



# **BHUTAN CIVIL AVIATION AUTHORITY**

## **BCAR-OPS DEFINITION**

(Issue 01 revision 00)

ISSUED UNDER THE AUTHORITY OF THE HEAD  
OF THE BHUTAN CIVIL AVIATION AUTHORITY



## FOREWORD

The Bhutan Civil Aviation Authority is pleased to issue Bhutan Civil Aviation Requirements- OPS Definition, issue 01 revision 00 establishing the requirements for the terms, abbreviation and their meanings that are used in BCAR-ARO, BCAR-ORO, BCAR-SPA, BCAR-SPO and BCAR-CAT for operations of aircrafts.

This BCAR shall supersede all other requirements published earlier for the terms, abbreviation and their meanings and shall come into force from 15th June 2024.

Head of Authority  
Bhutan Civil Aviation Authority

**DIRECTOR**  
Bhutan Civil Aviation Authority  
Paro, Bhutan





### RECORD OF REVISION

The Flight Operations Section, Bhutan Civil Aviation Authority, is responsible to ensure that this manual is updated as required.

Amendments to this manual are promulgated by means of revisions issued whenever necessary to cover corrections and to add or modify the contents.

Any revisions to the manual shall be shown with a vertical bar on the right side of the revised data. The page number and the revision number of the affected page must be changed accordingly. The list of effective pages and history of pages revised must be amended accordingly.

All revisions to this manual shall be approved by the Head of the Authority prior to publishing.

Issue	Rev: No:	Amendment Date	Entered by
01	00	May 2024	Pelden, FSO



## HISTORY OF REVISION

Issue	Revision No.	Particulars of Revision	Effective Date
01	00	Initial issue of the manual	15th June 2024



**LIST OF EFFECTIVE PAGES 1**

Page No:	Rev. No:	Date	Page No:	Rev. No:	Date
1	00	15 June 2024	22	00	15 June 2024
2	00	15 June 2024	23	00	15 June 2024
3	00	15 June 2024	24	00	15 June 2024
4	00	15 June 2024	25	00	15 June 2024
5	00	15 June 2024	26	00	15 June 2024
6	00	15 June 2024	27	00	15 June 2024
7	00	15 June 2024	28	00	15 June 2024
8	00	15 June 2024	29	00	15 June 2024
9	00	15 June 2024	30	00	15 June 2024
10	00	15 June 2024	31	00	15 June 2024
11	00	15 June 2024	32	00	15 June 2024
12	00	15 June 2024	33	00	15 June 2024
13	00	15 June 2024	34	00	15 June 2024
14	00	15 June 2024	35	00	15 June 2024
15	00	15 June 2024	36	00	15 June 2024
16	00	15 June 2024	37	00	15 June 2024
17	00	15 June 2024	38	00	15 June 2024
18	00	15 June 2024	39	00	15 June 2024
19	00	15 June 2024	40	00	15 June 2024
20	00	15 June 2024	41	00	15 June 2024
21	00	15 June 2024	42	00	15 June 2024



**LIST OF EFFECTIVE PAGES 2**

Page No:	Rev. No:	Date	Page No:	Rev. No:	Date
43	00	15 June 2024	64	00	15 June 2024
44	00	15 June 2024	65	00	15 June 2024
45	00	15 June 2024			
46	00	15 June 2024			
47	00	15 June 2024			
48	00	15 June 2024			
49	00	15 June 2024			
50	00	15 June 2024			
51	00	15 June 2024			
52	00	15 June 2024			
53	00	15 June 2024			
54	00	15 June 2024			
55	00	15 June 2024			
56	00	15 June 2024			
57	00	15 June 2024			
58	00	15 June 2024			
59	00	15 June 2024			
60	00	15 June 2024			
61	00	15 June 2024			
62	00	15 June 2024			
63	00	15 June 2024			



## TABLE OF CONTENT

<b>FOREWORD</b>	<b>1</b>
<b>RECORD OF REVISION</b>	<b>2</b>
<b>HISTORY OF REVISION</b>	<b>3</b>
<b>LIST OF EFFECTIVE PAGES 1</b>	<b>4</b>
<b>LIST OF EFFECTIVE PAGES 2</b>	<b>5</b>
<b>TABLE OF CONTENT</b>	<b>6</b>
<b>DEFINITIONS</b>	<b>8</b>
<b>GM1 BCAR-OPS DEF</b>	<b>31</b>
<b>GM2 BCAR-OPS DEF</b>	<b>34</b>
<b>GM4 BCAR-OPS DEF</b>	<b>50</b>
<b>GM5 BCAR-OPS DEF</b>	<b>50</b>
<b>GM11 BCAR-OPS DEF</b>	<b>51</b>
<b>GM12 BCAR-OPS DEF</b>	<b>51</b>
<b>GM13 BCAR-OPS DEF</b>	<b>51</b>
<b>GM14 BCAR-OPS DEF</b>	<b>51</b>
<b>GM15 BCAR-OPS DEF</b>	<b>51</b>
<b>GM16 BCAR-OPS DEF</b>	<b>54</b>
<b>GM17 BCAR-OPS DEF</b>	<b>54</b>
<b>GM18 BCAR-OPS DEF</b>	<b>55</b>
<b>GM19 BCAR-OPS DEF</b>	<b>55</b>
<b>GM20 BCAR-OPS DEF</b>	<b>57</b>
<b>GM21 BCAR-OPS DEF</b>	<b>57</b>
<b>GM22 BCAR-OPS DEF</b>	<b>57</b>
<b>GM23 BCAR-OPS DEF</b>	<b>58</b>
<b>GM24 BCAR-OPS DEF</b>	<b>58</b>
<b>GM25 BCAR-OPS DEF</b>	<b>58</b>
<b>GM26 BCAR-OPS DEF</b>	<b>59</b>
<b>GM27 BCAR-OPS DEF</b>	<b>59</b>
<b>GM28 BCAR-OPS DEF</b>	<b>59</b>
<b>GM29 BCAR-OPS DEF</b>	<b>60</b>
<b>GM30 BCAR-OPS DEF</b>	<b>60</b>
<b>GM31 BCAR-OPS DEF</b>	<b>61</b>
<b>GM32 BCAR-OPS DEF</b>	<b>63</b>
<b>GM33 BCAR-OPS DEF</b>	<b>64</b>
<b>GM34 BCAR-OPS DEF</b>	<b>65</b>
<b>GM35 BCAR-OPS DEF</b>	<b>65</b>



**Intentionally Left Blank**





## DEFINITIONS

### Definitions for terms used in BCAR-ARO, BCAR-ORO, BCAR-SPA, BCAR-SPO and BCAR-CAT

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

01. **Accelerate-stop distance available (ASDA):** means the length of the take-off run available plus the length of stopway, if such stopway is declared available by the State of the aerodrome and is capable of bearing the mass of the aeroplane under the prevailing operating conditions;
02. **Acceptable means of compliance (AMC):** means non-binding standards adopted by the BCAA to illustrate means to establish compliance with BCAR-ARO, BCAR-ORO, BCAR-SPA, BCAR-SPO and BCAR-CAT and its Implementing Rules;
03. **Acceptance checklist:** means a document used to assist in carrying out a check on the external appearance of packages of dangerous goods and their associated documents to determine that all appropriate requirements have been met with;
04. **Advanced Aircraft:** An aircraft with equipment in addition to that required for a basic aircraft for a given take-off, approach or landing operation.
05. **Aerial Work:** An aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, Ariel advertisement, etc..
06. **Aerodrome:** 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.
07. **Aeroplane:** A power driven heavier than air-aircraft, deriving its lift in flight chiefly from aerodynamic reaction on surfaces which remain fixed under given conditions of flight.
08. **Adequate aerodrome:** an aerodrome on which the aircraft can be operated, taking account of the applicable performance requirements and runway characteristics;
09. **For the purpose of passenger classification:**
  - a. 'adult' means a person of an age of 12 years and above;
  - b. 'child/children' means persons who are of an age of two years and above but who are less than 12 years of age;
  - c. 'infant' means a person under the age of two years;
10. **Aerodrome operating minima** means the limits of usability of an aerodrome for:
  - a. take-off, expressed in terms of runway visual range (RVR) and/or visibility and, if necessary, ceiling.
  - b. landing in 2D instrument approach operations, expressed in terms of visibility and/or RVR, minimum descent altitude/height (MDA/H) and, if necessary, ceiling;
  - c. landing in 3D instrument approach operations, expressed in terms of visibility and/or RVR and decision altitude/height (DA/H) as appropriate to the type and/or category of the operation;
11. **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.*



12. **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;
13. **Aircraft operating manual.** A manual, acceptable to the State of the Operator, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft.

*Note:- The aircraft operating manual is part of the operations manual*

14. **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.
15. **Aircraft tracking system** means a system that relies on aircraft tracking in order to identify abnormal flight behaviour and provide alert;
16. **Air operator certificate (AOC).** A certificate authorizing an operator to carry out specified commercial air transport operations.
17. **Air traffic service (ATS).** 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).
18. **Airworthy.** The status of an aircraft, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation.
19. **Alternate aerodrome.** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to 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 land in the event that a diversion becomes necessary while en route.
  - c. **'fuel/energy en route alternate (fuel/energy ERA) aerodrome'** means an ERA aerodrome that is required at the planning stage for use in the calculation of fuel/energy;
  - d. **Destination alternate.** 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.*

20. **Altimetry system error (ASE).** 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.
21. **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.



22. **Appropriate airworthiness requirements.** The comprehensive and detailed airworthiness codes established, adopted or accepted by a Contracting State for the class of aircraft, engine or propeller under consideration.
23. **Appropriate ATS Authority.** The relevant authority designated by the state responsible for providing Air Traffic Services in the air space concerned.
24. **Area navigation (RNAV).** A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

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

25. **Alternative means of compliance means** those means that propose an alternative to an existing acceptable means of compliance or those that propose new means to establish compliance with BCAR-ARO, BCAR-ORO, BCAR-SPA, BCAR-SPO and BCAR-CAT and its Implementing Rules for which no associated AMC have been adopted by the BCAA;
26. **Anti-icing in the case of ground procedures,** means a procedure that provides protection against the formation of frost or ice and accumulation of snow on treated surfaces of the aircraft for a limited period of time (hold-over time);
27. **Basic aircraft.** An aircraft which has the minimum equipment required to perform the intended take-off, approach or landing operation.
28. **Cabin crew member** means an appropriately qualified crew member, other than a flight crew or technical crew member, who is assigned by an operator or Pilot in Command to perform duties related to the safety of passengers and flight during operations;
29. **Category A with respect to helicopters** means a multi-engined helicopter designed with engine and system isolation features specified in the applicable certification specification and capable of operations using take-off and landing data scheduled under a critical engine failure concept that assures adequate designated surface area and adequate performance capability for continued safe flight or safe rejected take-off in the event of engine failure;
30. **Category B with respect to helicopters** means a single-engined or multi-engined helicopter that does not meet category A standards. Category B helicopters have no guaranteed capability to continue safe flight in the event of an engine failure, and unscheduled landing is assumed;
31. **Ceiling'** means the height above the ground or water of the base of the lowest layer of cloud below 6000 m (20,000 ft) covering more than half the sky
32. **Circling'** means the visual phase of a circling approach operation;
33. **Circling approach operation'** means a Type A instrument approach operation to bring an aircraft into position for landing on a runway/final approach and take-off area (FATO) that is not suitably located for a straight-in approach;
34. **Clearway'** means a defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height;
35. **Cloud base'** means the height of the base of the lowest observed or forecast cloud element in the vicinity of an aerodrome or operating site or within a specified area of operations, normally measured above aerodrome elevation or, in the case of offshore operations, above mean sea level;



36. **Cockpit voice recorder (CVR)** means a crash-protected flight recorder that uses a combination of microphones and other audio and digital inputs to collect and record the aural environment of the flight crew compartment and communications to, from and between the flight crew members;
37. **Code share** means an arrangement under which an operator places its designator code on a flight operated by another operator, and sells and issues tickets for that flight;
38. **COMAT(Company Material)**. Operator material carried on an operator's aircraft for the operator's own purposes.
39. **Commercial air transport operation**. An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.
40. **Competency** means a dimension of human performance that is used to reliably predict successful performance on the job and which is manifested and observed through behaviours that mobilise the relevant knowledge, skills and attitudes to carry out activities or tasks under specified conditions;
41. **Competency-based training** means assessment and training programmes that are characterised by a performance orientation, emphasis on standards of performance and their measurement and the development of training to the specified
42. **Competency framework** means a complete set of identified competencies that are developed, trained and assessed in the operator's evidence-based training programme utilising scenarios that are relevant to operations and which is wide enough to prepare the pilot for both foreseen and unforeseen threats and errors;
43. **Configuration deviation list (CDL)**. A list established by the organization 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.
44. **Congested area** means in relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes;
45. **Congested hostile environment**. A hostile environment within a congested area.
46. **Contaminated runway** means a runway of which a significant portion of its surface area (whether in isolated areas or not) within the length and width being used is covered by one or more of the substances listed under the runway surface condition descriptors;

