# FOREWORD

This Guidance Material (GM: Part-IDE) is interpretative material and provides guidance for the compliance of the airworthiness requirements of ANO Part- IDE "Instrument, Date and Equipments". Section numbering of this GM is synchronized with that of regulations and AMCs of ANO Part-IDE.

This GM is effective from the date of publication of the ANO Part- IDE, Issue 1.

**Air Vice Marshal M Mafidur Rahman**
BBP, BSP, BUP, ndu, afwc, psc
Chairman
Civil Aviation Authority of Bangladesh

## Table of Contents

# Guidance Material on

## ANO Part-IDE

## SUBPART – CAT
## SECTION 1– AEROPLANES

### GM1 CAT.IDE.A.100(a) Instruments and equipment – general

**REQUIRED INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED IN ACCORDANCE WITH THE APPLICABLE AIRWORTHINESS REQUIREMENTS.**

The functionality of non-installed instruments and equipment required by this Subpart and that do not need an equipment approval, as listed in CAT.IDE.A.100(a), should be checked against recognized industry standards appropriate to the intended purpose. The operator is responsible for ensuring the maintenance of these instruments and equipment.

### GM1 CAT.IDE.A.100(b) Instruments and equipment – general

**NOT REQUIRED INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED IN ACCORDANCE WITH THE APPLICABLE AIRWORTHINESS REQUIREMENTS, BUT ARE CARRIED ON A FLIGHT**

(a) The provision of this paragraph does not exempt any installed instrument or item of equipment from complying with the applicable airworthiness requirements. In this case, the installation should be approved as required in the applicable airworthiness requirements and should comply with the applicable Certification Specifications as required under the same Regulation.

(b) The failure of additional non-installed instruments or equipment not required by this Part or by the applicable airworthiness requirements or any applicable airspace requirements should not adversely affect the airworthiness and/or the safe operation of the aeroplane. Examples may be the following:

(1) portable electronic flight bag (EFB);

(2) portable electronic devices carried by flight crew or cabin crew; and

(3) non-installed passenger entertainment equipment.

### GM1 CAT.IDE.A.100(d) Instruments and equipment – general

**POSITIONING OF INSTRUMENTS**

This requirement implies that whenever a single instrument is required to be installed in an aeroplane operated in a multi-crew environment, the instrument needs to be visible from each flight crew station.

## GM1 CAT.IDE.A.105 Minimum equipment for flight

### MANAGEMENT OF THE STATUS OF CERTAIN INSTRUMENTS, EQUIPMENT OR FUNCTIONS

(a) The operator should define responsibilities and procedures to retain and control the status of instruments, equipment or functions required for the intended operation, that are not controlled for the purpose of continuing airworthiness management.

(b) Examples of such instruments, equipment or functions may be, but are not limited to, equipment related to navigation approvals as FM immunity or certain software versions.

## GM1 CAT.IDE.A.110 Spare electrical fuses

### FUSES

A 'spare electrical fuse' means a replaceable fuse in the flight crew compartment, not an automatic circuit breaker, or circuit breakers in the electric compartments.

## GM1 CAT.IDE.A.125 & CAT.IDE.A.130 Operations under VFR by day & Operations under IFR or at night – flight and navigational instruments and associated equipment SUMMARY TABLE

***Table 1:*** Flight and navigational instruments and associated equipment

| SERIAL | | FLIGHTS UNDER VFR | | FLIGHTS UNDER IFR OR | |
|---|---|---|---|---|---|
| INSTRUMENT | | SINGLE-PILOT | TWO PILOTS REQUIRED | SINGLE-PILOT | TWO PILOTS REQUIRED |
| 1 | Magnetic direction | 1 | 1 | 1 | 1 |
| 2 | Time | 1 | 1 | 1 | 1 |
| 3 | Pressure altitude | 1 | 2 | 2<br>Note (5) | 2<br>Note (5) |
| 4 | Indicated airspeed | 1 | 2 | 1 | 2 |
| 5 | Vertical speed | 1 | 2 | 1 | 2 |
| 6 | Turn and slip or turn coordinator | 1<br>Note (1) | 2<br>Note (1)<br>& Note (2) | 1<br>Note (4) | 2<br>Note (4) |
| 7 | Attitude | 1<br>Note (1) | 2<br>Note (1)<br>& Note (2) | 1 | 2 |
| 8 | Stabilised direction | 1<br>Note (1) | 2<br>Note (1)<br>& Note (2) | 1 | 2 |
| 9 | Outside air temperature | 1 | 1 | 1 | 1 |
| 10 | Mach number indicator | See Note (3) | | | |
| 11 | Airspeed icing protection | 1<br>Note (6) | 2<br>Note (6) | 1 | 2 |
| 12 | Airspeed icing protection failure indicating | | | 1<br>Note (7) | 2<br>Note (7) |
| 13 | Static pressure source | | | 2 | 2 |
| 14 | Standby attitude indicator | | | 1<br>Note (8) | 1<br>Note (8) |
| 15 | Chart holder | | | 1<br>Note (6) | 1<br>Note (6) |

Note (1) For local flights (A to A, 50 NM radius, not more than 60 minutes' duration), the instruments at serials (a)(6) and (a)(8) may be replaced by either a turn and slip indicator, or a turn coordinator, or both an attitude indicator and a slip indicator.

Note (2) The substitute instruments permitted by Note (1) above should be provided at each pilot's station.

Note (3) A Mach number indicator is required for each pilot whenever compressibility limitations are not otherwise indicated by airspeed indicators.

Note (4) For IFR or at night, a turn and slip indicator, or a slip indicator and a third (standby) attitude indicator certified according to CS 25.1303 (b)(4) or equivalent, is required.

Note (5) Except for unpressurised aeroplanes operating below 10,000 ft, neither three pointers, nor drum-pointer altimeters satisfy the requirement.

Note (6) Applicable only to aeroplanes with a maximum certified take-off mass (MCTOM) of more than 5700 kg, or with an MOPSC of more than 9. It also applies to all aeroplanes first issued with an individual certificate of airworthiness (CofA) on or after 1 April 1999.

Note (7) The pitot heater failure annunciation applies to any aeroplane issued with an individual CofA on or after 1 April 1998. It also applies before that date when: the aeroplane has an MCTOM of more than 5700 kg and an MOPSC greater than 9.

Note (8) Applicable only to aeroplanes with an MCTOM of more than 5700 kg, or with an MOPSC of more than 9.

## GM1 CAT.IDE.A.150 Terrain awareness warning system (TAWS)

### ACCEPTABLE STANDARD FOR TAWS

An acceptable standard for Class A and Class B TAWS may be the Technical Standards Orders issued FAA/EASA .

## GM1 CAT.IDE.A.185 Cockpit voice recorder

### TERMINOLOGY

The terms used in CAT.IDE.A.185 should be understood as follows:

(a) 'Alternate power source' means a power source that is different from the source(s) that normally provides (provide) power to the cockpit voice recorder function.

(b) 'Cockpit-mounted area microphone' means a microphone located in the flight crew compartment for the purpose of recording voice communications originating at the first and second pilot stations and voice communications of other crew members in the flight crew compartment when directed to those stations.

## GM1 CAT.IDE.A.190 Flight data recorder

### GENERAL

(a) The alleviation of AMC2 CAT.IDE.A.190(d) affects a small number of aeroplanes first issued with an individual CofA on or after 1 April 1998 that were either constructed prior to this date or to a specification in force just prior to this date. These aeroplanes may not comply fully with AMC2 CAT.IDE.A.190(b), but are able to comply with AMC4 CAT.IDE.A.190. In addition, this alleviation applies only if compliance with AMC2

CAT.IDE.A.190(b) would imply significant modifications to the aeroplane with a severe re-certification effort.

(b) Flight data recorder systems installed on board aeroplanes first issued with an individual CofA up to and including 31 March 1998, and for which the recorded parameters do not comply with the performance specifications of Table 1 of AMC5 CAT.IDE.A.190 (i.e. range, sampling intervals, accuracy limits and recommended resolution readout) may be acceptable to the Agency.

(c) The alleviations of AMC4 CAT.IDE.A.190(b) and (c), and AMC6 CAT.IDE.A.190(b), are acceptable only if adding the recording of missing parameters to the existing flight data recorder system would require a major upgrade of the system itself. Account is taken of the following:

(1) The extent of the modification required;

(2) The downtime period; and

(3) Equipment software development.

(d) For the purpose of AMC4 CAT.IDE.A.190(b) and (c), and AMC6 CAT.IDE.A.190(a) and (b),

'capacity available' refers to the space on both the flight data acquisition unit and the flight data recorder not allocated for recording the required parameters, or the parameters recorded for the purpose of the Flight Data Monitoring programme, as determined by the Agency.

