618 kg, the adjustment to be added to L_{ASmax} to account for engine power

Δ_4	dB(A)	*Atmospheric absorption adjustment*. For propeller-driven aeroplanes not exceeding 8 618 kg, the adjustment to be added to the measured L_{ASmax} for noise level changes due to the change in atmospheric absorption, caused by the difference between test and reference aeroplane heights.
Δ_B	TPNdB	*Bandsharing adjustment*. The adjustment to be added to the maximum PNLT to account for possible suppression of a tone due to one-third octave bandsharing of that tone. PNLTM is equal to the maximum PNLT plus Δ_B.
Δ_{BR}	TPNdB	*Reference bandsharing adjustment*. The adjustment to be added to the maximum $PNLT_R$ in the integrated method to account for possible suppression of a tone due to one-third octave bandsharing of that tone. $PNLTM_R$ is equal to the maximum $PNLT_R$ plus Δ_{BR}
Δpeak	TPNdB	*Peak adjustment*. The adjustment to be added to the measured EPNL for when the PNLT for a secondary peak, identified in the calculation of EPNL from measured data and adjusted to reference conditions, is greater than the PNLT for the adjusted PNLTM spectrum

1.5 Calculation of PNL and tone correction

Symbol	*Unit*	*Meaning*
C	dB	*Tone correction factor.* The factor to be added to the PNL of a given spectrum to account for the presence of spectral irregularities, such as tones.
f	Hz	*Frequency.* The nominal geometric mean frequency of a one-third octave band.
F	dB	*Delta-dB.* The difference between the original sound pressure level and the final broadband sound pressure level of a one-third octave band in a given spectrum.
log *n*(*a*)	—	*Noy discontinuity coordinate.* The log *n* value of the intersection point of the straight lines representing the variation of SPL with log *n*.
M	—	*Noy inverse slope.* The reciprocals of the slopes of straight lines representing the variation of SPL with log *n*.
s	dB	*Slope of sound pressure level.* The change in level between adjacent one-third octave band sound pressure levels in a given spectrum.
Δs	dB	*Change in slope of sound pressure level.*
s’	dB	*Adjusted slope of sound pressure level.* The change in level between adjacent adjusted one-third octave band sound pressure levels in a given spectrum.
$\overline{s}$	dB	*Average slope of sound pressure level.*
SPL(*a*)	dB	*Noy discontinuity level.* The SPL value at the discontinuity coordinate of the straight lines representing the variation of SPL with log *n*.

SPL(*b*) SPL(*c*)	dB	*Noy intercept levels.* The intercepts on the SPL-axis of the straight lines representing the variation of SPL with log *n*.
SPL(*d*)	dB	*Noy discontinuity level*. The SPL value at the discontinuity coordinate where log *n* equals −1.
SPL(*e*)	dB	*Noy discontinuity level*. The SPL value at the discontinuity coordinate where log *n* equals log 0.3.
SPL’	dB	*Adjusted sound pressure level.* The first approximation to broadband sound pressure level in a one-third octave band of a given spectrum.
SPL”	dB	*Final broadband sound pressure level.* The second and final approximation to broadband sound pressure level in a one-third octave band of a given spectrum.

1.6 Flight path geometry

Symbol	*Unit*	*Meaning*
H	m	*Height*. The aircraft height when overhead or abeam of the centre microphone.
H_R	m	*Reference height*. The reference aircraft height when overhead or abeam of the centre microphone.
X	m	*Aircraft position along the ground track.* The position coordinate of the aircraft along the x-axis at a specific point in time.
Y	m	*Lateral aircraft position relative to the reference ground track*. The position coordinate of the aircraft along the y-axis at a specific point in time.
Z	m	*Vertical aircraft position relative to the reference ground track*. The position coordinate of the aircraft along the z-axis at a specific point in time.
θ	degrees	*Sound emission angle.* The angle between the flight path and the direct sound propagation path to the microphone. The angle is identical for both the measured and reference flight paths.
ψ	degrees	*Elevation angle.* The angle between the sound propagation path and a horizontal plane passing through the microphone, where the sound propagation path is defined as a line between a sound emission point on the measured flight path and the microphone diaphragm.
ψ_R	degrees	*Reference elevation angle.* The angle between the reference sound propagation path and a horizontal plane passing through the reference microphone location, where the reference sound propagation path is defined as a line between a sound emission point on the reference flight path and the reference microphone diaphragm.

1.7 Miscellaneous

Symbol	*Unit*	*Meaning*
antilog	—	*Antilogarithm to the base 10.*
D	m	*Diameter.* Propeller or rotor diameter.
D_{15}	m	*Take-off distance.* The take-off distance required for an aeroplane to reach 15 m height above ground level.
e	—	*Euler’s number.* The mathematical constant that is the base number of the

		natural logarithm, approximately 2.71828.
log	—	*Logarithm to the base 10.*
N	rpm	*Propeller speed.*
N_1	rpm	*Compressor speed.* The turbine engine low pressure compressor first stage fan speed.
RH	%	*Relative humidity.* The ambient atmospheric relative humidity.
T	°C	*Temperature.* The ambient atmospheric temperature.
u	m/s	*Wind speed along-track component*. The component of the wind speed vector along the reference ground track.
v	m/s	*Wind speed cross-track component*. The component of the wind speed vector horizontally perpendicular to the reference ground track.
α	dB/100 m	*Test atmospheric absorption coefficient.* The sound attenuation rate, due to atmospheric absorption, that occurs in a specified one-third octave band for the measured ambient temperature and relative humidity.
α_R	dB/100 m	*Reference atmospheric absorption coefficient.* The sound attenuation rate, due to atmospheric absorption, that occurs in a specified one-third octave band for a reference ambient temperature and relative humidity.
μ	—	*Engine noise performance parameter.* For jet aeroplanes, typically the normalized low pressure fan speed, normalized engine thrust, or engine pressure ratio used in the calculation of the source noise adjustment.

1.8 Emissions

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 (*see* definition)

*F*oo* Rated thrust with afterburning applied

HC Unburned hydrocarbons (*see* definition)

NO Nitric oxide

NO2 Nitrogen dioxide

NOx Oxides of nitrogen (*see* definition)

nvPM Non-volatile particulate matter (*see* definition)

SN Smoke Number (*see* definition)

π_{oo} Pressure ratio (*see* definition)

δ Ratio of atmospheric pressure at a given altitude to the atmospheric pressure at sea level

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The Director General, in exercise of the powers conferred by Section 17(1) of the Civil Aviation Authority Bahamas Act, 2021 (No. 2 of 2021) hereby issues the foregoing amended regulation.

Issued the 1st day of March 2023

Electronic Signature by Alexander B. Ferguson

DIRECTOR GENERAL
CIVIL AVIATION AUTHORITY BAHAMAS