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

47. **Continuing airworthiness**. 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.
48. **Continuing airworthiness records**. Records which are related to the continuing airworthiness status of an aircraft, engine, propeller or associated part.
49. **Contingency fuel/energy** means the fuel/energy required to compensate for unforeseen factors that could have an influence on the fuel/energy consumption to the destination aerodrome;
50. **Continuous descent final approach (CDFA)** means a technique, consistent with stabilised 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:

- a. for straight-in approach operations, to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare manoeuvre begins; or
  - b. for circling approach operations, until MDA/H or visual flight manoeuvre altitude/height is reached;
51. **Converted meteorological visibility (CMV)** means a value, equivalent to an RVR, which is derived from the reported meteorological visibility;
52. **Complex motor-powered aircraft** shall mean:
- a. an aeroplane:
    - with a maximum certificated take-off mass exceeding 5 700 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:
    1. for a maximum take-off mass exceeding 3 175 kg, or
    2. for a maximum passenger seating configuration of more than nine, or
    3. for operation with a minimum crew of at least two pilots, or
  - c. a tilt rotor aircraft;
53. **Crew member** means a person assigned by an operator to perform duties on board an aircraft during a flight duty period;
54. **Critical phases of flight** in the case of **aeroplanes** means the take-off run, the take-off flight path, the final approach, the missed approach, the landing, including the landing roll, and any other phases of flight as determined by the pilot-in-command or Operator.
55. **Critical phases of flight** in the case of **helicopters** means taxiing, hovering, take-off, final approach, missed approach, the landing and any other phases of flight as determined by the pilot-in-command or operator;
56. **Cruise relief pilot.** A flight crew member who is assigned to perform pilot tasks during cruise flight, to allow the pilot-in command or a co-pilot to obtain planned rest.
57. **Cruising level.** A level maintained during a significant portion of a flight.
58. **Current Flight Plan(CPL)** the flight plan that reflects changes to the filed flight plan, if any, by subsequent ATC clearances.
59. **Current fuel/energy scheme** means the approved fuel/energy scheme that is currently used by the operator;
60. **Dangerous goods (DG)** means articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the technical instructions or which are classified according to those instructions;
- Note.— Dangerous goods are classified in Annex 18, Chapter 3.*
61. **Dangerous goods accident** means an occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property damage;



62. **Dangerous goods incident** means:

- a. an occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained;
- b. any occurrence relating to the transport of dangerous goods which seriously jeopardises an aircraft or its occupants;

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

*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”*

64. **De-icing**, in the case of ground procedures, means a procedure by which frost, ice, snow or slush is removed from an aircraft in order to provide uncontaminated surfaces;
65. **Defined point after take-off (DPATO)** means the point, within the take-off and initial climb phase, before which the helicopter’s ability to continue the flight safely, with the critical engine inoperative, is not assured and a forced landing may be required;

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

66. **Defined point before landing (DPBL)** means the point within the approach and landing phase, which the helicopter’s ability to continue the flight safely, with the critical engine inoperative, is not assured and a forced landing may be required;

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

67. **Distance DR** means the horizontal distance that the helicopter has travelled from the end of the take-off distance available;

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

69. **Dry operating mass** means the total mass of the aircraft ready for a specific type of operation, excluding usable fuel and traffic load;

70. **Dry runway** means a runway whose surface is free of visible moisture and not contaminated within the area intended to be used;

71. **Duty.** 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.





72. **Duty period.** 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.
73. **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.
- Note.— Guidance on EDTO critical fuel scenarios is contained in the Extended Diversion Time Operations (EDTO) Manual (Doc 10085).*
74. **EBT module** means a combination of sessions in a qualified flight simulation training device as part of the 3-year period of recurrent assessment and training;
75. **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.
76. **ELA1 aircraft** means the following manned Light Aircraft:
- an aeroplane with a Maximum Take-off Mass (MTOM) of 1 200 kg or less that is not classified as complex motor-powered aircraft;
  - a sailplane or powered sailplane of 1 200 kg MTOM or less;
  - a balloon with a maximum design lifting gas or hot air volume of not more than 3400 m<sup>3</sup> for hot air balloons, 1 050 m<sup>3</sup> for gas balloons, 300 m<sup>3</sup> for tethered gas balloons;
77. **ELA2 aircraft** means the following manned Light Aircraft:
- an aeroplane with a Maximum Take-off Mass (MTOM) of 2 000 kg or less that is not classified as complex motor-powered aircraft;
  - a sailplane or powered sailplane of 2 000 kg MTOM or less;
  - a balloon;
  - a Very Light Rotorcraft with a MTOM not exceeding 600 kg which is of a simple design, designed to carry not more than two occupants, not powered by turbine and/or rocket engines; restricted to VFR day operations;
78. **Electronic flight bag (EFB)** means an electronic information system, comprised of equipment and applications for flight crew, which allows for the storing, updating, displaying and processing of EFB functions to support flight operations or duties;
79. **EFB application** means a software application installed on an EFB host platform that provides one or more specific operational functions which support flight operations;
80. **Elevated final approach and take-off area (elevated FATO)** means a FATO that is at least 3 m above the surrounding surface;
81. **Emergency exit** means an installed exit-type egress point from the aircraft that allows maximum opportunity for cabin and flight crew compartment evacuation within an appropriate time period and includes floor level door, window exit or any other type of exit, for instance hatch in the flight crew compartment and tail cone exit;
82. **Emergency locator transmitter (ELT).** A generic term describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may be automatically activated by impact or be manually activated. An ELT may be any of the following:
- Automatic fixed ELT (ELT(AF)). An automatically activated ELT which is permanently attached to an aircraft.
  - Automatic portable ELT (ELT(AP)). An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft.



- 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.
83. **Engine.** A unit used or intended to be used for aircraft propulsion. It consists of at least those components and equipment necessary for functioning and control, but excludes the propeller/rotors (if applicable).
84. **Enhanced flight vision system (EFVS)** is an electronic means to provide the flight crew with a real-time sensor-derived or enhanced display of the external scene topography (the natural or man-made features of a place or region especially in a way to show their relative positions and elevation) through the use of imaging sensors; an EFVS is integrated with a flight guidance system and is implemented on a head-up display or an equivalent display system; if an EFVS is certified according to the applicable airworthiness requirements and an operator holds the necessary specific approval (when required), then it may be used for EFVS operations and may allow operations with operational credits;
85. **Enhanced vision system (EVS).** 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).*

86. **EFVS operation** means an operation in which visibility conditions require an EFVS to be used instead of natural vision in order to perform an approach or landing, identify the required visual references or conduct a roll-out;
87. **EFVS 200 operation** means an operation with an operational credit in which visibility conditions require an EFVS to be used down to 200 ft above the FATO or runway threshold. From that point to land, natural vision is used. The RVR shall not be less than 550 m;
88. **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.
89. **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.
90. **Evidence-based training (EBT)** means assessment and training based on operational data that is characterised by developing and assessing the overall capability of a pilot across a range of competencies (competency framework) rather than by measuring the performance in individual events or manoeuvres;
91. **Fatigue.** A physiological state of reduced mental or physical performance capability resulting from sleep loss, extended wakefulness, circadian phase, and/or workload (mental and/or physical activity) that can impair a person's alertness and ability to perform safety-related operational duties.
92. **Fatigue Risk Management System (FRMS).** 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.





93. **Filed flight plan (FPL or eFPL)** The latest flight plan as submitted by the pilot, an operator or a designated representative for use by ATS units.

*Note: the FPL denotes a filed flight plan exchanged using aeronautical fixed service while eFPL denotes a filed flight plan exchanged using FF-ICE services. The eFPL allows for the exchange of additional information not contained within the FPL*

94. **Final approach and take-off area (FATO)** means a defined area for helicopter operations, over which the final phase of the approach manoeuvre to hover or land is completed, and from which the take-off maneuver is commenced. In the case of helicopters operating in performance class 1, the defined area includes the rejected take-off area available;
95. **Final approach segment (FAS).** That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.
96. **Flight crew member** means a licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period;
97. **Flight data analysis.** A process of analysing recorded flight data in order to improve the safety of flight operations.
98. **Flight duty period.** 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 aircraft finally comes to rest and the engines are shut down at the end of the last flight on which he/she is a crew member.
99. **Flight data monitoring (FDM)** means the proactive and non-punitive use of digital flight data from routine operations to improve aviation safety;
100. **Flight data recorder (FDR)** means a crash-protected flight recorder that uses a combination of data sources to collect and record parameters that reflect the state and performance of the aircraft;
101. **Flight following** means the recording in real time of departure and arrival messages by operational personnel to ensure that a flight is operating and has arrived at the destination aerodrome or an alternate aerodrome;
102. **Flight manual.** 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.
103. **Flight monitoring** means, in addition to the requirements defined for flight following:
- operational monitoring of flights by suitably qualified operational-control personnel from departure throughout all phases of the flight;
  - communication of all available and relevant safety information between the operational-control personnel on the ground and the flight crew; and
  - critical assistance to the flight crew in the event of an in-flight emergency or security issue, or at the request of the flight crew;
104. **Flight operations officer or 'flight dispatcher'** means a person designated by the operator to engage in the control and supervision of flight operations, who is suitably qualified, who supports, briefs or assists, or both, the pilot-in-command in the safe conduct of the flight;
105. **Flight plan.** Specified information, relative to an intended flight or portion of a flight of an aircraft.

Note 1: The term Flight Plan may be prefixed by the words "preliminary", "filed", "current" or "operational" to indicate the context and different stages of a flight



Note 2: When the word “message” is used as a suffix to this term, it denotes the content and format of the flight plan data as transmitted .

106. **Flight recorder.** Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

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

107. **Flight safety documents system.** A set of interrelated documentation established by the operator, compiling and organizing information necessary for flight and ground operations, and comprising, as a minimum, the operations manual and the operator’s maintenance control manual.

108. **Flight simulation training device (FSTD)** means a training device which is:

- a. in the case of aeroplanes, a full flight simulator (FFS), a flight training device (FTD), a flight and navigation procedures trainer (FNPT), or a basic instrument training device (BITD);
- b. in the case of helicopters, a full flight simulator (FFS), a flight training device (FTD) or a flight and navigation procedures trainer (FNPT);
- c. A flight simulator, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;
- d. A flight procedures trainer, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;
- e. 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.

109. **Flight time** means:

- a. for aeroplanes, the total time from the moment an aeroplane first moves for the purpose of taking off until the moment the aeroplane finally comes to rest at the end of the flight;
- b. for helicopters, the total time between the moment a helicopter’s rotor blades start turning for the purpose of taking off until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped;

*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.*

110. **Flight watch** means, in addition to all elements defined for ‘flight monitoring’, the active tracking of a flight by suitably qualified operational-control personnel throughout all phases of the flight to ensure that the flight is following its prescribed route without unplanned deviations, diversions or delays;



111. **GBAS landing system (GLS)** means an approach landing system using ground based augmented global navigation satellite system (GNSS/GBAS) information to provide guidance to the aircraft based on its lateral and vertical GNSS position. It uses geometric altitude reference for its final approach slope;
112. **General aviation operation.** An aircraft operation other than a commercial air transport operation or an aerial work operation.
113. **Go-around** means a transition from an approach operation to a stabilised climb. This includes manoeuvres conducted at or above the MDA/H or DA/H, or below the DA/H (balked landings);
114. **Ground emergency service personnel** means any ground emergency service personnel (such as policemen, firemen, etc.) involved with helicopter emergency medical services (HEMSs) and whose tasks are to any extent pertinent to helicopter operations;
115. **Ground handling.** Services necessary for an aircraft's arrival at, and departure from, an airport, other than air traffic services.
116. **Grounding** means the formal prohibition of an aircraft to take-off and the taking of such steps as are necessary to detain it;
117. **Head-up display (HUD).** A display system that presents flight information into the pilot's forward external field of view.
118. **Head-up display landing system (HUDLS)** means the total airborne system which provides head-up guidance to the pilot to enable the pilot to either control the aircraft or to monitor the autopilot during take-off (if applicable), approach and landing (and roll-out if applicable), or go-around. It includes all the sensors, computers, power supplies, indications and controls;
119. **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".*

120. **Helicopter hoist operation (HHO) crew member** means a technical crew member who performs assigned duties relating to the operation of a hoist;
121. **Helideck** means a FATO located on a floating or fixed offshore structure;
122. **HEMS crew member** means a technical crew member who is assigned to a HEMS flight for the purpose of attending to any person in need of medical assistance carried in the helicopter and assisting the pilot during the mission;
123. **HEMS flight** means a flight by a helicopter operating under a HEMS approval, where immediate and rapid transportation is essential and the purpose of which is either of the following:
- a. to facilitate emergency medical assistance by carrying one or more of the following:
    1. medical personnel;
    2. medical supplies (equipment, blood, organs, drugs);
    3. ill or injured persons and other persons directly involved;
  - b. to perform an operation where a person faces an imminent or anticipated health risk posed by the environment and either of the following conditions is met:
    - i. that person needs to be rescued or provided with supplies;
    - ii. persons, animals or equipment need to be transported to and from the HEMS operating site;
124. **HEMS HEC operation** means air and ground operations for the purpose of transporting one or more persons as human external cargo (HEC) within a HEMS flight;