(e) For the purpose of AMC4 CAT.IDE.A.190(b) and (c), and AMC6 CAT.IDE.A.190(a) and (b), a sensor

is considered 'readily available' when it is already available or can be easily incorporated.

(f) For aeroplanes first issued with an individual CofA up to and including 31 March 1998, the recording of the following additional parameters may be considered:

(1) Remaining parameters in Table 2 of AMC4 CAT.IDE.A.190 or Table 2 of AMC6 CAT.IDE.A.190 as applicable;

(2) Any dedicated parameter relating to novel or unique design or operational characteristics of the aeroplane;

(3) operational information from electronic display systems, such as EFIS, ECAM or EICAS, with the following order of priority:

(i) parameters selected by the flight crew relating to the desired flight path, e.g. barometric pressure setting, selected altitude, selected airspeed, decision height, and autoflight system engagement and mode indications if not recorded from another source;

(ii) display system selection/status, e.g. SECTOR, PLAN, ROSE, NAV, WXR, COMPOSITE, COPY, etc.;

(iii) warning and alerts;

(iv) the identity of displayed pages from emergency procedures and checklists.

(4) retardation information including brake application for use in the investigation of landing overruns or rejected take offs; and

(5) additional engine parameters (EPR, N1, EGT, fuel flow, etc.).

**GM1 CAT.IDE.A.191 Lightweight flight recorder**

**ADDITIONAL USEFUL INFORMATION**

(a) Experience has shown the usefulness, for analysing incidents and for training purposes, of recording additional information. In particular, audio of the flight crew compartment and information on the handling of the aircraft (such as position of flight controls, position of engine controls, fuel and oil indications, aircraft configuration selection), and an external view are very useful for such purposes. To capture such information, simple equipment such as an integrated microphone and integrated camera may be sufficient.

(b) If the flight recorder includes optional capabilities such as described in (a), their recording duration is recommended to be at least 2 hours.

(c) If the flight recorder is capable of acquiring flight parameters from some aircraft systems, it is advised to give priority to the flight parameters relevant to safety investigations.

**GM2 CAT.IDE.A.191 Lightweight flight recorder**

**INSTALLATION OF CAMERAS**

When cameras are installed for the purpose of CAT.IDA.A.191, it is advised to install them so that they do not capture images of head and shoulders of the flight crew members whilst seated in their normal operating position.

**GM3 CAT.IDE.A.191 Lightweight flight recorder**

**RECORDING ACCURACY OF ATTITUDE RATE PARAMETERS**

In the case of attitude rate parameters (pitch rate parameter, yaw rate parameter, roll rate parameter),-the following additional guidance is provided:

(a) If the attitude rate parameter is provided by an approved system of the aeroplane, accuracy greater than as provided by this system is not expected for this attitude rate parameter.

(b) If the attitude rate parameter is provided by a dedicated gyroscope, it is advisable that the gyroscope meets the following performance:

(1) errors caused by linear accelerations less than ±3°/sec (equivalent to ±1% of 300°/sec recording range) for all combinations of parameter values and linear acceleration values in the respective ranges [-300°/sec; +300°/sec] and [-3g; +6g];

(2) errors caused by temperature less than ±5°/sec for all combinations of parameter values and temperature values in the respective ranges [-300°/sec; +300°/sec] and [-40°C;+85°C];

(3) angular random walk of the gyroscope equal to or less than 2°/sqrt(hour); and

(4) bias stability of the gyroscope significantly less than 360°/hour (for instance, 50°/hour).

## GM1 CAT.IDE.A.191(e) Lightweight flight recorder

## FUNCTION TO MODIFY IMAGE AND AUDIO RECORDINGS

The purpose of the function modifying the image and audio recordings is to allow the flight crew to protect their privacy by making such recordings inaccessible using normal techniques. The activation of this function is subject to the commander's approval. However, the equipment manufacturer or a safety investigation authority might still be able to retrieve these recordings using special techniques.

***Table 1:*** Applications

| Item No | Application Type | Application Description | Required Recording Content |
|---|---|---|---|
| 1 | Data link initiation | This includes any application used to log on to, or initiate, a data link service. In future air navigation system (FANS)-1/A and air traffic navigation (ATN), these are ATS facilities notification (AFN) and context management (CM) respectively. | C |
| 2 | Controller/pilot communication | This includes any application used to exchange requests, clearances, instructions and reports between the flight crew and air traffic controllers. In FANS-1/A and ATN, this includes the controller pilot data link communications (CPDLC) application. It also includes applications used for the exchange of oceanic (OCL) and departure clearances (DCL) as well as data link delivery of taxi clearances. | C |
| 3 | Addressed surveillance | This includes any surveillance application in which the ground sets up contracts for delivery of surveillance data. In FANS-1/A and ATN, this includes the automatic dependent surveillance-contract (ADS-C) application. | C, F2 |
| 4 | Flight information | This includes any application used for delivery of flight information data to specific aeroplanes. This includes for example, digital automatic terminal information service (D-ATIS), data link operational terminal information service (D-OTIS), digital weather information services (D-METAR or TWIP), data link flight information service (D-FIS), and Notice to Airmen (electronic NOTAM) delivery. | C |
| 5 | Aircraft broadcast surveillance | This includes elementary and enhanced surveillance systems, as well as automatic dependent surveillance-broadcast (ADS-B) output data. | |
| 6 | Aeronautical operational control (AOC) data | This includes any application transmitting or receiving data used for AOC purposes (in accordance with the ICAO definition of AOC). Such systems may also process AAC messages, but there is no requirement to record AAC messages. | M* |
| 7 | Graphics | This includes any application receiving graphical data to be used for operational purposes (i.e. excluding applications that are receiving such things as updates to manuals). | M* F1 |

## GM1 CAT.IDE.A.195 Data link recording

## DEFINITIONS AND ACRONYMS

(a) The letters and expressions in Table 1 of AMC1 CAT.IDE.A.195 have the following meaning:

C: complete contents recorded

M: information that enables correlation with any associated records stored separately from the aeroplane.

*: Applications that are to be recorded only as far as is practicable, given the architecture of the system.

F1: graphics applications may be considered as AOC messages when they are part of a data link communications application service run on an individual basis by the operator itself in the framework of the operational control.

F2: where parametric data sent by the aeroplane, such as Mode S, is reported within the message, it should be recorded unless data from the same source is recorded on the FDR.

(a) The definitions of the applications type in Table 1 of AMC1 CAT.IDE.A.195 are described in Table 1 below.

***Table 1:*** Definitions of applications type

| Item No | Application Type | Messages | Comments |
|---|---|---|---|
| 1 | CM | | CM is an ATN service |
| 2 | AFN | | AFN is a FANS 1/A service |
| 3 | CPDLC | | All implemented up and downlink messages to be recorded |
| 4 | ADS-C | ADS-C reports | All contract requests and reports recorded |
| | | Position reports | Only used within FANS 1/A. Only used in oceanic and remote areas. |
| 5 | ADS-B | Surveillance data | Information that enables correlation with any associated records stored separately from the aeroplane. |
| 6 | D-FIS | | D-FIS is an ATN service. All implemented up and downlink messages to be recorded |
| 7 | TWIP | TWIP messages | Terminal weather information for pilots |
| 8 | D-ATIS | ATIS messages | Data Link Application System Document (DLASD) for the 'ATIS' Data Link Service |
| 9 | OCL | OCL messages | Data Link Application System Document (DLASD) for 'Oceanic Clearance' Data Link Service |
| 10 | DCL | DCL messages | Data Link Application System Document (DLASD) for 'Departure Clearance' Data Link Service |
| 11 | Graphics | Weather maps & other graphics | Graphics exchanged in the framework of procedures within the operational control, as specified in Part-ORO.<br>Information that enables correlation with any associated records stored separately from the aeroplane. |
| 12 | AOC | Aeronautical operational control messages | Messages exchanged in the framework of procedures within the operational control, as specified in Part-ORO.<br>Information that enables correlation with any associated records stored separately from the aeroplane. |
| 13 | Surveillance | Downlinked aircraft parameters (DAP) | As defined in ICAO Annex 10 Volume IV (Surveillance systems and ACAS). |

AAC aeronautical administrative communications

| | |
|---|---|
| ADS-B | automatic dependent surveillance — broadcast |
| ADS-C | automatic dependent surveillance — contract |
| AFN | aircraft flight notification |
| AOC | aeronautical operational control |
| ATIS | automatic terminal information service |
| ATSC | air traffic service communication |
| CAP | controller access parameters |
| CPDLC | controller pilot data link communications |
| CM | configuration/context management |
| D-ATIS | digital ATIS |
| D-FIS | data link flight information service |
| D-METAR | data link meteorological airport report |
| DCL | departure clearance |
| FANS | Future Air Navigation System |
| FLIPCY | flight plan consistency |
| OCL | oceanic clearance |
| SAP | system access parameters |
| TWIP | terminal weather information for pilots |

**GM1 CAT.IDE.A.195(a) Data link recording**

**APPLICABILITY OF THE DATA LINK RECORDING REQUIREMENT**

(a) If it is certain that the aeroplane cannot use data link communication messages for ATS communications corresponding to any application designated by CAT.IDE.A.195(a)(1), then the data link recording requirement does not apply.