125. **HEMS operating site** means a site that is selected by the commander during a HEMS flight for a HEMS HEC operation or a landing or a take-off;
126. **HHO flight** means a flight by a helicopter operating under an HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist;
127. **HHO passenger** means a person who is to be transferred by means of a helicopter hoist;
128. **HHO site** means a specified area at which a helicopter performs a hoist transfer;
129. **Hold-over time (HoT)** means the estimated time the anti-icing fluid will prevent the formation of ice and frost and the accumulation of snow on the protected (treated) surfaces of an aeroplane;
130. **Hostile environment** means:
- a. an area in which:
    1. a safe forced landing cannot be accomplished because the surface is inadequate; or
    2. the helicopter occupants cannot be adequately protected from the elements; or
    3. search and rescue response/capability are not provided consistent with anticipated exposure; or
    4. there is an unacceptable risk of endangering persons or property on the ground;
  - b. in any case, the following areas:
    1. for overwater operations, the open sea area north of 45 N and south of 45 S, unless any part is designated as non-hostile by the responsible authority of the State in which the operations take place; and
    2. those parts of a congested area without adequate safe forced landing areas;
131. **Human Factors principles.** Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.
132. **Human-machine interface (HMI)** means a component of certain devices that is capable of handling human-machine interactions. The interface consists of hardware and software that allow user inputs to be interpreted and processed by machines or systems that, in turn, provide the required results to the user;
133. **Human performance.** Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.
134. **In-seat instruction** means a technique used in the manoeuvres training phase or the scenario based training phase, where the instructors can:
- a. provide simple instructions to one pilot; or
  - b. perform predetermined exercises acting, in a pilot seat, as pilot flying (PF) or pilot monitoring (PM) for:
    - i. the demonstration of techniques; and/or
    - ii. triggering the other pilot to intervene or interact;
135. **Instructor concordance** means the consistency or stability of scores between different EBT instructors which gives a score (or scores) of how much homogeneity, or consensus, there is in the ratings given by instructors (raters);
136. **Instrument approach operation** means an approach and landing using instruments for navigation guidance based on an instrument approach procedure (IAP). There are two methods for executing instrument approach operations:



- a. a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and
- b. a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance;

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

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

**137. Instrument approach procedure (IAP)** means a series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix or, where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. IAPs are classified as follows:

- a. **non-precision approach (NPA) procedure**, which means an IAP designed for 2D instrument approach operations Type A;
- b. **approach procedure with vertical guidance (APV)** means a performance-based navigation (PBN) IAP designed for 3D instrument approach operations Type A;
- c. **precision approach (PA) procedure** means an IAP based on navigation systems designed for 3D instrument approach operations Type A or B;

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

*Note.— Refer to 4.2.8.3 for instrument approach operation types.*

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

*Note: specified minima for visual meteorological conditions are contained in Chapter 4 of Annex 2*

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

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

**141. Large aeroplane.** An aeroplane of a maximum certificated take-off mass of over 5 700 kg.

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

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



143. **Landing distance at time of arrival (LDTA)** means a landing distance that is achievable in normal operations based on landing performance data and associated procedures determined for the prevailing conditions at the time of landing;
144. **Landing distance available (LDA)** means the length of the runway which is declared available by the State of the aerodrome and suitable for the ground run of an aeroplane landing;
145. **Line-orientated flight scenario** means the assessment and training involving a realistic, 'realtime', full mission simulation of scenarios that are representative of line operations;
146. **Line check** means a check conducted by the operator and completed by the pilot or the technical crew member to demonstrate competence in carrying out normal line operations described in the operations manual;
147. **Low-visibility operations (LVOs)** means approach or take-off operations on a runway with a runway visual range less than 550 m or with a decision height less than 60m(200 ft) or take-off operations in runway visual range less than 400m;
148. **Maintenance.** The performance of tasks on an aircraft, engine, propeller or associated part required to ensure the continuing airworthiness of an aircraft, engine, propeller or associated part including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.
149. **Maintenance organization's procedures manual.** A document endorsed by the head of the maintenance organization which details the maintenance organization's structure and management responsibilities, scope of work, description of facilities, maintenance procedures and quality assurance or inspection systems.
150. **Maintenance check flight ('MCF')** means a flight of an aircraft with an airworthiness certificate or with a permit to fly which is carried out for troubleshooting purposes or to check the functioning of one or more systems, parts or appliances after maintenance, if the functioning of the systems, parts or appliances cannot be established during ground checks and which is carried out in any of the following situations:
- as required by the aircraft maintenance manual ('AMM') or any other maintenance data issued by a design approval holder being responsible for the continuing airworthiness of the aircraft;
  - after maintenance, as required by the operator or proposed by the organisation responsible for the continuing airworthiness of the aircraft;
  - as requested by the maintenance organisation for verification of a successful defect rectification;
  - to assist with fault isolation or troubleshooting;
151. **Maintenance programme.** 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.
152. **Maintenance release.** 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.
153. **Master minimum equipment list (MMEL).** A list established for a particular aircraft type by the organization responsible for the type design with the approval of the State of Design containing items, one or more of which is permitted to be unserviceable at the commencement of a flight. The MMEL may be associated with special operating conditions, limitations or procedures.
154. **Maximum diversion time.** Maximum allowable range, expressed in time, from a point on a route to an en-route alternate aerodrome.





155. **Maximum mass.** Maximum certificated take-off mass.

156. **Maximum operational passenger seating configuration (MOPSC)** means the maximum passenger seating capacity of an individual aircraft, excluding crew seats, established for operational purposes and specified in the operations manual. Taking as a baseline the maximum passenger seating configuration established during the certification process conducted for the type certificate (TC), supplemental type certificate (STC) or change to the TC or STC as relevant to the individual aircraft, the MOPSC may establish an equal or lower number of seats, depending on the operational constraints;

157. **Medical passenger** means a medical person carried in a helicopter during a HEMS flight, including but not limited to doctors, nurses and paramedics;

158. **Minor failure condition** means a failure condition that would not significantly reduce aircraft safety, and which involves flight crew actions that are well within their capabilities;

159. **Misuse of substances** means the use of one or more psychoactive substances by flight crew, cabin crew members and other safety-sensitive personnel in a way that:

- a. constitutes a direct hazard to the user or endangers the lives, health or welfare of others, and/or
- b. causes or worsens an occupational, social, mental or physical problem or disorder;

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

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

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

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

161. **Minimum equipment list (MEL).** A list which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, prepared by an operator in conformity with, or more restrictive than, the MMEL established for the aircraft type.

162. **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. Further guidance on aircraft maintenance — modification and repair is contained in the Airworthiness Manual (Doc 9760).*

163. **Navigation specification.** 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. Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.
- b. Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

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

*Note 2.— The term RNP, previously defined as “a statement of the navigation performance necessary for operation within a defined airspace”, has been removed from this Annex as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.*

164. **Night** means the period between sunset and sunrise.

165. **Non-hostile environment’ means an environment in which:**

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

*Note: In any case, those parts of a congested area with adequate safe forced landing areas shall be considered non-hostile;*

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

*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”.*

167. **Operating site** means a site, other than an aerodrome, selected by the operator or pilot-in command for landing, take-off and/or external load operations;

168. **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.*





169. **Operation in performance class 1** means an operation that, in the event of failure of the critical engine, the helicopter is able to land within the rejected take-off distance available or safely continue the flight to an appropriate landing area, depending on when the failure occurs;
170. **Operation in performance class 2** means an operation that, in the event of failure of the critical engine, performance is available to enable the helicopter to safely continue the flight, except when the failure occurs early during the take-off manoeuvre or late in the landing manoeuvre, in which cases a forced landing may be required;
171. **Operation in performance class 3** means an operation that, in the event of an engine failure at any time during the flight, a forced landing may be required in a multi-engined helicopter and will be required in a single-engined helicopter;
172. **Operational control** means the responsibility for the initiation, continuation, termination or diversion of a flight in the interest of safety of the aircraft and the regularity and efficiency of the flight.
173. **Operational credit** means a credit for operations with an advanced aircraft enabling lower aerodrome operating minima than would normally be established by the operator for a basic aircraft, based upon the performance of advanced aircraft systems utilising the available external infrastructure. Lower operating minima may include a lower decision height/altitude or minimum descent height/altitude, reduced visibility requirements or reduced ground facilities or a combination of these;
174. **Operational flight plan.** The operator's plan for the safe conduct of the flight based on considerations of aeroplane performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes concerned.
175. **Operations manual.** A manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.
176. **Operations specifications.** The authorizations including specific approvals, conditions and limitations associated with the air operator certificate and subject to the conditions in the operations manual.
177. **Operator.** The person, organization or enterprise engaged in or offering to engage in an aircraft operation.
178. **Operator's maintenance control manual.** A document which describes the operator's procedures necessary to ensure that all scheduled and unscheduled maintenance is performed on the operator's aircraft on time and in a controlled and satisfactory manner.
179. **Operator proficiency check** means a check conducted by the operator and completed by the pilot or the technical crew member to demonstrate competence in carrying out normal, abnormal and emergency procedures;
180. **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.

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

*Note 2. — PBAOM may be based on operational credits.*

*Note 3. — PBAOM are not limited to PBN operations.*



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

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

182. **Performance-based navigation (PBN).** 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.*

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

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

184. **Performance class A aeroplanes** means multi-engined aeroplanes powered by turbo-propeller engines with an MOPSC of more than nine or a maximum take-off mass exceeding 5 700 kg, and all multi-engined turbo-jet powered aeroplanes;

185. **Performance class B aeroplanes** means aeroplanes powered by propeller engines with an MOPSC of nine or less and a maximum take-off mass of 5 700 kg or less;

186. **Performance class C aeroplanes** means aeroplanes powered by reciprocating engines with an MOPSC of more than nine or a maximum take-off mass exceeding 5 700 kg;

187. **Personnel-carrying device system (PCDS)** means a system including one or more devices that is either attached to a hoist or cargo hook or mounted to the rotorcraft airframe during human external cargo (HEC) or helicopter hoist operations (HHO). The devices have the structural capability and features needed to transport occupants external to the helicopter e.g. a life safety harness with or without a quick release and stop with a connector ring, a rigid basket or a cage;

188. **Simple personnel carrying device system (simple 'PCDS')** means a PCDS that complies with the following conditions:

- a. is designed to restrain no more than a single person (for instance, hoist or cargo hook operator, task specialist or photographer) inside the cabin, or to restrain no more than two persons outside the cabin;
- b. is not a rigid structure such as a cage, a platform or a basket;

189. **Pilot-in-command.** The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight, For the purpose of commercial air transport operations, the 'pilot-in command' shall be termed the 'commander';



190. **Point of no return.** The last possible geographic point at which an aircraft can proceed to the destination aerodrome as well as to an available en-route alternate aerodrome for a given flight.
191. **Portable EFB** means a portable EFB host platform, used on the flight deck, which is not part of the configuration of the certified aircraft;
192. **Portable electronic device (PED)** means any kind of electronic device, typically but not limited to consumer electronics, brought on board the aircraft by crew members, passengers, or as part of the cargo, that is not included in the configuration of the certified aircraft. It includes all equipment that is able to consume electrical energy. The electrical energy can be provided from internal sources such as batteries (chargeable or non-rechargeable) or the devices may also be connected to specific aircraft power sources;
193. **Preliminary Flight Plan(PFP)** The information related to a flight submitted by an operator or a designated representative to conduct collaborative planning of a flight, prior to filing a flight plan
194. **Pressure-altitude.** An atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere as defined in Annex 8 .
195. **Principal place of business** means the head office or registered office of the organisation within which the principal financial functions and operational control of the activities referred to in this Regulation are exercised;
196. **Proficient** means having demonstrated the necessary skills, knowledge and attitudes that are required to perform any defined tasks to the prescribed standard;
197. **Psychoactive substances** means alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, volatile solvents, and list of Psychoactive substances as per the Bhutan Food & Drug Authority with the exception of caffeine and tobacco;
198. **Public interest site (PIS)** means a site used exclusively for operations in the public interest;
199. **Ramp inspection** means the inspection of aircraft, of flight and cabin crew qualifications and of flight documentation in order to verify the compliance with the applicable requirements;
200. **Rectification interval** means a limitation on the duration of operations with inoperative equipment;
201. **Rejected take-off distance available (RTODAH)** means the length of the final approach and takeoff area declared available and suitable for helicopters operated in performance class 1 to complete a rejected take-off;
202. **Rejected take-off distance required (RTODRH)** means the horizontal distance required from the start of the take-off to the point where the helicopter comes to a full stop following an engine failure and rejection of the take-off at the take-off decision point; Required navigation performance (RNP) specification' means a navigation specification for PBN operations which includes a requirement for on-board navigation performance monitoring and alerting;
203. **Repair.** 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.
204. **Required communication performance (RCP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.
205. **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.