(b) Examples where the aeroplane cannot use data link communication messages for ATS communications include but are not limited to the cases where:

(1) the aeroplane data link communication capability is disabled permanently and in a way that it cannot be enabled again during the flight;

(2) data link communications are not used to support air traffic service (ATS) in the area of operation of the aeroplane; and

(3) the aeroplane's data link communication equipment cannot communicate with the equipment used by ATS in the area of operation of the aeroplane.

**GM1 CAT.IDE.A.200 Combination recorder**

**GENERAL**

(a) A flight data and cockpit voice combination recorder is a flight recorder that records:

(1) all voice communications and aural environment required by CAT.IDE.A.185 regarding CVRs; and

(2) all parameters required by CAT.IDE.A.190 regarding FDRs, with the same specifications required by those paragraphs.

(b) In addition, a flight data and cockpit voice combination recorder may record data link communication messages and related information required by CAT.IDE.A.195.

**GM1 CAT.IDE.A.205 Seats, seat safety belts, restraint systems and child restraint devices**

**EMERGENCY LANDING DYNAMIC CONDITIONS**

Emergency landing dynamic conditions are defined in applicable certification specifications.

**GM2 CAT.IDE.A.205 Seats, seat safety belts, restraint systems and child restraint devices**

**USE OF CHILD SEATS ON BOARD**

Guidance on child restraint devices and facilitation of mutual acceptance of these devices can be found in ICAO Doc 10049 'Manual on the approval and use of child restraint systems'.

**GM1 CAT.IDE.A.220 First-aid kit**

**LOCATION**

The location of the first-aid kit in the cabin is normally indicated using internationally recognisable signs.

**GM2 CAT.IDE.A.220 First-aid kit**

**STORAGE**

As a best practice and wherever practicable, the emergency medical equipment listed under AMC1 CAT.IDE.A.220 should be kept close together.

**GM3 CAT.IDE.A.220 First-aid kit**

**CONTENT OF FIRST-AID KITS**

The operator may supplement first-aid kits according to the characteristics of the operation based on a risk assessment. The assessment does not require an approval by the competent authority.

**GM4 CAT.IDE.A.220 First-aid kit**

**LITHIUM BATTERIES**

Risks related to the presence of lithium batteries should be assessed. All equipment powered by lithium batteries carried on an aeroplane should comply with applicable technical standards.

**GM1 CAT.IDE.A.225 Emergency medical kit**

**SECURE LOCATION**

'Secure location' refers to a location in the cabin that is not intended for the use by passengers and preferably to which passengers do not have access.

**GM2 CAT.IDE.A.225 Emergency medical kit**

**CONTENT OF EMERGENCY MEDICAL KITS**

The operator may supplement emergency medical kits according to the characteristics of the operation based on a risk assessment. The assessment does not require an approval by the competent authority.

**GM3 CAT.IDE.A.225 Emergency medical kit**

**LITHIUM BATTERIES**

Risks related to the presence of lithium batteries should be assessed. All equipment powered by lithium batteries carried on an aeroplane should comply with the applicable technical standards.

**GM1 CAT.IDE.A.230 First-aid oxygen**

GENERAL

(a) First-aid oxygen is intended for those passengers who still need to breath oxygen when the amount of supplemental oxygen required under CAT.IDE.A.235 or CAT.IDE.A.240 has been exhausted.

(b) When calculating the amount of first-aid oxygen, the operator should take into account the fact that, following a cabin depressurisation, supplemental oxygen as calculated in accordance with Table 1 of CAT.IDE.A.235 and Table 1 of CAT.IDE.A.240 should be sufficient to cope with potential effects of hypoxia for:

(1) all passengers when the cabin altitude is above 15000 ft;

(2) at least 30 % of the passengers, for any period when, in the event of loss of pressurisation and taking into account the circumstances of the flight, the pressure altitude in the passenger compartment will be between 14000 ft and 15000 ft; and

(3) at least 10 % of the passengers for any period in excess of 30 minutes when the pressure altitude in the passenger compartment will be between 10000 ft and 14000 ft.

(c) For the above reasons, the amount of first-aid oxygen should be calculated for the part of the flight after cabin depressurisation during which the cabin altitude is between 8000 ft and 15000 ft, when supplemental oxygen may no longer be available.

(d) Moreover, following cabin depressurisation, an emergency descent should be carried out to the lowest altitude compatible with the safety of the flight. In addition, in these circumstances, the aeroplane should land at the first available aerodrome at the earliest opportunity.

(e) The conditions above may reduce the period of time during which the first-aid oxygen may be required and consequently may limit the amount of first-aid oxygen to be carried on board.

**GM1 CAT.IDE.A.235(b)(1) Supplemental oxygen – pressurized Aeroplanes**

**QUICK DONNING MASKS**

A quick donning mask is a type of mask that:

(a) can be placed on the face from its ready position, properly secured, sealed and supplying oxygen upon demand, with one hand and within 5 seconds and will thereafter remain in position, both hands being free;

(b) can be donned without disturbing eye glasses and without delaying the flight crew member from proceeding with assigned emergency duties;

(c) once donned, does not prevent immediate communication between the flight crew members and other crew members over the aircraft intercommunication system; and

(d) does not inhibit radio communications.

**GM1 CAT.IDE.A.235(c) Supplemental oxygen – pressurized aeroplanes**

**AEROPLANES WITHOUT AUTOMATIC DEPLOYABLE OXYGEN-DISPENSING UNITS**

For CAT operations with single-engined turbine aeroplanes at night or IMC conditions, should a loss of engine power occur, it is required that sufficient supplemental oxygen for all occupants is available to allow descent from the maximum certified cruising altitude, performed at the best-range gliding speed and in the best gliding configuration, assuming the maximum cabin pressure leak rate, during the entire flying time when the cabin pressure altitude exceeds 13000 ft.

In the case of pressurised aeroplanes first issued with an individual certificate of airworthiness (CofA) after 8 November 1998, with a maximum certified cruising altitude above 25 000 ft, and not fitted with automatically deployable oxygen-dispensing units, the amount of supplemental oxygen should be based on a cruising altitude of 25 000 ft as CAT.IDE.A.235(c) limits the operations of such aeroplanes to the aforementioned altitude.

For such single-engined turbine aeroplanes, with the energy source of the pressurisation system being lost (this is at least the case of pressurisation systems relying on bleed air inflow), the cabin pressure altitude increases at a rate dependent upon the pressurisation system design and the cabin pressure leak rate.

Therefore, following an engine failure during such operations, the cabin pressure altitude will remain below 13 000 ft for a certain duration, which should allow the flight crew to descend at the best gliding speed during this period.

The intent of the CAT.IDE.A.235(c) requirement is to ensure that this does not result in any unsafe conditions for the passengers, as the cabin pressure altitude might increase above 13 000 ft, as well as not jeopardise the safety for CAT operations with single-engined turbine aeroplanes at night or IMC conditions, by maximizing the chances of reaching an appropriate landing site.

**GM1 CAT.IDE.A.280 Emergency locator transmitter (ELT)**

**TERMINOLOGY**

(a) An ‘automatic ELT’ means an ELT(AF), ELT(AP), or ELT(AD). Other types of ELTs are not considered ‘automatic ELTs’.

(b) A ‘water sensor’ means a sensor that detects water immersion, including at low depth.

**GM2 CAT.IDE.A.280 Emergency locator transmitter (ELT)**

**ADDITIONAL GUIDANCE**

(a) It is advisable to install automatic ELTs that transmit encoded position data and that meet the operational performance requirements.

(b) Guidance material for the inspection of an ELT can be found in FAA Advisory Circular (AC) 91- 44A ‘Installation and Inspection Procedures for Emergency Locator Transmitters and Receivers’, Change 1, dated February 2018 or later.

**GM1 CAT.IDE.A.285(a) Flight over water**

**SEAT CUSHIONS**

Seat cushions are not considered to be flotation devices.

**GM1 CAT.IDE.A.285(f)(2) Flight over water**

**ROBUST AND AUTOMATIC MEANS TO LOCATE THE POINT OF END OF FLIGHT AFTER AN ACCIDENT**

CAT.IDE.A.285(f)(2) refers to means such as required by CAT.IDE.A.280 (a). The adjective 'robust' in CAT.IDE.A.285(f)(2) indicates that this means is designed to provide the location of the point of end of flight in non-survivable accident scenarios as well as in survivable accident scenarios.