206. **Rest period.** 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.
207. **Rules of the air** means the rules established in BCAR-2
208. **Runway condition report (RCR)** means a comprehensive standardised report relating to the conditions of the runway surface and their effect on the aeroplane landing and take-off performance, described by means of runway conditions code;
209. **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;
210. **Safe landing** means, in the context of the fuel/energy policy or fuel/energy schemes, a landing at an adequate aerodrome or operating site with no less than the final reserve fuel/energy remaining and in compliance with the applicable operational procedures and aerodrome operating minima;
211. **Safe forced landing** means an unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface;
212. **Safety management system (SMS).** A systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures.
213. **Safety-sensitive personnel** means persons who might endanger aviation safety if they perform their duties and functions improperly, including flight crew and cabin crew members, aircraft maintenance personnel and air traffic controllers;
214. **Series of flights.** Series of flights are consecutive flights that:
- begin and end within a period of 24 hours; and
  - are all conducted by the same pilot-in-command.
215. **Small aeroplane.** An aeroplane of a maximum certificated take-off mass of 5 700 kg or less.
216. **Special VFR flight** means a VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below ViMC;
217. **Specific approval.** An approval which is documented in the operations specifications for commercial air transport operations or in the list of specific approvals for general aviation operations.

*Note.— The terms authorization, specific approval, approval and acceptance are further described in Attachment B( Aeroplane) and Attachment D(Helicopter).*

218. **Stabilised approach (SAp)** means an approach that is flown in a controlled and appropriate manner in terms of configuration, energy and control of the flight path from a pre-determined point or altitude/height down to a point 50 ft above the threshold or the point where the flare manoeuvre is initiated if higher;
219. **State of Registry.** The State on whose register the aircraft is entered.

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

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

*Note : State of Aerodrome includes heliports and landing locations*



221. **State of the Operator.** The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.
222. **Sterile flight crew compartment** means any period of time when the flight crew members are not disturbed or distracted, except for matters critical to the safe operation of the aircraft or the safety of the occupants;
223. **Synthetic vision system (SVS).** A system to display data-derived synthetic images of the external scene from the perspective of the flight deck.
224. **Target level of safety (TLS).** A generic term representing the level of risk which is considered acceptable in particular circumstances.
225. **Take-off alternate aerodrome** means an alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and if it is not possible to use the aerodrome of departure;
226. **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.
227. **Take-off decision point (TDP)** means the point used in determining take-off performance from which, an engine failure having been recognised at this point, either a rejected take-off may be made or a take-off safely continued;
- Note.— TDP applies only to helicopters operating in performance Class 1.*
228. **Take-off distance available (TODA)** in the case of aeroplanes means the length of the take-off run available plus the length of the clearway, if provided;
229. **Take-off distance available (TODAH)** in the case of helicopters means the length of the final approach and take-off area plus, if provided, the length of helicopter clearway declared available and suitable for helicopters to complete the take-off;
230. **Take-off distance required (TODRH)** in the case of helicopters means the horizontal distance required from the start of the take-off to the point at which take-off safety speed (VTOSS), a selected height and a positive climb gradient are achieved, following failure of the critical engine being recognised at the TDP, the remaining engines operating within approved operating limits;
231. **Take-off flight path** means the vertical and horizontal path, with the critical engine inoperative, from a specified point in the take-off for aeroplanes to 1 500 ft above the surface and for helicopters to 1 000 ft above the surface;
232. **Take-off mass** means the mass including everything and everyone carried at the commencement of the take-off for helicopters and take-off run for aeroplanes;
233. **Take-off run available (TORA)** means the length of runway that is declared available by the State of the aerodrome and suitable for the ground run of an aeroplane taking off;
234. **Task specialist** means a person assigned by the operator or a third party, or acting as an undertaking, who performs tasks on the ground directly associated with a specialised task or performs specialised tasks on board or from the aircraft;
235. **Technical crew member** means a crew member in commercial air transport HEMS, HEMS HEC, HHO or NVIS operations, other than a flight or cabin crew member, assigned by the operator to duties in the aircraft or on the ground for the purpose of assisting the pilot during HEMS, HEMS HEC, HHO or NVIS operations, which may require the operation of specialised on-board equipment;



236. **Technical instructions (TI)** means the latest effective edition of the ‘Technical instructions for the safe transport of dangerous goods by air’, including the supplement and any addenda, approved and published by the International Civil Aviation Organisation;
237. **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.
238. **Total vertical error (TVE).** The vertical geometric difference between the actual pressure altitude flown by an aircraft and its assigned pressure altitude (flight level).
239. **Traffic load** means the total mass of passengers, baggage, cargo and carry-on specialist equipment and including any ballast;
240. **Type A EFB application** means an EFB application whose malfunction or misuse has no safety effect;
241. **Type B EFB application** means an EFB application:
- whose malfunction or misuse is classified as minor failure condition or below; and
  - which neither replaces nor duplicates any system or functionality required by airworthiness regulations, airspace requirements, or operational rules;
242. **Training to proficiency** means training designed to achieve end-state performance objectives, providing sufficient assurance that the trained individual is capable of consistently carrying out specific tasks safely and effectively;
243. **Type A instrument approach operation’** means an instrument approach operation with an MDH or a DH at or above 250 ft;
244. **Type B instrument approach operation** means an operation with a DH below 250 ft. Type B instrument approach operations are categorised as:
- Category I (CAT I): a DH not lower than 200 ft and with either a visibility not less than 800 m or an RVR not less than 550 m;
  - Category II (CAT II): a DH lower than 200 ft but not lower than 100 ft, and an RVR not less than 300 m;
  - Category III (CAT III): a DH lower than 100 ft or no DH, and an RVR less than 300 m or no RVR limitation;
245. **V1** means the maximum speed in the take-off at which the pilot must take the first action to stop the aeroplane within the accelerate-stop distance. V1 also means the minimum speed in the take-off, following a failure of the critical engine at VEF, at which the pilot can continue the take-off and achieve the required height above the take-off surface within the take-off distance;
246. **VEF** means the speed at which the critical engine is assumed to fail during take-off;
247. **Visibility (VIS)** means visibility for aeronautical purposes, which is the greater of:
- the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognised when observed against a bright background; and
  - the greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background;
248. **Visual approach operation** means an approach operation by an IFR flight when either a part or all parts of an IAP is (are) not completed and the approach operation is executed with visual reference to terrain;
249. **Visual meteorological conditions (VMC).** Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling\*, equal to or better than specified minima.

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





250. **V<sub>Toss</sub>**. The minimum speed at which climb shall be achieved with the critical engine inoperative, the remaining engines operating within approved operating limits. Note.— The speed referred to above may be measured by instrument indications or achieved by a procedure specified in the flight manual.
251. **Weather-permissible aerodrome** means an adequate aerodrome where, for the anticipated time of use, meteorological reports, or forecasts, or any combination thereof, indicate that the meteorological conditions will be at or above the required aerodrome operating minima, and the runway surface condition reports indicate that a safe landing will be possible;
252. **Wet lease agreement** means an agreement:
- in the case of CAT operations, between air carriers pursuant to which the aircraft is operated under the AOC of the lessor; or
  - in the case of commercial operations other than CAT, between operators pursuant to which the aircraft is operated under the responsibility of the lessor;
253. **Wet runway** means a runway whose surface is covered by any visible dampness or water up to and including 3 mm deep within the area intended to be used.

## GM1 BCAR-OPS DEF

### DEFINITIONS FOR TERMS USED IN ACCEPTABLE MEANS OF COMPLIANCE AND GUIDANCE MATERIAL

For the purpose of Acceptable Means of Compliance and Guidance Material to **BCAR-ARO, BCAR-ORO, BCAR-SPA, BCAR-SPO and BCAR-CAT**, the following definitions should apply:

- Abnormal flight behaviour** means, in the context of an aircraft tracking system, an event affecting a flight:
  - Which is outside of the parameters defined by the operator for normal operation or which indicates an obvious deviation from normal operation; and
  - for which the operator has determined that it poses a risk for the safe continuation of the flight or for third parties.
- Accuracy** means, in the context of PBN operations, the degree of conformance between the estimated, measured or desired position and/or the velocity of a platform at a given time, and its true position or velocity. Navigation performance accuracy is usually presented as a statistical measure of system error and is specified as predictable, repeatable and relative.
- Aircraft-based augmentation system (ABAS)** means a system that augments and/or integrates the information obtained from the other GNSS elements with information available on board the aircraft. The most common form of ABAS is receiver autonomous integrity monitoring (RAIM).
- Airport moving map display (AMMD)** means a software application that displays an airport map on a display device and uses data from a navigation source to depict the aircraft current position on this map while the aircraft is on the ground.
- Area navigation (RNAV)** means a method of navigation which permits aircraft operation on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these.
- Availability** means, in the context of PBN operations, an indication of the ability of the system to provide usable service within the specified coverage area and is defined as the portion of



time during which the system is to be used for navigation during which reliable navigation information is presented to the crew, autopilot or other system managing the flight of the aircraft.

7. **Committal point** means the point in the approach at which the pilot flying decides that, in the event of an engine failure being recognised, the safest option is to continue to the elevated final approach and take-off area (elevated FATO).
8. **Continuity of function** means, in the context of PBN operations, the capability of the total system, comprising all elements necessary to maintain aircraft position within the defined airspace, to perform its function without non-scheduled interruptions during the intended operation.
9. **Controlled portable electronic device (C-PED)** means a PED subject to administrative control by the operator that uses it. This includes, inter alia, tracking the allocation of the devices to specific aircraft or persons and ensuring that no unauthorised changes are made to the hardware, software, or databases. C-PEDs can be assigned to the category of non-intentional transmitters or T-PEDs.
10. **EFB installed resources** means certified EFB hardware components external to the EFB host platform itself, such as input/output components (installed remote displays, keyboards, pointing devices, switches, etc.) or a docking station.
11. **EFB mounting device** means an aircraft certified part that secures a portable or installed EFB, or EFB system components.
12. **EFB system supplier** means the company responsible for developing, or for having developed, the EFB system or part of it.
13. **Emergency locator transmitter** is a generic term describing equipment that broadcasts distinctive signals on designated frequencies for the purpose of search and rescue (SAR). The ELT may be activated by various conditions (e.g. manual activation, automatic detection of a distress situation, automatic detection of a crash impact, automatic detection of aircraft immersion into water, etc.). The ELT signals usually include signals that are intended to be detected by the international COSPAS-SARSAT programme, and homing signals that are intended to guide SAR teams to the ELT.
14. **Exposure time** means the actual period during which the performance of the helicopter with the critical engine inoperative in still air does not guarantee a safe forced landing or the safe continuation of the flight.
15. **Fail-operational flight control system** means a flight control system with which, in the event of a failure below alert height, the approach, flare and landing can be completed automatically. In the event of a failure, the automatic landing system will operate as a fail-passive system.
16. **Fail-operational hybrid landing system** means a system that consists of a primary fail-passive automatic landing system and a secondary independent guidance system enabling the pilot to complete a landing manually after failure of the primary system.
17. **Fail-passive flight control system:** a flight control system is fail-passive if, in the event of a failure, there is no significant out-of-trim condition or deviation of flight path or attitude but the landing is not completed automatically. For a fail-passive automatic flight control system the pilot assumes control of the aeroplane after a failure.
18. **Flight control system in the context of low visibility operations** means a system that includes an automatic landing system and/or a hybrid landing system.





19. **HEMS dispatch centre** means a place where, if established, the coordination or control of the helicopter emergency medical service (HEMS) flight takes place. It may be located in a HEMS operating base.
20. **Hybrid head-up display landing system (hybrid HUDLS)** means a system that consists of a primary fail-passive automatic landing system and a secondary independent HUD/HUDLS enabling the pilot to complete a landing manually after failure of the primary system.(na) 'Installed EFB' means an EFB host platform installed in an aircraft, capable of hosting type A and/or type B EFB applications. It may also host certified applications. It is an aircraft part, and, is therefore, covered by the aircraft airworthiness approval.
21. **Integrity** means, in the context of PBN operations, the ability of a system to provide timely warnings to users when the system should not be used for navigation.
22. **Landing distance available (LDAH)** means the length of the final approach and take-off area plus any additional area declared available by the State of the aerodrome and suitable for helicopters to complete the landing manoeuvre from a defined height.
23. **Landing distance required (LDRH) in the case of helicopters**, means the horizontal distance required to land and come to a full stop from a point 15 m (50 ft) above the landing surface.
24. **Lateral navigation** means a method of navigation which permits aircraft operation on a horizontal plane using radio navigation signals, other positioning sources, external flight path references, or a combination of these.
25. **'Mass' and 'weight'**: In accordance with ICAO Annex 5 and the International System of Units (SI), both terms are used to indicate the actual and limiting masses of aircraft, the payload and its constituent elements, the fuel load, etc. These are expressed in units of mass (kg), but in most approved flight manuals and other operational documentation, these quantities are published as weights in accordance with the common language. In the ICAO standardised system of units of measurement, a weight is a force rather than a mass. Since the use of the term 'weight' does not cause any problem in the day-to-day handling of aircraft, its continued use in operational applications and publications is acceptable.
26. **Maximum structural landing mass** means the maximum permissible total aeroplane mass upon landing under normal circumstances.
27. **Maximum zero fuel mass** means the maximum permissible mass of an aeroplane with no usable fuel. The mass of the fuel contained in particular tanks should be included in the zero fuel mass when it is explicitly mentioned in the aircraft flight manual.
28. **Miscellaneous (non-EFB) software applications** means non-EFB applications that support function(s) not directly related to the tasks performed by the flight crew in the aircraft.
29. **Overpack for the purpose of transporting dangerous goods**, means 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.
  