**GM1 CAT.IDE.A.305 Survival equipment**

**SIGNALLING EQUIPMENT**

The signalling equipment for making distress signals is described in ICAO Annex 2, Rules of the Air.

**GM2 CAT.IDE.A.305 Survival equipment**

**AREAS IN WHICH SEARCH AND RESCUE WOULD BE ESPECIALLY DIFFICULT**

The expression 'areas in which search and rescue would be especially difficult' should be interpreted, in this context, as meaning:

(a) areas so designated by the authority responsible for managing search and rescue; or

(b) areas that are largely uninhabited and where:

(1) the authority referred to in (a) has not published any information to confirm whether search and rescue would be or would not be especially difficult; and

(2) the authority referred to in (a) does not, as a matter of policy, designate areas as being especially difficult for search and rescue.

**GM1 CAT.IDE.A.325 Headset**

**GENERAL**

The term 'headset' includes any aviation helmet incorporating headphones and microphone worn by a flight crew member.

**GM2 CAT.IDE.A.345 Communication and navigation equipment for operations under IFR or under VFR over routes not navigated by reference to visual landmarks**

**AIRCRAFT ELIGIBILITY FOR PBN SPECIFICATION NOT REQUIRING SPECIFIC APPROVAL**

(a) The performance of the aircraft is usually stated in the AFM.

(b) Where such a reference cannot be found in the AFM, other information provided by the aircraft manufacturer as TC holder, the STC holder or the design organisation having a privilege to approve minor changes may be considered.

(c) The following documents are considered acceptable sources of information:

(1) AFM, supplements thereto, and documents directly referenced in the AFM;

(2) FCOM or similar document;

(3) Service Bulletin or Service Letter issued by the TC holder or STC holder;

(4) approved design data or data issued in support of a design change approval;

(5) any other formal document issued by the TC or STC holders stating compliance with PBN specifications, AMC, Advisory Circulars (AC) or similar documents issued by the State of Design; and

(6) written evidence obtained from the State of Design.

(d) Equipment qualification data, in itself, is not sufficient to assess the PBN capabilities of the aircraft, since the latter depend on installation and integration.

(e) As some PBN equipment and installations may have been certified prior to the publication of the PBN Manual and the adoption of its terminology for the navigation specifications, it is not always possible to find a clear statement of aircraft PBN capability in the AFM. However, aircraft eligibility for certain PBN specifications can rely on the aircraft performance certified for PBN procedures and routes prior to the publication of the PBN Manual.

(f) Below, various references are listed which may be found in the AFM or other acceptable documents (see listing above) in order to consider the aircraft's eligibility for a specific PBN specification if the specific term is not used.

(g) RNAV 5

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNAV 5 operations.

(i) B-RNAV;

(ii) RNAV 1;

(iii) RNP APCH;

(iv) RNP 4;

(v) A-RNP;

(vi) AMC 20-4;

(vii) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 2 (TGL 2);

(viii) JAA AMJ 20X2;

(ix) FAA AC 20-130A for en route operations;

(x) FAA AC 20-138 for en route operations; and

(xi) FAA AC 90-96.

(h) RNAV 1/RNAV 2

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNAV 1/RNAV 2 operations.

(i) RNAV 1;

(ii) PRNAV;

(iii) US RNAV type A;

(iv) FAA AC 20-138 for the appropriate navigation specification;

(v) FAA AC 90-100A;

(vi) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 10 Rev1 (TGL 10); and

(vii) FAA AC 90-100.

(2) However, if position determination is exclusively computed based on VOR-DME, the aircraft is not eligible for RNAV 1/RNAV 2 operations.

(i) RNP 1/RNP 2 continental

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP 1/RNP 2 continental operations.

(i) A-RNP;

(ii) FAA AC 20-138 for the appropriate navigation specification; and

(iii) FAA AC 90-105.

(2) Alternatively, if a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above and position determination is primarily based on GNSS, the aircraft is eligible for RNP 1/RNP 2 continental operations. However, in these cases, loss of GNSS implies loss of RNP 1/RNP 2 capability.

(i) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 10 (TGL 10) (any revision); and

(ii) FAA AC 90-100.

(j) RNP APCH — LNAV minima

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LNAV operations.

(i) A-RNP;

(ii) AMC 20-27;

(iii) AMC 20-28;

(iv) FAA AC 20-138 for the appropriate navigation specification; and

(v) FAA AC 90-105 for the appropriate navigation specification.

(2) Alternatively, if a statement of compliance with RNP 0.3 GNSS approaches in accordance with any of the following specifications or standards is found in the

acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LNAV operations. Any limitation such as 'within the US National Airspace' may be ignored since RNP APCH procedures are assumed to meet the same ICAO criteria around the world.

(i) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 3 (TGL 3);

(ii) AMC 20-4;

(iii) FAA AC 20-130A; and

(iv) FAA AC 20-138.

(k) RNP APCH — LNAV/VNAV minima

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LNAV/VNAV operations.

(i) A-RNP;

(ii) AMC 20-27 with Baro VNAV;

(iii) AMC 20-28;

(iv) FAA AC 20-138; and

(v) FAA AC 90-105 for the appropriate navigation specification.

(2) Alternatively, if a statement of compliance with FAA AC 20-129 is found in the acceptable documentation as listed above, and the aircraft complies with the requirements and limitations of EASA SIB 2014-041, the aircraft is eligible for RNP APCH — LNAV/VNAV operations. Any limitation such as 'within the US National Airspace' may be ignored since RNP APCH procedures are assumed to meet the same ICAO criteria around the world.

(l) RNP APCH — LPV minima

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LPV operations.

(i) AMC 20-28;

(ii) FAA AC 20-138 for the appropriate navigation specification; and

(iii) FAA AC 90-107.

(2) For aircraft that have a TAWS Class A installed and do not provide Mode-5 protection on an LPV approach, the DH is limited to 250 ft.

(m) RNAV 10

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNAV 10 operations.

(i) RNP 10;

(ii) FAA AC 20-138 for the appropriate navigation specification;

(iii) AMC 20-12;

(iv) FAA Order 8400.12 (or later revision); and

(v) FAA AC 90-105.

(n) RNP 4

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP 4 operations.

(i) FAA AC 20-138B or later, for the appropriate navigation specification;

(ii) FAA Order 8400.33; and

(iii) FAA AC 90-105 for the appropriate navigation specification.

(o) RNP 2 oceanic

(1) If a statement of compliance with FAA AC 90-105 for the appropriate navigation specification is found in the acceptable documentation as listed above, the aircraft is eligible for RNP 2 oceanic operations.

(2) If the aircraft has been assessed eligible for RNP 4, the aircraft is eligible for RNP 2 oceanic.

(p) Special features

(1) RF in terminal operations (used in RNP 1 and in the initial segment of the RNP APCH)

(i) If a statement of demonstrated capability to perform an RF leg, certified in accordance with any of the following specifications or standards, is found in the acceptable documentation as listed above, the aircraft is eligible for RF in terminal operations:

(A) AMC 20-26; and

(B) FAA AC 20-138B or later.

(ii) If there is a reference to RF and a reference to compliance with AC 90-105, then the aircraft is eligible for such operations.

(q) Other considerations

(1) In all cases, the limitations in the AFM need to be checked; in particular, the use of AP or FD which can be required to reduce the FTE primarily for RNP APCH, RNAV 1, and RNP 1.

(2) Any limitation such as ‘within the US National Airspace’ may be ignored since RNP APCH procedures are assumed to meet the same ICAO criteria around the world.

**GM3 CAT.IDE.A.345 Communication and navigation equipment for operations under IFR or under VFR over routes not navigated by reference to visual landmarks**

**GENERAL**

(a) The PBN specifications for which the aircraft complies with the relevant airworthiness criteria are set out in the AFM, together with any limitations to be observed.

(b) Because functional and performance requirements are defined for each navigation specification, an aircraft approved for an RNP specification is not automatically approved for all RNAV specifications. Similarly, an aircraft approved for an RNP or RNAV specification having a stringent accuracy requirement (e.g. RNP 0.3 specification) is not automatically approved for a navigation specification having a less stringent accuracy requirement (e.g. RNP 4).

**RNP 4**

(c) For RNP 4, at least two LRNSs, capable of navigating to RNP 4, and listed in the AFM, may be operational at the entry point of the RNP 4 airspace. If an item of equipment required for RNP 4 operations is unserviceable, then the flight crew may consider an alternate route or diversion for repairs. For multi-sensor systems, the AFM may permit entry if one GNSS sensor is lost after departure, provided one GNSS and one inertial sensor remain available.

**GM1 CAT.IDE.A.345(c) Communication and navigation equipment for operations under IFR or under VFR over routes not navigated by reference to visual landmarks**

**SHORT HAUL OPERATIONS**

The term 'short haul operations' refers to operations not crossing the North Atlantic.

**GM1 CAT.IDE.A.345(a) Communication, navigation and surveillance equipment for operations under IFR or under VFR over routes not navigated by reference to visual landmarks**

**PBCS OPERATIONS — GENERAL**

Detailed guidance material on PBCS operations may be found in the following documents:

(a) ICAO Doc 9869 'Performance-based Communication and Surveillance (PBCS) Manual'

(b) ICAO Doc 10037 'Global Operational Data Link (GOLD) Manual'

**PBCS OPERATIONS — AIRCRAFT ELIGIBILITY**

(a) The aircraft eligibility for compliance with the required RCP/RSP specifications should be demonstrated by the aircraft manufacturer or equipment supplier and be specific to each individual aircraft or the combination of the aircraft type and the equipment. The demonstrated compliance with specific RCP/RSP specifications may be documented in one of the following documents:

(1) the type certificate (TC);

(2) the supplemental type certificate (STC);

(3) the aeroplane flight manual (AFM) or AFM Supplement;

(4) a compliance statement from the manufacturer or the holder of the design approval of the data link installation, approved by the State of Design; or

(b) In addition to the indication of compliance with specific RCP/RSP specifications, the operator should comply with any associated operating limitations, information and procedures specified by the aircraft manufacturer or equipment supplier in the AFM or other appropriate documents.

**PBCS OPERATIONS — MEL ENTRIES**

(a) The operator should amend the MEL, in accordance with the items identified by the aircraft manufacturer or equipment supplier in the master minimum equipment list (MMEL) or MMEL supplement, in relation to PBCS capability, to address the impact of losing an associated system/sub-system on data link operational capability.

(b) As an example, equipment required in current FANS 1/A-capable aircraft, potentially affecting RCP and RSP capabilities, may be the following:

(1) VHF, SATCOM, or HFDL1 radios, as applicable;

(2) ACARS management unit (MU)/communications management unit (CMU);

(3) flight management computer (FMC) integration; and

(4) printer, if procedures require its use.

**PBCS OPERATIONS — OPERATING PROCEDURES**

The operator should establish operating procedures for the flight crew and other relevant personnel, such as but not limited to, flight dispatchers and maintenance personnel. These procedures should cover the usage of PBCS-relevant systems and include as a minimum:

(a) pre-flight planning requirements including MEL consideration and flight plan filing;

(b) actions to be taken in the data link operation, to include specific RCP/RSP required cases;

(c) actions to be taken for the loss of data link capability while in and prior to entering the airspace requiring specific RCP/RSP specifications. Examples may be found in ICAO Doc 10037;

(d) problem reporting procedures to the local/regional PBCS monitoring body or central reporting body as applicable; and

(e) compliance with specific regional requirements and procedures, if applicable.

**PBCS OPERATIONS — QUALIFICATION AND TRAINING**

(a) The operator should ensure that flight crew and other relevant personnel such as flight dispatchers and maintenance personnel are proficient with PBCS operations. A separate training programme is not required if data link communication is integrated in the current training programme. However, the operator should ensure that the existing training programme incorporates a basic PBCS concept and requirements for flight crew and other personnel that have direct impact on overall data link performance required for the provisions of air traffic services such as reduced separation.

(b) The elements covered during the training should be as a minimum:

(1) Flight crew

(i) Data link communication system theory relevant to operational use;

(ii) AFM limitations;

(iii) Normal pilot response to data link communication messages;

(iv) Message elements in the message set used in each environment;

(v) RCP/RSP specifications and their performance requirements;

(vi) Implementation of performance-based reduced separation with associated RCP/RSP specifications or other possible performance requirements associated with their routes;

(vii) Other ATM operations involving data link communication services;

(viii) Normal, non-normal and contingency procedures; and

(ix) Data link communication failure/problem and reporting.

Note (1) If flight crew has already been trained on data link operations, additional training only on PBCS is required, addressing a basic concept and requirements that have direct impact on overall data link performance required for provisions of air traffic services (e.g. reduced separation).

Note (2) Training may be provided through training material and other means that simulate the functionality.

(2) Dispatchers/flight operations officers

(i) Proper use of data link and PBCS flight plan designators;

(ii) Air traffic service provider's separation criteria and procedures relevant to RCP/RSP specifications;

(iii) MEL remarks or exceptions based on data link communication;

(iv) Procedures for transitioning to voice communication and other contingency procedures related to the operation in the event of abnormal behaviour of the data link communication;

(v) Coordination with the ATS unit related to, or following a special data link communication exceptional event (e.g. log-on or connection failures); and

(vi) Contingency procedures to transition to a different separation standard when data link communication fails.

(3) Engineering and maintenance personnel

(i) Data link communication equipment including its installation, maintenance and modification;

(ii) MEL relief and procedures for return to service authorisations; and

(iii) Correction of reported non-performance of data link system.

**PBCS OPERATIONS — CONTINUED AIRWORTHINESS**

(a) The operator should ensure that aircraft systems are properly maintained to continue to meet the applicable RCP/RSP specifications.

(b) The operator should ensure that the following elements are documented and managed appropriately:

(1) configuration and equipment list detailing the pertinent hardware and software components for the aircraft/fleet(s) applicable to the specific RCP/RSP operation;

(2) configuration control for subnetwork, communication media and routing policies; and

(3) description of systems including display and alerting functions (including message sets).

**PBCS OPERATIONS — CSP COMPLIANCE**

(a) The operator should ensure that their contracted CSPs notify the ATS units of any failure condition that may have an impact on PBCS operations. Notification should be made to all relevant ATS units regardless of whether the CSP has a contract with them.

(b) The operator may demonstrate the compliance of their contracted CSP through service level agreements (SLAs)/contractual arrangements for data link services or through a joint agreement among PBCS stakeholders such as a Memorandum of Understanding (MOU) or a PBCS Charter.

**PBCS OPERATIONS — PBCS CHARTER**

A PBCS charter has been developed by PBCS stakeholders and is available as an alternative to SLAs in order to validate the agreement between the operator and the CSP for compliance with RCP/RSP required for PBCS operations.

**PBCS OPERATIONS — PARTICIPATION IN MONITORING PROGRAMMES**

(a) The operator should establish a process to participate in local or regional PBCS monitoring programmes and provide the following information, including any subsequent changes, to monitoring bodies:

(1) operator name;

(2) operator contact details; and

(3) other coordination information as applicable, including appropriate information means for the CSP/SSP service fail notification.

(b) The process should also address the actions to be taken with respect to problem reporting and resolution of deficiencies, such as:

(1) reporting problems identified by the flight crew or other personnel to the PBCS monitoring bodies associated with the route of the flight on which the problem occurred;

(2) disclosing operational data in a timely manner to the appropriate PBCS monitoring bodies when requested for the purposes of investigating a reported problem; and

(3) investigating and resolving the cause of the deficiencies reported by the PBCS monitoring bodies

**GM1 CAT.IDE.A.355 Management of aeronautical databases**

**AERONAUTICAL DATABASE APPLICATION**

The certification of a Type 2 DAT provider should ensures data integrity and compatibility with the certified aircraft application/equipment.

**GM2 CAT.IDE.A.355 Management of aeronautical databases**

**TIMELY DISTRIBUTION**

The operator should distribute current and unaltered aeronautical databases to all aircraft requiring them in accordance with the validity period of the databases or in accordance with a procedure established in the operations manual if no validity period is defined.

## SECTION 2 – HELICOPTERS

### GM1 CAT.IDE.H.100(a) Instruments and equipment – general

**REQUIRED INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED IN ACCORDANCE WITH THE APPLICABLE AIRWORTHINESS REQUIREMENTS.**

The functionality of non-installed instruments and equipment required by this Subpart and that do not need an equipment approval, as listed in CAT.IDE.H.100(a), should be checked against recognised industry standards appropriate to the intended purpose. The operator is responsible for ensuring the maintenance of these instruments and equipment.

### GM1 CAT.IDE.H.100(b) Instruments and equipment – general

**NOT REQUIRED INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED IN ACCORDANCE WITH THE APPLICABLE AIRWORTHINESS REQUIREMENTS., BUT ARE CARRIED ON A FLIGHT**

(a) The provision of this paragraph does not exempt any installed instrument or item of equipment from complying with the applicable airworthiness requirements. In this case, the installation should be approved as required in the applicable airworthiness requirements and should comply with the applicable Certification Specifications as required under that Regulation.