30. **Packaging for the purpose of transporting dangerous goods**, means receptacles and any other components or materials necessary for the receptacle to perform its containment function.
31. **Personal locator beacon (PLB)** is an emergency beacon other than an ELT that broadcasts distinctive signals on designated frequencies, is standalone, portable and is manually activated by the survivors.



32. **Ramp inspection tool** means the IT application including a centralised database used by all stakeholders to store and exchange data related to ramp inspections.
33. **Receiver autonomous integrity monitoring (RAIM)** means a technique whereby a GNSS receiver/processor determines the integrity of the GNSS navigation signals using only GNSS signals or GNSS signals augmented with altitude. This determination is achieved by a consistency check among redundant pseudo-range measurements. At least one satellite in addition to those required for navigation has to be in view for the receiver to perform the RAIM function.
34. **Rotation point (RP)** means the point at which a cyclic input is made to initiate a nose-down attitude change during the take-off flight path. It is the last point in the take-off path from which, in the event of an engine failure being recognised, a forced landing on the aerodrome can be achieved.
35. **Runway condition assessment matrix (RCAM)** means a matrix that allows the assessment of the runway condition code (RWYCC), using associated procedures, from a set of observed runway surface condition(s) and pilot report of braking action.
36. **Runway condition code (RWYCC)** means a number, to be used in the runway condition report (RCR), that describes the effect of the runway surface condition on aeroplane deceleration performance and lateral control.
37. **Runway surface condition** means a description of the condition of the runway surface used in the RCR which establishes the basis for the determination of the RWYCC for aeroplane performance purposes.
38. **Runway surface condition descriptors** means one of the following elements on the surface of the runway:
39. **Compacted snow:** snow that has been compacted into a solid mass such that aeroplane tyres, at operating pressures and loadings, will run on the surface without significant further compaction or rutting of the surface;
40. **Dry snow:** snow from which a snowball cannot readily be made;
41. **Frost:** ice crystals formed from airborne moisture on a surface whose temperature is at or below freezing; frost differs from ice in that the frost crystals grow independently and, therefore, have a more granular texture;
42. **Ice:** water that has frozen or compacted snow that has transitioned into ice in cold and dry conditions;
43. **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;
44. **Standing water:** water of depth greater than 3 mm;
45. **Wet ice:** ice with water on top of it or ice that is melting.
46. **Wet snow:** snow that contains enough water to be able to make a well compacted, solid snowball, but water will not squeeze out.
47. **Slippery wet runway** means a wet runway where the surface friction characteristics of a significant portion of the runway have been determined to be degraded.
48. **Touch down and lift-off area (TLOF)** means a load-bearing area on which a helicopter may touch down or lift off.
49. **Transmitting PED (T-PED)** means a portable electronic device (PED) that has intentional radio frequency (RF) transmission capabilities.
50. **Vertical navigation** means a method of navigation which permits aircraft operation on a vertical flight profile using altimetry sources, external flight path references, or a combination of these.



51. **Viewable stowage** means a non-certified device that is attached to the flight crew member (e.g. with a kneeboard) or to an existing aircraft part (e.g. using suction cups), and is intended to hold charts or to hold low-mass portable electronic devices that are viewable by the flight crew members at their assigned duty stations.

## GM2 BCAR-OPS DEF

### ABBREVIATIONS AND ACRONYMS

The following abbreviations are used in **BCAR-ARO, BCAR-ORO, BCAR-SPA, BCAR-SPO and BCAR-CAT** :

**2D** two-dimensional

**3D** three-dimensional

**A** aeroplane

**a/c** aircraft

**AAC** aeronautical administrative communications

**AAIM** aircraft autonomous integrity monitoring

**AAL** above aerodrome level

**ABAS** aircraft-based augmentation system

**AC** advisory circular

**AC** alternating current

**ACAS** airborne collision avoidance system

**ADF** automatic direction finder

**ADG** air driven generator

**ADS** automatic dependent surveillance

**ADS-B** automatic dependent surveillance - broadcast

**ADS-C** automatic dependent surveillance - contract

**AEA** Association of European Airlines

**AEO** all-engines-operative

**AFFF** aqueous film forming foams

**AFM** aircraft flight manual

**AFN** aircraft flight notification

**AFN** ATS facilities notification



**AGL** above ground level

**AHRS** attitude heading reference system

**AIREP** air-report

**AIS** aeronautical information service

**ALAP** aerodrome landing analysis programme

**ALARP** as low as reasonably practicable

**ALD** actual landing distance

**ALSF** approach lighting system with sequenced flashing lights

**AMC** Acceptable Means of Compliance

**AML** aircraft maintenance licence

**AMSL** above mean sea level

**ANP** actual navigation performance

**AOC** aeronautical operational control

**AOC** air operator certificate

**APCH** approach

**APP** approach

**APU** auxiliary power unit

**APV** approach procedure with vertical guidance

**AR** authorisation required

**ARA** airborne radar approach

**ARA** Authority Requirements for Aircrew

**A-RNP** advanced required navigation performance

**ARO** Authority Requirements for Air Operations

**ARP** Aerospace Recommended Practices

**ASC** Air Safety Committee

**ASDA** accelerate-stop distance available

**ASE** altimeter system error

**ATA** Air Transport Association

**ATC** air traffic control

**ATIS** automatic terminal information service



**ATN** air traffic navigation

**ATPL** airline transport pilot licence

**ATQP** alternative training and qualification programme

**ATS** air traffic services

**ATSC** air traffic service communication

**AVGAS** aviation gasoline

**AVTAG** aviation turbine gasoline (wide-cut fuel)

**AWO** all weather operations

**BALS** basic approach lighting system

**Baro** VNAV barometric VNAV

**BCAR** British civil airworthiness requirements

**BITD** basic instrument training device

**CAP** controller access parameters

**CAT** commercial air transport

**CAT I / II / III** category I / II / III

**CBT** computer-based training

**CC** cabin crew

**CDFA** continuous descent final approach

**CDL** configuration deviation list

**CFIT** controlled flight into terrain

**CG** centre of gravity

**CLB** climb

**CM** context management

**CMV** converted meteorological visibility

**CofA** certificate of airworthiness

**COM** communication (EBT competency)

**COP** code of practice

**CoR** certificate of registration

**COSPAS-SARSAT** cosmicheskaya sistyema poiska avariynich sudov - search and rescue satellite-aided tracking

**CP** committal point



**CPA** closest point of approach

**CPDLC** controller pilot data link communication

**C-PED** controlled portable electronic device

**CPL** commercial pilot licence

**CRE** class rating examiner

**CRI** class rating instructor

**CRM** crew resource management

**CRZ** cruise

**CS** Certification Specifications

**CSP** communication service provider

**CVR** cockpit voice recorder

**CVS** combined vision system

**DA** decision altitude

**DA/H** decision altitude/height

**DAP** downlinked aircraft parameters

**D-ATIS** digital automatic terminal information service

**DC** direct current

**DCL** departure clearance

**DES** descent

**D-FIS** data link flight information service

**DG** dangerous goods

**DH** decision height

**DI** daily inspection

**DIFF** deck integrated fire fighting system

**DLR** data link recorder

**DME** distance measuring equipment

**D-METAR** data link - meteorological aerodrome report

**D-OTIS** data link - operational terminal information service

**DPATO** defined point after take-off

**DPBL** defined point before landing



**DR** decision range

**DSTRK** desired track

**EBT** evidence-based training

**EC** European Community

**ECAC** European Civil Aviation Conference

**EFB** electronic flight bag

**EFIS** electronic flight instrument system

**EFVS** enhanced flight vision system

**EFVS-A** enhanced flight vision system used for approach

**EFVS-L** enhanced flight vision system used for landing

**EGNOS** European geostationary navigation overlay service

**EGT** exhaust gas temperature

**ELT** emergency locator transmitter

**ELT(AD)** emergency locator transmitter (automatically deployable)

**ELT(AF)** emergency locator transmitter (automatic fixed)

**ELT(DT)** emergency locator transmitter (distress tracking)

**ELT(AP)** emergency locator transmitter (automatic portable)

**ELT(S)** survival emergency locator transmitter

**EPE** estimated position of error

**EPR** engine pressure ratio

**EPU** estimated position of uncertainty

**ERA** en-route alternate (aerodrome)

**ERP** emergency response plan

**ETOPS** extended range operations with two-engined aeroplanes

**EU** European Union

**EUROCAE** European Organisation for Civil Aviation Equipment

**Eval** evaluation phase

**EVS** enhanced vision system

**FAA** Federal Aviation Administration

**FAF** final approach fix





**FALS** full approach lighting system

**FANS** future air navigation systems

**FAP** final approach point

**FAR** Federal Aviation Regulation

**FAS** final approach segment

**FATO** final approach and take-off

**FC** flight crew

**FCOM** flight crew operating manual

**FDM** flight data monitoring

**FDO** flying display operation

**FDR** flight data recorder

**FFS** full flight simulator

**FGS** flight control/guidance system

**FI** flight instructor

**FLIPCY** flight plan consistency

**FLTA** forward-looking terrain avoidance

**FMECA** failure mode, effects and criticality analysis

**FMS** flight management system

**FNPT** flight and navigation procedures trainer

**FOD** foreign object damage

**FOSA** flight operational safety assessment

**FOV** field of view

**FPA** flight path management — automation (EBT competency)

**FPM** flight path management — manual control (EBT competency)

**fpm** feet per minute

**FRT** fixed radius transition

**FSTD** flight simulation training device

**ft** feet

**FTD** flight training device

**FTE** full time equivalent



**FTE** flight technical error

**FTL** flight and duty time limitations

**g** gram

**GAGAN** GPS aided geo augmented navigation

**GBAS** ground-based augmentation system

**GCAS** ground collision avoidance system

**GEN** general

**GIDS** ground ice detection system

**GLS** GBAS landing system

**GM** Guidance Material

**GMP** general medical practitioner

**GND** ground

**GNSS** global navigation satellite system

**GPS** global positioning system

**GPWS** ground proximity warning system

**H** helicopter

**HEMS** helicopter emergency medical service

**HF** high frequency

**Hg** mercury

**HHO** helicopter hoist operation

**HIALS** high intensity approach lighting system

**HIGE** hover in ground effect

**HLL** helideck limitations list

**HOGE** hover out of ground effect

**HoT** hold-over time

**hPa** hectopascals

**HPL** human performance and limitations

**HUD** head-up display

**HUDLS** head-up guidance landing system

**HUMS** health usage monitor system



**IAF** initial approach fix

**IALS** intermediate approach lighting system

**IAP** instrument approach procedure

**ICAO** International Civil Aviation Organization

**IDE** instruments, data and equipment

**IF** intermediate fix

**IFR** instrument flight rules

**IFSD** in-flight shutdown

**IGE** in ground effect

**ILS** instrument landing system

**IMC** instrument meteorological conditions

**in** inches

**INS** inertial navigation system

**IP** intermediate point

**IR** Implementing Rule

**IR** instrument rating

**IRS** inertial reference system

**ISA** international standard atmosphere

**ISI** in-seat instruction

**ISO** International Organization for Standardization

**IV** intravenous

**JAA** Joint Aviation Authorities

**JAR** Joint Aviation Requirements

**kg** kilograms

**km** kilometres

**KNO** application of knowledge (EBT competency)

**kt** knots

**LDA** landing distance available

**LDF** landing distance factor

**LDG** landing



**LDP** landing decision point

**LDTA** landing distance at time of arrival

**LED** light-emitting diode

**LHO** local helicopter operation

**LHS** left-hand seat

**LIFUS** line flying under supervision

**LNAV** lateral navigation

**LoA** letter of acceptance

**LOC** localiser

**LOC-I** loss of control in-flight

**LOE** line-oriented evaluation

**LOFT** line-oriented flight training

**LOQE** line-oriented quality evaluation

**LOS** limited obstacle surface

**LP** Localiser performance

**LPV** localiser performance with vertical guidance

**LRCS** long range communication system

**LRNS** long range navigation system

**LSAA** landing system assessment area

**LTW** Leadership and teamwork (EBT competency)

**LVO** low visibility operation

**LVP** low visibility procedures

**LVTO** low visibility take-off

**m** metres

**MALS** medium intensity approach lighting system

**MALSF** medium intensity approach lighting system with sequenced flashing lights

**MALSr** medium intensity approach lighting system with runway alignment indicator lights

**MAPt** missed approach point

**MCTOM** maximum certified take-off mass

**MDA** minimum descent altitude



**MDH** minimum descent height

**MEA** minimum en-route altitude

**MED** medical

**MEL** minimum equipment list

**METAR** meteorological aerodrome report

**MGA** minimum grid altitude

**MHA** minimum holding altitude

**MHz** megahertz

**MID** midpoint

**MLR** manuals, logs and records

**MLS** microwave landing system

**MLX** millilux

**mm** millimetres

**MM** multi-mode

**MMEL** master minimum equipment list

**MNPS** minimum navigation performance specifications

**MOC** minimum obstacle clearance

**MOCA** minimum obstacle clearance altitude

**MOPSC** maximum operational passenger seating configuration

**MORA** minimum off-route altitude

**MPSC** maximum passenger seating capacity

**MSA** minimum sector altitude

**MSAS** multi-functional satellite augmentation system

**MT** manoeuvres training phase

**MTCA** minimum terrain clearance altitude

**N** North

**NADP** noise abatement departure procedure

**NALS** no approach lighting system

**NCC** non-commercial operations with complex motor-powered aircraft

**NCO** non-commercial operations with other-than-complex motor-powered aircraft



**NF** free power turbine speed  
**NG** engine gas generator speed  
**NM** nautical miles  
**NOTAM** notice to airmen  
**NOTECHS** non-technical skills evaluation  
**NOTOC** notification to captain  
**NPA** non-precision approach  
**NPA** Notice of Proposed Amendment  
**NSE** navigation system error  
**NVD** night vision device  
**NVG** night vision goggles  
**NVIS** night vision imaging system  
**OAT** outside air temperature  
**OB** observable behaviour  
**OCH** obstacle clearance height  
**OCL** oceanic clearance  
**ODALS** omnidirectional approach lighting system  
**OEI** one-engine-inoperative  
**OFS** obstacle-free surface  
**OFZ** obstacle free zone  
**OGE** out of ground effect  
**OIP** offset initiation point  
**OM** operations manual  
**OML** operational multi-pilot limitation  
**ONC** operational navigation chart  
**OPS** operations  
**ORO** Organisation Requirements for Air Operations  
**OTS** CAT II other than standard category II  
**PAPI** precision approach path indicator  
**PAR** precision approach radar