(b) The failure of additional non-installed instruments or equipment not required by this Part or the Certification Specifications as required under the applicable airworthiness requirements or any applicable airspace requirements should not adversely affect the airworthiness and/or the safe operation of the aircraft. Examples may be the following:

(1) portable electronic flight bag (EFB);

(2) portable electronic devices carried by flight crew or cabin crew; and

(3) non-installed passenger entertainment equipment.

### GM1 CAT.IDE.H.100(d) Instruments and equipment — general

**POSITIONING OF INSTRUMENTS**

This requirement implies that whenever a single instrument is required to be installed in a helicopter operated in a multi-crew environment, the instrument needs to be visible from each flight crew station.

### GM1 CAT.IDE.H.105 Minimum equipment for flight

**MANAGEMENT OF THE STATUS OF CERTAIN INSTRUMENTS, EQUIPMENT OR FUNCTIONS**

(a) The operator should define responsibilities and procedures to retain and control the status of instruments, equipment or functions required for the intended operation, that are not controlled for the purpose of continuing airworthiness management.

(b) Examples of such instruments, equipment or functions may be, but are not limited to, equipment related to navigation approvals as FM immunity or certain software versions.

### GM1 CAT.IDE.H.125(b) Operations under VFR by day — flight and navigational instruments and associated equipment

**MULTI-PILOT OPERATIONS**

(a) Two pilots are required for the operation if required by the one of the following:

(1) the AFM;

(2) ANO 6-3, chapter 7

**MULTI-PILOT OPERATIONS ON A VOLUNTARY BASIS — HELICOPTERS OPERATED UNDER VFR BY DAY**

(b) If the AFM permits single-pilot operations, and the operator decides that the crew composition is more than one pilot, then point CAT.IDE.H.125(b) does not apply. However, additional means to display instruments referred to in CAT.IDE.H.125(b) may be required by point CAT.IDE.H.100(d).

### GM1 CAT.IDE.H.125 & CAT.IDE.H.130 Operations under VFR by day & Operations under IFR or at night – flight and navigational instruments and associated equipment

**SUMMARY TABLE**

***Table 1:*** Flight and navigational instruments and associated equipment

| SERIAL | | FLIGHTS UNDER VFR | | FLIGHTS UNDER IFR OR AT | |
|---|---|---|---|---|---|
| INSTRUMENT | | SINGLE-PILOT | TWO PILOTS REQUIRED | SINGLE-PILOT | TWO PILOTS REQUIRED |
| (a) | | (b) | (c) | (d) | (e) |
| 1 | Magnetic direction | 1 | 1 | 1 | 1 |
| 2 | time | 1 | 1 | 1 | 1 |
| 3 | Pressure altitude | 1 | 2 | 2<br>Note (1) | 2 |
| 4 | Indicated airspeed | 1 | 2 | 1 | 2 |
| 5 | Vertical speed | 1 | 2 | 1 | 2 |
| 6 | Slip | 1 | 2 | 1 | 2 |
| 7 | Attitude | 1<br>Note (2) | 2<br>Note(2) | 1 | 2 |
| 8 | Stabilised direction | 1<br>Note (2) | 2<br>Note(2) | 1 | 2 |
| 9 | Outside air temperature | 1 | 1 | 1 | 1 |
| 10 | Airspeed icing protection | 1<br>Note (3) | 2<br>Note (3) | 1 | 2 |
| 11 | Airspeed icing protection failure indicating | | | 1<br>Note (4) | 2<br>Note (4) |
| 12 | Static pressure source | | | 2 | 2 |
| 13 | Standby attitude | | | 1<br>Note (5) | 1<br>Note (5) |
| 14 | Chart holder | | | 1<br>Note (6) | 1<br>Note (6) |

Note (1) For single-pilot night operation under VFR, one means of measuring and displaying pressure altitude may be substituted by a means of measuring and displaying radio altitude.

Note (2) Applicable only to helicopters with a maximum certified take-off mass (MCTOM) of more than 3 175 kg; or helicopters operated over water when out of sight of land or when the visibility is less than 1 500 m.

Note (3) Applicable only to helicopters with an MCTOM of more than 3 175 kg, or with an MOPSC of more than 9.

Note (4) The pitot heater failure annunciation applies to any helicopter issued with an individual CofA on or after 1 August 1999. It also applies before that date when: the helicopter has a MCTOM of more than 3 175 kg and an MOPSC of more than 9.

Note (5) For helicopters with an MCTOM of more than 3 175 kg, it may require either a gyroscopic rate-of-turn indicator combined with a slip-skid indicator (turn and bank indicator) or a standby attitude indicator satisfying the requirements. In any case, the original type certification standard should be referred to determine the exact requirement.

Note (6) Applicable only to helicopters operating under IFR.

## GM1 CAT.IDE.H.130(h) Operations under IFR or at night – flight and navigational instruments and associated equipment

**MULTI-PILOT OPERATIONS**

Two pilots are required for the operation if required by the one of the following:

(a) the AFM;

(b) the operations manual.

## GM1 CAT.IDE.H.145 Radio altimeters

**AUDIO-VOICE-ALERTING DEVICE**

(a) To be effective, the voice warning alert should be distinguishable from other warnings and should contain a clear and concise voice message.

(b) The warning format should meet the following conditions:

(1) the warning should be unique (i.e. voice);

(2) it should not be inhibited by any other audio warnings, except by higher priority alerts such as helicopter terrain awareness and warning system (HTAWS); and

(3) the urgency of the warning should be adequate to draw attention but not such as to cause undue annoyance during deliberate descents through the datum height.

(c) The criteria above can be satisfactorily met if the warning format incorporates all of the following features:

(1) a unique tone should precede the voice message; a further tone after the voice may enhance uniqueness and attract more attention without causing undue annoyance;

(2) the perceived tone and voice should be moderately urgent;

(3) the message should be compact as opposed to lengthy provided that the meaning is not compromised, e.g. ‘One fifty feet’ as opposed to ‘One hundred and fifty feet’;

(4) an information message is preferable (e.g. 'One hundred feet'); messages such as 'Low height' do not convey the correct impression during deliberate descents through the datum height;

(5) command messages (e.g. 'Pull up, pull up') should not be used unless they relate specifically to height monitoring (e.g. 'Check height'); and

(6) the volume of the warning should be adequate and not variable below an acceptable minimum value.

(d) Every effort should be made to prevent spurious warnings.

(e) The height at which the audio warning is triggered by the radio altimeter should be such as to provide adequate warning for the pilot to take corrective action. It is envisaged that most installations will adopt a height in the range of 100–160 ft. The datum should not be adjustable in flight.

(f) The preset datum height should not be set in a way that it coincides with commonly used instrument approach minima (i.e. 200 ft). Once triggered, the message should sound within 0.5 sec.

(g) The voice warning should be triggered only whilst descending through the preset datum height and be inhibited whilst ascending.

**GM2 CAT.IDE.H.145 Radio altimeters**

**RADIO ALTIMETER DISPLAY**

An analogue type display presentation may be, for example, a representation of a dial, ribbon or bar, but not a display that provides numbers only. An analogue type display may be embedded into an electronic flight instrument system (EFIS).

**GM1 CAT.IDE.H.190 Flight data recorder**

**GENERAL**

For the purpose of AMC2 CAT.IDE.H.190(b), a sensor is considered 'readily available' when it is already available or can be easily incorporated.

**GM1 CAT.IDE.H.191 Lightweight flight recorder**

**ADDITIONAL USEFUL INFORMATION**

Refer to GM1 CAT.IDE.A.191.

**GM2 CAT.IDE.H.191 Lightweight flight recorder**

**INSTALLATION OF CAMERAS**

Refer to GM2 CAT.IDE.A.191.

**GM3 CAT.IDE.H.191 Lightweight flight recorder**

**RECORDING ACCURACY OF ATTITUDE RATE PARAMETERS**

Refer to GM3 CAT.IDE.A.191.

## GM1 CAT.IDE.H.191(e) Lightweight flight recorder

**FUNCTION TO MODIFY IMAGE AND AUDIO RECORDINGS**

Refer to GM1 CAT.IDE.A.191(e).

## GM1 CAT.IDE.H.195 Data link recording

**DEFINITIONS AND ACRONYMS**

(a) The letters and expressions in Table 1 of AMC1 CAT.IDE.H.195 have the following meaning:

C: Complete contents recorded

M: Information that enables correlation with any associated records stored separately from the helicopter.

*: Applications that are to be recorded only as far as is practicable, given the architecture of the system.

F1: Graphics applications may be considered as AOC data when they are part of a data link communications application service run on an individual basis by the operator itself in the framework of the operational control.

F2: Where parametric data sent by the helicopter, such as Mode S, is reported within the message, it should be recorded unless data from the same source is recorded on the FDR.

(b) The definitions of the applications type in Table 1 of AMC1 CAT.IDE.H.195 are described in Table 1 below.

***Table 1:*** Descriptions of the applications type

| Item No | Application Type | Messages | Comments |
|---|---|---|---|
| 1 | CM | | CM is an ATN service |
| 2 | AFN | | AFN is a FANS 1/A service |
| 3 | CPDLC | | All implemented up and downlink messages to be recorded |
| 4 | ADS-C | ADS-C reports | All contract requests and reports recorded |
| | | Position reports | Only used within FANS 1/A. Only used in oceanic and remote areas. |
| 5 | ADS-B | Surveillance data | Information that enables correlation with any associated records stored separately from the helicopter. |
| 6 | D-FIS | | D-FIS is an ATN service. All implemented up and downlink messages to be recorded |
| 7 | TWIP | TWIP messages | Terminal weather information for pilots |
| 8 | D-ATIS | ATIS messages | Data Link Application System Document (DLASD) for the 'ATIS' Data Link Service |
| 9 | OCL | OCL messages | . Data Link Application System Document (DLASD) for 'Oceanic Clearance' Data Link Service |
| 10 | DCL | DCL messages | Data Link Application System Document (DLASD) for 'Departure Clearance' Data Link Service |
| 11 | Graphics | Weather maps & other graphics | Graphics exchanged in the framework of procedures within the operational control, as specified in Part-ORO. Information that enables correlation with any associated records stored separately from the aeroplane. |
| 12 | AOC | Aeronautical operational control messages | Messages exchanged in the framework of procedures within the operational control, as specified in Part-ORO. Information that enables correlation with any associated records stored separately from the helicopter. |
| 13 | Surveillance | Downlinked aircraft parameters (DAP) | As defined in ICAO Annex 10 Volume IV (Surveillance systems and ACAS). |

| | |
|---|---|
| AAC | aeronautical administrative communications |
| ADS-B | automatic dependent surveillance — broadcast |
| ADS-C | automatic dependent surveillance — contract |
| AFN | aircraft flight notification |
| AOC | aeronautical operational control |
| ATIS | automatic terminal information service |
| ATSC | air traffic service communication |
| CAP | controller access parameters |
| CPDLC | controller pilot data link communications |
| CM | configuration/context management |
| D-ATIS | data link ATIS |
| D-FIS | data link flight information service |
| DCL | departure clearance |
| FANS | Future Air Navigation System |
| FLIPCY | flight plan consistency |
| OCL | oceanic clearance |
| SAP | system access parameters |
| TWIP | terminal weather information for pilots |

**GM1 CAT.IDE.H.195(a) Data link recording**

**APPLICABILITY OF THE DATA LINK RECORDING REQUIREMENT**

(a) If it is certain that the helicopter cannot use data link communication messages for ATS communications corresponding to any application designated by CAT.IDE.H.195(a)(1) then the data link recording requirement does not apply.

(b) Examples where the helicopter cannot use data link communication messages for ATS communications include but are not limited to the cases where:

(1) the helicopter data link communication capability is disabled permanently and in a way that it cannot be enabled again during the flight;

(2) data link communications are not used to support air traffic service (ATS) in the area of operation of the helicopter; and

(3) the helicopter data link communication equipment cannot communicate with the equipment used by ATS in the area of operation of the helicopter.

**GM1 CAT.IDE.H.220 First-aid kit**

**LOCATION AND USE**

The location of the first-aid kit is normally indicated using internationally recognisable signs.

The first-aid kit ‘should be readily accessible for use’ in helicopter operations should be understood as the first-aid kit being either accessible in flight or immediately after landing.

In some operations, it is not practicable to use the first-aid kit during flight. Therefore, the first-aid kit can be carried in the cargo compartment, where it will be easily accessible for use as soon as the aircraft has landed, when the following conditions are met:

(a) precautionary landing sites are available;

(b) the lack of cabin space is such that movement or use of the first-aid kit is impaired; and

(c) the installation of the first-aid kit in the cabin is not practicable.

**GM2 CAT.IDE.H.220 First-aid kit**

**STORAGE**

As a best practise and wherever practicable, the emergency medical equipment listed under AMC1 CAT.IDE.H.220 should be kept close together.

**GM3 CAT.IDE.H.220 First-aid kit**

**CONTENT OF FIRST-AID KITS**

The operator may supplement first-aid kits according to the characteristics of the operation based on a risk assessment. The assessment does not require an approval by the competent authority.

**GM4 CAT.IDE.H.220 First-aid kit**

**LITHIUM BATTERIES**

Risks related to the presence of lithium batteries should be assessed. All equipment powered by lithium batteries carried on an aeroplane should comply with the provisions of AMC1 CAT.GEN.MPA.140(f) including applicable technical standards order issued by EASA or FAA.

**GM1 CAT.IDE.H.280 Emergency locator transmitter (ELT)**

**TERMINOLOGY**

(a) An 'automatic ELT' means an ELT(AF), ELT(AP), or ELT(AD). Other types of ELTs are not considered 'automatic ELTs'.

(b) A 'water sensor' means a sensor that detects water immersion, including at low depth.

**GM2 CAT.IDE.H.280 Emergency locator transmitter (ELT)**

**ADDITIONAL GUIDANCE**

(a) It is advisable to install automatic ELTs that transmit encoded position data and that meet the operational performance requirements.

(b) Guidance material for the inspection of an ELT can be found in FAA Advisory Circular (AC) 91-44A 'Installation and Inspection Procedures for Emergency Locator Transmitters and Receivers', Change 1, dated February 2018 or later.

**GM1 CAT.IDE.H.290 Life-jackets**

**SEAT CUSHIONS**

Seat cushions are not considered to be flotation devices.

**GM1 CAT.IDE.H.305 Survival equipment**

**SIGNALLING EQUIPMENT**

The signaling equipment for making distress signals is described in ICAO Annex 2, Rules of the Air.

**GM2 CAT.IDE.H.305 Survival equipment**

**AREAS IN WHICH SEARCH AND RESCUE WOULD BE ESPECIALLY DIFFICULT**

The expression 'areas in which search and rescue would be especially difficult' should be interpreted, in this context, as meaning:

(a) areas so designated by the authority responsible for managing search and rescue; or

(b) areas that are largely uninhabited and where:

(1) the authority referred to in (a) has not published any information to confirm whether search and rescue would be or would not be especially difficult; and

(2) the authority referred to in (a) does not, as a matter of policy, designate areas as being especially difficult for search and rescue.

**GM1 CAT.IDE.H.315 Helicopters certificated for operating on water – Miscellaneous equipment**

**INTERNATIONAL REGULATIONS FOR PREVENTING COLLISIONS AT SEA**

International Regulations for Preventing Collisions at Sea are those that were published by the International Maritime Organisation (IMO) in 1972.

**GM1 CAT.IDE.H.320 Landing on water**

**DESIGN FOR LANDING ON WATER**

A helicopter is designed for landing on water if safety provisions at least equivalent to those for ditching are met.

**GM1 CAT.IDE.H.325 Headset**

**GENERAL**

The term 'headset' includes any aviation helmet incorporating headphones and microphone worn by a flight crew member.

**GM2 CAT.IDE.H.345 Communication and navigation equipment for operations under IFR or under VFR over routes not navigated by reference to visual landmarks**

**AIRCRAFT ELIGIBILITY FOR PBN SPECIFICATION NOT REQUIRING SPECIFIC APPROVAL**

(a) The performance of the aircraft is usually stated in the AFM.

(b) Where such a reference cannot be found in the AFM, other information provided by the aircraft manufacturer as TC holder, the STC holder or the design organisation having a privilege to approve minor changes may be considered.

(c) The following documents are considered acceptable sources of information:

(1) AFM, supplements thereto, and documents directly referenced in the AFM;

(2) FCOM or similar document;

(3) Service Bulletin or Service Letter issued by the TC holder or STC holder;

(4) approved design data or data issued in support of a design change approval;

(5) any other formal document issued by the TC or STC holders stating compliance with PBN specifications, AMC, Advisory Circulars (AC) or similar documents issued by the State of Design; and

(6) written evidence obtained from the State of Design.

(d) Equipment qualification data, in itself, is not sufficient to assess the PBN capabilities of the aircraft, since the latter depend on installation and integration.

(e) As some PBN equipment and installations may have been certified prior to the publication of the PBN Manual and the adoption of its terminology for the navigation specifications, it is not always possible to find a clear statement of aircraft PBN capability in the AFM. However, aircraft eligibility for certain PBN specifications can rely on the aircraft performance certified for PBN procedures and routes prior to the publication of the PBN Manual.

(f) Below, various references are listed which may be found in the AFM or other acceptable documents (see listing above) in order to consider the aircraft's eligibility for a specific PBN specification if the specific term is not used.

(g) RNAV 5

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNAV 5 operations.