**PBCS** performance-based communication and surveillance

**PBE** protective breathing equipment

**PBN** performance-based navigation

**PC/PT** proficiency check/proficiency training

**PCDS** personnel carrying device system

**PDA** premature descent alert

**PDP** predetermined point

**PED** portable electronic device

**PFC** porous friction course

**PIC** pilot-in-command

**PIN** personal identification number

**PIS** public interest site

**PLB** personal locator beacon

**PNR** point of no return

**POH** pilot's operating handbook

**PRM** person with reduced mobility

**PRO** application of procedures (EBT competency)

**PSD** problem-solving & decision making (EBT competency)

**PVD** paravisual display

**QAR** quick access recorder

**QFE** atmospheric pressure at aerodrome elevation / runway threshold

**QNH** atmospheric pressure at nautical height

**RA** resolution advisory

**RAIM** receiver autonomous integrity monitoring

**RAT** ram air turbine

**RCAM** runway condition assessment matrix

**RCC** rescue coordination centre

**RCF** reduced contingency fuel

**RCLL** runway centre line lights

**RCP** required communication performance





**RCR** runway condition report

**RF** radius to fix

**RF** radio frequency

**RFC** route facility chart

**RI** ramp inspection

**RI** rectification interval

**RIE** rectification interval extension

**RMA** regional monitoring agency

**RNAV** area navigation

**RNP** required navigation performance

**RNP APCH** RNP approach

**RNP AR APCH** RNP approach for which authorisation is required

**ROD** rate of descent

**RP** rotation point

**RSP** required surveillance performance

**RTCA** Radio Technical Commission for Aeronautics

**RTODAH** rejected take-off distance available (helicopters)

**RTODRH** rejected take-off distance required (helicopters)

**RTOM** reduced take-off mass

**RTZL** runway touchdown zone lights

**RVR** runway visual range

**RVSM** reduced vertical separation minima

**RWYCC** runway condition code

**S** South

**SA CAT I** special authorisation category I

**SA CAT II** special authorisation category II

**SAFA** safety assessment of foreign aircraft

**SALS** simple approach lighting system

**SALSF** simple approach lighting system with sequenced flashing lights

**SAP** stabilised approach



**SAP** system access parameters

**SAR** search and rescue

**SAS** stability augmentation system

**SAW** situation awareness (EBT competency)

**SBAS** satellite-based augmentation system

**SBT** scenario-based training

**SCC** senior cabin crew

**SCP** special category of passenger

**SDCM** system of differential correction and monitoring

**SFE** synthetic flight examiner

**SFI** synthetic flight instructor

**SID** standard instrument departure

**SMM** safety management manual

**SMS** safety management system

**SNAS** satellite navigation augmentation system

**SOP** standard operating procedure

**SPA** operations requiring specific approvals

**SPECI** aviation selected special weather report

**SPO** specialised operations

**SRA** surveillance radar approach

**SSALF** simplified short approach lighting system with sequenced flashing lights

**SSALR** simplified short approach lighting system with runway alignment indicator lights

**SSALS** simplified short approach lighting system

**SSEC** static source error correction

**SSR** secondary surveillance radar

**STAR** standard terminal arrival route

**STC** supplemental type certificate

**SVS** synthetic vision system

**TA** traffic advisory

**TAC** terminal approach chart



**TAS** true airspeed

**TAWS** terrain awareness warning system

**TC** technical crew

**TC** type certificate

**TCAS** traffic collision avoidance system

**TCCA** Transport Canada Civil Aviation

**TCH** type certificate holder

**TDP** take-off decision point

**TDZ** touchdown zone

**TDZE** touchdown zone elevation

**THR** threshold

**TI** Technical Instructions

**TIT** turbine inlet temperature

**TLS** target level of safety

**TMG** touring motor glider

**TO** take-off

**TODA** take-off distance available (aeroplanes)

**TODAH** take-off distance available (helicopters)

**TODRH** take-off distance required (helicopters)

**TOGA** take-off/go around

**TORA** take-off run available

**T-PED** transmitting portable electronic device

**TRE** type rating examiner

**TRI** type rating instructor

**TSE** total system error

**TVE** total vertical error

**TWIP** terminal weather information for pilots

**UMS** usage monitoring system

**UPRT** upset prevention and recovery training

**UTC** coordinated universal time



**V2** take-off safety speed

**V50** stalling speed

**VAT** indicated airspeed at threshold

**VDF VHF** direction finder

**VFR** visual flight rules

**VHF** very high frequency

**VIS** visibility

**VMC** visual meteorological conditions

**VMO** maximum operating speed

**VNAV** vertical navigation

**VOR VHF** omnidirectional radio range

**VSS** visual segment surface

**VT** threshold speed

**VTOL** vertical take-off and landing

**VTOSS** take-off safety speed

**WAAS** wide area augmentation system

**WAC** world aeronautical chart

**WIFI** wireless fidelity

**WLM** workload management (EBT competency)

**ZFTT** zero flight-time training

## GM4 BCAR-OPS DEF

### HEAD-UP GUIDANCE LANDING SYSTEM (HUDLS)

A HUDLS is typically used for primary approach guidance to decision heights of 50 ft.

## GM5 BCAR-OPS DEF

### HELICOPTER EMERGENCY MEDICAL SERVICES (HEMS) FLIGHT

- a. A HEMS flight (or more commonly referred to as HEMS mission) normally starts and ends at the HEMS operating base following tasking by the 'HEMS dispatch centre'. Tasking can also occur when airborne, or on the ground at locations other than the HEMS operating base.
- b. The following elements should be regarded as integral parts of the HEMS mission:



1. flights to and from the HEMS operating site when initiated by the HEMS dispatch centre;
2. flights to and from an aerodrome/operating site for the delivery or pick-up of medical supplies and/or persons required for completion of the HEMS mission; and
3. flights to and from an aerodrome/operating site for refuelling required for completion of the HEMS mission.

## GM11 BCAR-OPS DEF

### PUBLIC INTEREST SITE

An example of a public interest sites is a landing site based at a hospital located in a hostile environment in a congested area, which due to its size or obstacle environment does not allow the application of performance class 1 requirements that would otherwise be required for operations in a congested hostile environment.

## GM12 BCAR-OPS DEF

### TECHNICAL INSTRUCTIONS

The ICAO document number for the Technical Instructions is Doc 9284-AN/905.

## GM13 BCAR-OPS DEF

### V1

The first action includes for example: apply brakes, reduce thrust, deploy speed brakes.

## GM14 BCAR-OPS DEF

### TASK SPECIALISTS

For the purpose of this Regulation, persons that are carried in a specialised operation, e.g. on a parachute flight, sensational flight or scientific research flight, are considered to be task specialists.

## GM15 BCAR-OPS DEF

### UPSET PREVENTION AND RECOVERY TRAINING (UPRT) DEFINITIONS

1. **'Aeroplane upset prevention and recovery training (UPRT)'** refers to training consisting of:
  - a. aeroplane upset prevention training: a combination of theoretical knowledge and flying training with the aim of providing flight crew with the required competencies to prevent aeroplane upsets; and
  - b. aeroplane upset recovery training: a combination of theoretical knowledge and flying training with the aim of providing flight crew with the required competencies to recover from aeroplane upsets.



2. **'Aeroplane upset'** refers to an undesired aircraft state characterised by unintentional divergences from parameters normally experienced during operations. An aeroplane upset may involve pitch and/or bank angle divergences as well as inappropriate airspeeds for the conditions. 'Angle of attack (AOA)' means the angle between the oncoming air, or relative wind, and a defined reference line on the aeroplane or wing.
3. **'Approach-to-stall'** means flight conditions bordered by the stall warning and stall. 'Competency' means a combination of skills, knowledge, and attitudes required to perform a task to the prescribed standard.
4. **'Developed upset'** means a condition meeting the definition of an aeroplane upset.
5. **'Developing upset'** means any time the aeroplane begins to unintentionally diverge from the intended flight path or airspeed.
6. **'Energy state'** means how much of each kind of energy (kinetic, potential or chemical) the aeroplane has available at any given time.
7. **'Error'** means an action or inaction by the flight crew that leads to deviations from organisational or flight crew intentions or expectations.
8. **'Error management'** means the process of detecting and responding to errors with countermeasures that reduce or eliminate the consequences of errors, and mitigate the probability of further errors or undesired aircraft states.
9. **'First indication of a stall'** means the initial aural, tactile or visual sign of an impending stall, which can be either naturally or synthetically induced.
10. **'Flight crew resilience'** means the ability of a flight crew member to recognise, absorb and adapt to disruptions.
11. **'Fidelity level'** means the level of realism assigned to each of the defined FSTD features.
12. **'Flight path'** means the trajectory or path of the aeroplane travelling through the air over a given space of time.
13. **'Flight path management'** means active manipulation, using either the aeroplanes automation or manual handling, to command the aeroplane flight controls to direct the aeroplane along a desired trajectory.
14. **'FSTD Training Envelope'** refers to the high and moderate confidence regions of the FSTD validation envelope.
15. **Load factor'** means the ratio of a specified load to the weight of the aeroplane, the former being expressed in terms of aerodynamic forces, propulsive forces, or ground reactions.
16. **'Loss of control in flight (LOCI)'** means a categorisation of an accident or incident resulting from a deviation from the intended flight path.
17. **'Manoeuvre-based training'** means training that focuses on a single event or manoeuvre in isolation.
18. **'Negative training'** means training which unintentionally introduces incorrect information or invalid concepts, which could actually decrease rather than increase safety.
19. **'Negative transfer of training'** means the application (and 'transfer') of what was learned in a training environment (i.e., a classroom, an FSTD) to normal practice, i.e. it describes the degree to which what was learned in training is applied to actual normal practices. In this context, negative transfer of training refers to the inappropriate generalisation of knowledge and skill to a situation or setting in normal practice that does not equal the training situation or setting.
20. **'Post-stall regime'** means flight conditions at an angle of attack greater than the critical angle of attack.



21. **'Scenario-based training'** means training that incorporates manoeuvres into real-world experiences to cultivate practical flying skills in an operational environment.
22. **'Stall'** means a loss of lift caused by exceeding the aeroplane's critical angle of attack.
23. Note: A stalled condition can exist at any attitude and airspeed, and may be recognised by continuous stall warning activation accompanied by at least one of the following:
  - a. buffeting, which could be heavy at times;
  - b. lack of pitch authority and/or roll control; and
  - c. inability to arrest the descent rate.
24. **'Stall Event'** means an occurrence whereby the aeroplane experiences conditions associated with an approach-to-stall or a stall.
25. **'Stall (event) recovery procedure'** means the manufacturer-approved aeroplane-specific stall recovery procedure. If an OEM-approved recovery procedure does not exist, the aeroplane-specific stall recovery procedure developed by the operator, based on the stall recovery template contained in GM5 BCAR.ORO.FC.220&230, may be used.
26. **'Stall warning'** means a natural or synthetic indication provided when approaching a stall that may include one or more of the following indications:
  - a. aerodynamic buffeting (some aeroplanes will buffet more than others);
  - b. reduced roll stability and aileron effectiveness;
  - c. visual or aural cues and warnings;
  - d. reduced elevator (pitch) authority;
  - e. inability to maintain altitude or arrest rate of descent; and
  - f. stick shaker activation (if installed).

Note: A stall warning indicates an immediate need to reduce the angle of attack.

27. **'Startle'** means the initial short-term, involuntary physiological and cognitive reactions to an unexpected event that commence the normal human stress response.
28. **'Stick pusher'** means a device that, automatically applies a nose down movement and pitch force to an aeroplane's control columns, to attempt to decrease the aeroplane's angle of attack. Device activation may occur before or after aerodynamic stall, depending on the aeroplane type.

Note: A stick pusher is not installed on all aeroplane types.

29. **'Stick shaker'** means a device that automatically vibrates the control column to warn the pilot of an approaching stall.

Note: A stick shaker is not installed on all aeroplane types.

30. **'Stress (response)'** means the response to a threatening event that includes physiological, psychological and cognitive effects. These effects may range from positive to negative and can either enhance or degrade performance.
31. **'Surprise'** means the emotionally-based recognition of a difference in what was expected and what is actual.
32. **'Threat'** means events or errors that occur beyond the influence of the flight crew, increase operational complexity and must be managed to maintain the margin of safety.
33. **'Threat management'** means the process of detecting and responding to threats with countermeasures that reduce or eliminate the consequences of threats and mitigate the probability of errors or undesired aircraft states.





34. **‘Train-to-proficiency’** means approved training designed to achieve end-state performance objectives, providing sufficient assurances that the trained individual is capable to consistently carry out specific tasks safely and effectively.

Note: In the context of this definition, ‘train-to-proficiency’ can be replaced by ‘training-to-proficiency’.

35. **‘Undesired aircraft state’** means flight crew-induced aircraft position or speed deviation, misapplication of controls, or incorrect systems configuration, associated with a reduction in margins of safety.

Note: Undesired states can be managed effectively, restoring margins of safety, or flight crew response(s) can induce an additional error, incident, or accident.

Note: All countermeasures are necessary flight crew actions. However, some countermeasures to threats, errors and undesired aircraft states that flight crew employ, build upon ‘hard’/systemic based resources provided by the aviation system.

36. **‘Unsafe situation’** means a situation, which has led to an unacceptable reduction in safety margin.

## GM16 BCAR-OPS DEF

### MINOR FAILURE CONDITION

Minor failure conditions may include, for example, a slight reduction in safety margins or functional capabilities, a slight increase in crew workload, such as routine flight plan changes, or some physical discomfort to passengers or cabin crew.

## GM17 BCAR-OPS DEF

### SIMPLE AND COMPLEX PERSONNEL-CARRYING DEVICE SYSTEM (PCDS)

- a. The following may qualify as a simple PCDS:
1. A safety harness or rescue triangle for no more than two persons.
  2. A fixed-rope system for no more than two persons, to be attached under a single cargo hook or Y-rope to be attached to a dual hook.
- b. The following may not qualify as a simple PCDS:
1. Any system that connects three persons or more to the helicopter.
  2. A PCDS with new or novel features.
  3. A PCDS that has not yet been proven by an appreciable and satisfactory service experience.
- c. The connecting elements to the hoist or cargo hook are part of the PCDS.
- d. The following standards may be used for a simple PCDS:
1. Personal protective equipment for work positioning and prevention of falls from a height — lanyards
  2. Personal protective equipment against falls from a height — energy absorbers
  3. Personal protective equipment for work positioning and prevention of falls from a height — belts for work positioning and restraint and work positioning lanyards



4. Personal protective equipment against falls from a height — full body harnesses
5. Personal protective equipment against falls from a height —connectors
6. Personal fall protection equipment — personal fall-protection systems
7. Personal protective equipment against falls from a height — test methods
8. Marking/packaging/instructions to use
9. Personal fall-protection equipment — sit harnesses
10. Personal protective equipment against falls from a height — rescue harnesses
11. Personal protective equipment against falls from a height — rescue loops
12. Personal protective equipment for the prevention of falls from a height — low stretch kernmantle ropes
13. Mountaineering equipment — connectors — safety requirements and test methods
14. Mountaineering equipment — harnesses — safety requirements and test methods

## GM18 BCAR-OPS DEF

### DETERMINING THE PRINCIPAL PLACE OF BUSINESS

- a. The principal place of business encompasses the principal financial functions and operational control of the activities of an operator. It may refer to the organisation's site from which the majority of its management personnel specified in BCAR.ORO.GEN.110 directs, controls or coordinates its operational activities. For non-commercial operations, this is usually the home base of the aircraft concerned or the location of the flight department.
- b. Since an operator, especially in the world of non-commercial operations, may use several places where it performs financial transactions, or several operational bases where there are personnel in charge of operational control, for the purpose of an effective oversight, it is relevant that the principal place of business be the one:
  1. where the operator has registered its organisation with the local register and where it pays corporate tax;
  2. where its main building facilities are located;
  3. where main administrative and financial work is being done (where salaries and employment benefits are paid); and
  4. from where the organisation management directs, controls or coordinates a substantial part of its activities, ensuring that the organisation complies with the BCAA requirements
- c. Organisations that perform also activities which are not subject to Part-ORO, or PartSPO are recommended to consider that part of the organisation which is responsible for the operation of aircraft subject to Part-OROr Part-SPO.For such organisations, the accountable manager is that manager who has the authority to ensure that all activities subject to Part-ORO or Part-SPO can be financed and carried out in accordance with the applicable requirements. If the accountable manager is not located in the part of the organisation that is responsible for the operation of aircraft, but the other criteria mentioned in point (b) apply, the location of the accountable manager does not need to be considered for the determination of the principal place of business.

**GM19 BCAR-OPS DEF****EVIDENCE-BASED TRAINING**

**'Behaviour'** refers to the way a person responds, either overtly or covertly, to a specific set of conditions, and which is capable of being measured.

**'Instructor concordance'** is also called 'inter-rater reliability'.

**'Conditions'** refers to anything that may qualify a specific environment in which performance will be demonstrated.

**'Cycle'** refers to the combination of two modules where Cycle 1 comprises Modules 1 and 2, Cycle 2 comprises Modules 3 and 4, and Cycle 3 comprises Modules 5 and 6 of the 3-year EBT programme.

**'Equivalency of approaches'** refers to approach clustering in other industry documentation.

**'Equivalency of malfunctions'** refers to malfunction clustering in other industry documentation.

**'Evaluation phase (EVAL)'** refers to the phase where a first assessment of competencies is performed in order to identify individual training needs. On completion of the evaluation phase, any areas that do not meet the minimum competency standard will become the focus of the subsequent training. The evaluation phase comprises a complete mission as a crew but not necessarily a complete flight.

**'Facilitation technique'** refers to an active training method, which uses effective questioning, listening and a non-judgemental approach, and is particularly effective in developing skills and attitudes, assisting trainees in developing insight and their own solutions, resulting in better understanding, retention and commitment.

**'Line-orientated flight scenario(s)'** are comprised of scenario elements derived from the table of assessment and training topics.

**'Line-orientated safety audit (LOSA)'** is one of the tools used to help evaluate the performance of the operations. It consists of line flights that are observed by appropriately qualified operator personnel to provide feedback to validate the EBT programme. LOSA may be one of the tools used to look at those elements of the operation that are unable to be monitored by FDM or Advanced FDM programmes.

**'Manoeuvres training phase'** refers to the phase where skill retention is trained (body memory actions). Flight path control may be accomplished by a variety of means including manual aircraft control and the use of auto flight systems.

**'Monitoring'** refers to a cognitive process to compare an actual to an expected state. It requires knowledge, skills and attitudes to create a mental model and to take appropriate action when deviations are recognised.

**'Observable behaviour (OB)'** refers to a single role-related behaviour that can be observed. The instructor may or may not be able to measure it.

**'Performance criteria'** refers to statements used to assess whether the required levels of performance have been achieved for a competency. A performance criterion consists of an OB, a condition (or conditions) and a competency standard.



**‘Practical assessment (or EBT practical assessment)’** refers to a method for assessing performance that serves to verify the integrated performance of competencies. It takes place in either a simulated or an operational environment. An EBT assessment is equivalent to a proficiency check and is performed under the instructor privilege in the context of proficiency check in accordance with Appendix 10 to Part-FCL. More information can be found in ICAO Doc 9868 ‘PANS-TRG’.

**‘Scenario-based training phase (SBT)’** refers to the largest phase in the EBT programme. It is designed to maximise crew’s exposure to a variety of situations that develop and sustain a high level of competency and resilience. The scenario for this phase should include critical external and environmental threats, to build effective crew interaction to identify and manage errors. A portion of the phase will also be directed towards the management of critical system malfunctions. Scenario elements address the training topic and detail the threat and/or error that the crew are exposed to.

**‘Train-to-proficiency’** refers to approved training designed to achieve end-state performance objectives, providing sufficient assurance that the trained individual is capable of consistently carrying out specific tasks safely and effectively.

Note: In the context of this definition, ‘train-to-proficiency’ can be replaced by ‘training-to-proficiency’.

## GM20 BCAR-OPS DEF

### CONTAMINATED RUNWAY

As the runway condition is reported in runway thirds, a significant portion of the runway surface area is more than 25 % of one third of the runway surface area within the required length and width being used. The runway length being used in this context is the physical length of runway available, typically from the start of the take-off run available (TORA) in one direction to the start of the TORA in the opposite direction. When the runway is shortened by a notice to airmen (NOTAM) — for example, due to works, or the aerodrome operator is not able to clear the full length of the runway and closes part of it for operations, the length being used is that declared in the NOTAM and the ‘reduced runway length’ that declared in the RCR. The runway width being used in this context is the physical width of the runway (between the runway edge lights), or the ‘cleared width’ if reported in the RCR. It is not intended that 25 % coverage is reported when contaminants affect only the runway edges after runway cleaning. Runway inspectors are instructed to focus on the area around the wheel tracks when reporting the contaminant type, coverage and depth.

## GM21 BCAR-OPS DEF

### DRY RUNWAY/WET RUNWAY

The ‘area intended to be used’ means the area of the runway that is part of the TORA, accelerate and stop distance available (ASDA) or landing distance available (LDA) declared in the aeronautical information publication (AIP) or by a NOTAM.

**GM22 BCAR-OPS DEF****RUNWAY CONDITION CODE (RWYCC)**

The purpose of the runway condition code (RWYCC) is to permit an operational aeroplane landing performance calculation by the flight crew.

**GM23 BCAR-OPS DEF****RUNWAY SURFACE CONDITION(S)**

- a. The runway surface conditions used in the RCR establish a common language between the aerodrome operator, the aeroplane manufacturer and the aeroplane operator.
- b. 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 the runway surface friction characteristics and the RWYCC cannot be evaluated in a standardised manner.

**GM24 BCAR-OPS DEF****RUNWAY SURFACE CONDITION DESCRIPTORS — GENERAL**

The runway surface condition descriptors are used solely in the context of the RCR and are not intended to supersede or replace any existing World Meteorological Organization (WMO) definitions.

**RUNWAY SURFACE CONDITION DESCRIPTORS — FROST**

- a. Freezing refers to the freezing point of water (0 °C).
- b. Under certain conditions, frost can cause the surface to become very slippery, and it is then reported appropriately as downgraded RWYCC.

**RUNWAY SURFACE CONDITION DESCRIPTORS — STANDING WATER**

Running water of depth greater than 3 mm is reported as 'standing water' by convention. Easy Access

**RUNWAY SURFACE CONDITION DESCRIPTORS – WET ICE**

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 downgraded RWYCC.

**GM25 BCAR-OPS DEF****LANDING DISTANCE AT TIME OF ARRIVAL**

The landing distance data to be used for a landing performance assessment at time of arrival allow to establish an operationally achievable landing distance from 50ft above runway threshold to full stop that takes into account AFM procedures for final approach and landing and is provided as a function of the main influence parameters such as aeroplane mass and configuration, pressure altitude, wind,



outside air temperature, runway slope and approach speed increments. It may be provided for use of automation such as autobrakes and autoland and may account for reverse thrust use. As the landing distance at time of arrival is the unfactored minimum landing distance achievable for the assumed conditions, an appropriate margin should be applied to this distance to determine the minimum LDA necessary for a safe stop.

## GM26 BCAR-OPS DEF

### SLIPPERY WET RUNWAY

- a. The surface friction characteristics of the runway are considered degraded when below the minimum standards.
- b. A portion of runway in the order of 100 m long may be considered significant.

## GM27 BCAR-OPS DEF

### FLIGHT RECORDER

A flight recorder may be crash-protected or lightweight and may be deployable or not. Crash Protected flight recorders are capable of withstanding very severe crash conditions such as those encountered during some accidents of large aeroplanes and large helicopters. Crash-protected flight recorders comprise one or more of the following systems: a flight data recorder (FDR), a cockpit voice recorder (CVR), an airborne image recorder (AIR), or a data link recorder (DLR). Lightweight flight recorders are usually designed to meet less demanding requirements than crash-protected flight recorders, which allows them to be lighter. A non-deployable flight recorder is permanently attached to the aircraft. A deployable flight recorder includes a part that is capable of automatically deploying from the aircraft.

## GM28 BCAR-OPS DEF

### FLIGHT MONITORING AND FLIGHT WATCH — RELEVANT SAFETY INFORMATION

Relevant safety information is any element that may affect the safety of the flight, such as:

- a. an aircraft technical failure (e.g. failures where flight operations personnel can help to calculate the landing distance or new trip fuel or to update the aerodrome minima);
- b. unforeseen hazards:
  1. air traffic (e.g. delays and/or long distance to complete the approach, extensive use of radar vectoring);
  2. meteorological conditions (e.g. DH and aerodrome operating minima, adverse or extreme meteorological conditions);
  3. aerodrome and runway status (e.g. insufficient runway length due to brake failure, obstruction or closure of the runway, runway contamination, failure or malfunction caused by on-ground navigation or approach equipment);
  4. navigation aid status (e.g. failure of the navigation aids);
  5. availability of communications (e.g. failure of communications capabilities, interruptions,



6. interferences, change of frequency channels); and
7. terrain and obstacles (e.g. geophysical phenomena (volcanic eruptions, earthquakes, tsunami), difficult terrain at an unplanned aerodrome (large bodies of water, mountains);

c. updates of the operational flight plan when they affect the fuel reserves:

1. diversion to an en route alternate (ERA) aerodrome, a destination alternate, or a take-off alternate aerodrome;
2. change of the runway selected for landing if the new runway is shorter;
3. location of the decision point or the point of no return (PNR) due to, for instance, change in altitude, in wind data, etc.;
4. significant in-flight change of the flight route compared to the route in the flight planning; or
5. significant deviation from the planned fuel consumption; and

(d) position reporting:

1. flight-monitoring personnel should report in every phase of the flight: taxi, take-off, climb, cruise, cruise steep climb, descent, approach, landing;
2. flight watch provides active tracking; and
3. where no real-time automatic position-reporting is possible, the operator should have an acceptable alternative to ensure in-flight reporting at least every hour.

## GM29 BCAR-OPS DEF

### FUEL/ENERGY

The energy used for aircraft propulsion comes from various sources and is of various types. A frequently used type of energy in aviation is derived from processing (in a piston or turbine engine) hydrocarbon-based fuels that include gasoline (leaded or unleaded), diesel, avgas, JET A-1, and JET B. Hydrogen may also be used as fuel for fuel cell applications, which generate electricity that is used to generate propulsion. However, as current technologies already use other sources of energy for aircraft propulsion, such as stored electrical energy, the typical term 'fuel' has become restrictive and no longer covers emerging technologies. Therefore, a broader, combined term is introduced to accommodate new types of energy, other than fuel, used for aircraft propulsion purposes. The term 'fuel/energy' should cater for both typical fuel and any other type or source of energy used for aircraft propulsion, including but not limited to electrical energy stored in batteries. When used in the combination 'fuel/energy', the term 'energy' only refers to the electrical energy used for aircraft propulsion purposes. It does not include any other form of stored electrical energy that is used on board an aircraft (e.g. batteries of EFBs, ELTs, underwater locating devices (ULDs), automatic external defibrillators (AEDs), or backup energy sources).





## GM30 BCAR-OPS DEF

### FUEL/ENERGY EN ROUTE ALTERNATE (ERA) AERODROME

Fuel/energy ERA aerodromes could be used in the following cases:

- a. **'fuel ERA aerodrome critical scenario'**: that aerodrome is used when additional fuel is required at the most critical point along the route to comply with point (c)(6) of point CAT.OP.MPA.181 'Fuel/energy scheme — fuel/energy planning and in-flight re-planning policy — aeroplanes';
- b. **'fuel ERA aerodrome 3 %'**: that aerodrome is used when an operator reduces the contingency fuel to 3 %; and
- c. **'fuel ERA aerodrome PNR'**: that aerodrome is used at the PNR during isolated aerodrome operations.

## GM31 BCAR-OPS DEF

### DEFINITIONS OF TERMS RELATED TO ALL-WEATHER OPERATIONS

The following terms and concepts are used in the provisions related to all-weather operations in the AMC and GM:

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

#### 'AFM or additional data from the TC/STC holder'

— an AFM or additional data from the TC/STC holder may provide:

— limitations, in accordance with which the aircraft must be operated, as described under point 4.1 of Annex V to Regulation (EU) 2018/1139. This means that the aircraft may NOT exceed those given values; or

— demonstrated capabilities, which are the assumptions, envelope or conditions that were used to demonstrate adequate performance to comply with the appropriate certification specifications.

However, some AFMs (especially for those aircraft or landing systems that were certified before the introduction of CS-AWO Issue 2) may not include all of the assumptions, envelope or conditions that were used to demonstrate adequate performance. Information regarding the assumptions, envelope, or conditions that were used to demonstrate adequate performance of a landing system can be provided by equivalent documentation issued by TC/STC holder.

Other types of information issued by the TC/STC holder may include (not an exhaustive list):

- equivalence between different aircraft models (types);
- equivalence between aircraft types and variants;
- landing systems equivalence;
- a list of runways with their demonstrated performance;
- a letter of no-technical objection/evaluation letter.



Note: 'TC/STC holder' should be understood as the holder of the certificate for the landing system. 'Basic aircraft' means an aircraft which has the minimum equipment required to perform the intended take-off, approach or landing operation.

**'Continuous descent final approach (CDFA)'**: when the circling altitude/height is reached, it is acceptable to maintain altitude (level-off) and transition to the visual segment. The operator may provide a point in the visual segment in which the descent may be resumed to follow a continuous descent 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.

**'Enhanced flight vision system (EFVS)-Approach (EFVS-A)'** means a system that has been demonstrated to meet the criteria to be used for approach operations from a decision altitude/height (DA/H) or a minimum descent altitude/height (MDA/H) to 100 ft (30 m) threshold elevation while all system components are functioning as intended, but may have failure modes that could result in the loss of EFVS capability. It should be assumed for an EFVS-A that:

- a. the pilot will conduct a go-around at or above 100 ft threshold elevation, in the event of an EFVS failure; and
- b. descent below 100 ft above the threshold elevation through to touchdown and roll-out should be conducted using natural vision so that any failure of the EFVS does not prevent the pilot from completing the approach and landing.

**'Enhanced flight vision system (EFVS)-Landing (EFVS-L)'** means a system that has been demonstrated to meet the criteria to be used for approach and landing operations that rely on sufficient visibility conditions to enable unaided roll-out and to mitigate for loss of EFVS function.

**'Head-up display (HUD) or equivalent display system'** means a display system which presents flight information to the pilot's forward external field of view (FOV), and which does not significantly restrict the external view.

**'Landing system'** means an airborne equipment, which:

- a. provides automatic control of the aircraft during the approach and landing (i.e. automatic landing system); or
- b. has been demonstrated to meet the criteria to be used for approach and landing operations (e.g. HUD landing system, EFVS-L or any other approved system).

**'Landing system assessment area (LSAA)'** means the part of the runway that extends from the threshold to a distance of 600 m from the threshold.

Note — Although the landing systems certification criteria use a value greater than 600 m after the threshold to evaluate limit conditions, for the purpose of flight operations assessment a distance of 600 m is the relevant part as landing beyond this point is not expected to occur in day-to-day operations. The LSAA may not necessarily be coincident with the touchdown zone. The touchdown zone is specified in CS-ADR DSN.

**'Low-visibility procedures (LVPs)'** means procedures applied by an aerodrome for the purpose of ensuring safety during low-visibility operations (LVOs).



Regular runway means a runway whose characteristics fit within the acceptable limits demonstrated by the original equipment manufacturer (OEM) during certification. The classification of a runway as a 'regular runway' is different from one set of equipment to another.

**'Required visual reference'** refers to 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.

**'Satellite-based augmentation system (SBAS)'** means a wide coverage augmentation system in which the user receives augmentation information from a satellite-based transmitter. The most common form of SBAS in Europe is the European Geostationary Navigation Overlay Service (EGNOS).

**'Synthetic vision system (SVS)'** means a system that displays data derived synthetic images of the external scene from the perspective of the flight deck.

**'Landing area'** means that part of a movement area intended for the landing or take-off of aircraft.

**'Touchdown zone (TDZ)'** means the portion of a runway, beyond the threshold, where landing aeroplanes are intended to first contact the runway.

**'Type B instrument approach operations categories':** 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 requirements of the most demanding category. This does not apply if the RVR and/or DH has been approved as operational credits.

## GM32 BCAR-OPS DEF

### EFVSs — DIFFERENCES WITH ENHANCED VISION SYSTEMS (EVSs)

#### a. Introduction to EVSs

EVSs use sensing technology to improve a pilot's ability to detect objects and topographical features ahead of the aircraft. Different types of sensing technology are used on different aircraft installations. Sensing technologies used include forward-looking infrared, millimetre wave radiometry, millimetre wave radar or low-light level intensification; additional technologies may be developed in the future. The image from sensors may be displayed to the pilot in a number of different ways including 'head-up' and 'head-down' displays.

#### b. EVSs and EFVSs

An EFVS is an EVS that is integrated with a flight guidance system, which presents the image from sensors to the pilot on a head-up display (HUD) or equivalent display. If EFVS equipment is certified according to the applicable airworthiness requirements and an operator holds the necessary specific approval, then an EFVS may be used for EFVS operations. An EFVS operation is an operation with an operational credit which allows operating in visibility conditions lower than those in which operations without the use of EFVS are permitted.

#### c. Functions of EVSs



Depending on the capabilities of the particular system, EVSs may be useful during operations at night or in reduced visibility for the following:

1. improving visibility of airport features and other traffic during ground operations;
2. displaying terrain and obstructions in flight;
3. displaying weather in flight;
4. improving visibility of the runway environment during approach operations; and
5. improving visibility of obstructions on a runway (e.g. aircraft, vehicles or animals) during take-off and approach operations.

d. Limitations of EVSs

EVSs are a useful tool for enhancing situational awareness; however, each EVS installation has its own specific limitations. These may include:

1. Performance variations depend on conditions including ambient temperature and lighting and weather phenomena. A system may provide very different image qualities in the same visibility depending on the particular phenomena causing restricted visibility, e.g. haze, rain, fog, snow, dust, etc.
2. An EVS may not be able to detect certain types of artificial lighting. Light emitting diode (LED) lights have a much lower infrared signature than incandescent lights and therefore may not be detected by some types of EVSs. LED lighting is used for runway, taxiway and approach lighting at many airports.
3. Monochrome display. EVSs will generally not be able to detect and display the colour of airport lighting. This means that colour coding used on airport lighting will not be visible to the pilot using an EVS.
4. Many EVS installations do not have redundancy, so a single failure may lead to loss of EVS image.
5. The location of the sensor on the airframe may mean that in certain conditions it could be susceptible to ice accretion or obscuration from impact damage from objects such as insects or birds.
6. Where an EVS image is presented on a HUD or an equivalent display, the image needs to be consistent with the pilot's external view through the display. Particular installations may have limitations on the conditions under which this consistent image can be generated (e.g. crosswind conditions during approach).
7. Imaging sensor performance can be variable and unpredictable. Pilots should not assume that a flightpath is free of hazards because none are visible in an EVS image.

e. Considerations for the use of EVSs

EVSs may be used in all phases of flight and have significant potential to enhance the pilot's situational awareness. No specific approval is required for the use of an EVS; however, the operator is responsible for ensuring that the flight crew members have received training on the equipment installed on their aircraft in accordance with ORO.FC.120. In addition, the operator is responsible for evaluating the risks associated with system limitations and for implementing suitable mitigation measures in accordance with ORO.GEN.200(a)(3) before using the EVS. The use of EVSs does not permit the use of different operating minima, and EVS images cannot replace natural vision for the required visual reference in any phase of flight including take-off, approach or landing. An EVS that is not an EFVS cannot be used for EFVS operations and therefore does not obtain an operational credit.

**GM33 BCAR-OPS DEF****INSTRUMENT APPROACH OPERATIONS**

- a. Depending on the instrument approach procedure (IAP) in use, the lateral and vertical navigation guidance for an instrument approach operation may be provided by:
  1. a ground-based radio navigation aid; or computer-generated navigation data from ground-based, space-based or self-contained navigation aids or a combination of these.
- b. A non-precision approach (NPA) procedure flown as CDFA with vertical path guidance calculated by on-board equipment is considered to be a 3D instrument approach operation. Depending on the limitations of the equipment and information sources used to generate vertical guidance, it may be necessary for the pilot to cross-check this guidance against other navigational sources during the approach and to ensure that the minimum altitude/height over published step-down fixes is observed. CDFAs with manual calculation of the required rate of descent are considered 2D operations.
- c. Further guidance on the classification of an instrument approach operation based on the designed lowest operating minima is contained in Appendix J to ICAO Doc 9365 Manual of AllWeather Operations, Fourth Edition, 2017.

**GM34 BCAR-OPS DEF****DECISION ALTITUDE (DA) OR DECISION HEIGHT (DH)**

- a. Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.
- b. For operations using DA, the aircraft altimeters are set to QNH. For operations using a barometric DH, the aircraft altimeters are set to QFE.
- c. For SA CAT I, SA CAT II, CAT II/III operations, the DH is based on the use of a radio altimeter or other devices capable of providing equivalent performance. The DH is determined with reference to threshold elevation, but the value of the DH set for the approach will be based on the height of the aircraft above the pre-threshold terrain, which may be higher or lower than the threshold.
- d. For convenience, when both expressions are used, they may be written in the form 'decision altitude/height' and abbreviated 'DA/H'.

**GM35 BCAR-OPS DEF****MINIMUM DESCENT ALTITUDE (MDA) OR MINIMUM DESCENT HEIGHT (MDH)**

- a. Minimum descent altitude (MDA) is referenced to mean sea level and minimum descent height (MDH) is referenced to the aerodrome elevation or to the threshold elevation if that is more than 7 ft below the aerodrome elevation. An MDH for a circling approach is referenced to the aerodrome elevation.
- b. For operations using MDA, the aircraft altimeters are set to QNH. For operations using a barometric MDH, the aircraft altimeters are set to QFE.
- c. For convenience, when both expressions are used, they may be written in the form 'minimum descent altitude/height' and abbreviated 'MDA/H'.