(i) B-RNAV;

(ii) RNAV 1;

(iii) RNP APCH;

(iv) RNP 4;

(v) A-RNP;

(vi) AMC 20-4;

(vii) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 2 (TGL 2);

(viii) JAA AMJ 20X2;

(ix) FAA AC 20-130A for en route operations;

(x) FAA AC 20-138 for en route operations; and

(xi) FAA AC 90-96.

(h) RNAV 1/RNAV 2

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNAV 1/RNAV 2 operations.

(i) RNAV 1;

(ii) PRNAV;

(iii) US RNAV type A;

(iv) FAA AC 20-138 for the appropriate navigation specification;

(v) FAA AC 90-100A;

(vi) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 10 Rev1 (TGL 10); and

(vii) FAA AC 90-100.

(2) However, if position determination is exclusively computed based on VOR-DME, the aircraft is not eligible for RNAV 1/RNAV 2 operations.

(i) RNP 1/RNP 2 continental

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP 1/RNP 2 continental operations.

(i) A-RNP;

(ii) FAA AC 20-138 for the appropriate navigation specification; and

(iii) FAA AC 90-105.

(2) Alternatively, if a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above and position determination is primarily based on GNSS, the aircraft is eligible for RNP 1/RNP 2 continental operations. However, in these cases, loss of GNSS implies loss of RNP 1/RNP 2 capability.

(i) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 10 (TGL 10) (any revision); and

(ii) FAA AC 90-100.

(j) RNP APCH — LNAV minima

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LNAV operations.

(i) A-RNP;

(ii) AMC 20-27;

(iii) AMC 20-28;

(iv) FAA AC 20-138 for the appropriate navigation specification; and

(v) FAA AC 90-105 for the appropriate navigation specification.

(2) Alternatively, if a statement of compliance with RNP 0.3 GNSS approaches in accordance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LNAV operations. Any limitation such as 'within the US National Airspace' may be ignored since RNP APCH procedures are assumed to meet the same ICAO criteria around the world.

(i) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 3 (TGL 3);

(ii) AMC 20-4;

(iii) FAA AC 20-130A; and

(iv) FAA AC 20-138.

(k) RNP APCH — LNAV/VNAV minima

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LNAV/VNAV operations.

(i) A-RNP;

(ii) AMC 20-27 with Baro VNAV;

(iii) AMC 20-28;

(iv) FAA AC 20-138; and

(v) FAA AC 90-105 for the appropriate navigation specification.

(2) Alternatively, if a statement of compliance with FAA AC 20-129 is found in the acceptable documentation as listed above, and the aircraft complies with the requirements and limitations of EASA SIB 2014-04, the aircraft is eligible for RNP APCH — LNAV/VNAV operations. Any limitation such as 'within the US National Airspace' may be ignored since RNP APCH procedures are assumed to meet the same ICAO criteria around the world.

(l) RNP APCH — LPV minima

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LPV operations.

(i) AMC 20-28;

(ii) FAA AC 20-138 for the appropriate navigation specification; and

(iii) FAA AC 90-107.

(2) For aircraft that have a TAWS Class A installed and do not provide Mode-5 protection on an LPV approach, the DH is limited to 250 ft.

(m) RNAV 10

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNAV 10 operations.

(i) RNP 10;

(ii) FAA AC 20-138 for the appropriate navigation specification;

(iii) AMC 20-12;

(iv) FAA Order 8400.12 (or later revision); and

(v) FAA AC 90-105.

(n) RNP 4

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP 4 operations.

(i) FAA AC 20-138B or later, for the appropriate navigation specification;

(ii) FAA Order 8400.33; and

(iii) FAA AC 90-105 for the appropriate navigation specification.

(o) RNP 2 oceanic

(1) If a statement of compliance with FAA AC 90-105 for the appropriate navigation specification is found in the acceptable documentation as listed above, the aircraft is eligible for RNP 2 oceanic operations.

(2) If the aircraft has been assessed eligible for RNP 4, the aircraft is eligible for RNP 2 oceanic.

(p) Special features

(1) RF in terminal operations (used in RNP 1 and in the initial segment of the RNP APCH)

(i) If a statement of demonstrated capability to perform an RF leg, certified in accordance with any of the following specifications or standards, is found in the acceptable documentation as listed above, the aircraft is eligible for RF in terminal operations:

(A) AMC 20-26; and

(B) FAA AC 20-138B or later.

(ii) If there is a reference to RF and a reference to compliance with AC 90-105, then the aircraft is eligible for such operations.

(q) Other considerations

(1) In all cases, the limitations in the AFM need to be checked; in particular, the use of AP or FD which can be required to reduce the FTE primarily for RNP APCH, RNAV 1, and RNP 1.

(2) Any limitation such as ‘within the US National Airspace’ may be ignored since RNP APCH procedures are assumed to meet the same ICAO criteria around the world.

**GM3 CAT.IDE.H.345 Communication and navigation equipment for operations under IFR or under VFR over routes not navigated by reference to visual landmarks**

**GENERAL**

(a) The PBN specifications for which the aircraft complies with the relevant airworthiness criteria are set out in the AFM, together with any limitations to be observed.

(b) Because functional and performance requirements are defined for each navigation specification, an aircraft approved for an RNP specification is not automatically approved for all RNAV specifications. Similarly, an aircraft approved for an RNP or RNAV specification having a stringent accuracy requirement (e.g. RNP 0.3 specification) is not automatically approved for a navigation specification having a less stringent accuracy requirement (e.g. RNP 4).

**RNP 4**

(c) For RNP 4, at least two LRNSs, capable of navigating to RNP 4, and listed in the AFM, may be operational at the entry point of the RNP 4 airspace. If an item of equipment required for RNP 4 operations is unserviceable, then the flight crew may consider an alternate route or diversion for repairs. For multi-sensor systems, the AFM may permit entry if one GNSS sensor is lost after departure, provided one GNSS and one inertial sensor remain available.

## SUBPART-GA

## SECTION 1 – AEROPLANES

### GM1 GA.IDE.A.100(b) Instruments and equipment – general

**REQUIRED INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED IN ACCORDANCE WITH THE APPLICABLE AIRWORTHINESS REQUIREMENTS**

The functionality of non-installed instruments and equipment required by this Subpart and that do not need an equipment approval, as listed in **GA**.IDE.A.100(b), should be checked against recognised industry standards appropriate to the intended purpose. The operator is responsible for ensuring the maintenance of these instruments and equipment.

### GM1 GA.IDE.A.100(c) Instruments and equipment – general

**NOT REQUIRED INSTRUMENTS AND EQUIPMENT THAT DO NOT NEED TO BE APPROVED IN ACCORDANCE WITH THE APPLICABLE AIRWORTHINESS REQUIREMENTS, BUT ARE CARRIED ON A FLIGHT**

(a) The provision of this paragraph does not exempt any installed instrument or item of equipment from complying with the applicable airworthiness requirements. In this case, the installation should be approved as required in the applicable airworthiness requirements and should comply with the applicable Certification Specifications.

(b) The failure of additional non-installed instruments or equipment not required by this Part or by the applicable airworthiness requirements or any applicable airspace requirements should not adversely affect the airworthiness and/or the safe operation of the aeroplane. Examples may be the following:

(1) portable electronic flight bag (EFB);

(2) portable electronic devices carried by crew members; and

(3) non-installed passenger entertainment equipment.

### GM1 GA.IDE.A.105 Minimum equipment for flight

**MANAGEMENT OF THE STATUS OF CERTAIN INSTRUMENTS, EQUIPMENT OR FUNCTIONS**

(a) The operator should define responsibilities and procedures to retain and control the status of instruments, equipment or functions required for the intended operation, that are not controlled for the purpose of continuing airworthiness management.

(b) Examples of such instruments, equipment or functions may be, but are not limited to, equipment related to navigation approvals as FM immunity or certain software versions.

### GM1 GA.IDE.A.110 Spare electrical fuses

**FUSES**

A spare electrical fuse means a replaceable fuse in the flight crew compartment, not an automatic circuit breaker or circuit breakers in the electric compartments.

**GM1 GA.IDE.A.120 Operations under VFR – flight and navigational instruments and associated equipment**

**SLIP INDICATION**

Aeroplanes should be equipped with a means of measuring and displaying slip.

**GM1 GA.IDE.A.125 Operations under IFR – flight and navigational instruments and associated equipment**

**ALTERNATE SOURCE OF STATIC PRESSURE**

Aeroplanes should be equipped with an alternate source of static pressure.

**GM1 GA.IDE.A.125(a)(3) Operations under IFR – flight and navigational instruments and associated equipment**

**ALTIMETERS**

Altimeters with counter drum-pointer or equivalent presentation are considered to be less susceptible to misinterpretation for aeroplanes operating above 10 000 ft.

**GM1 GA.IDE.A.130 Terrain awareness warning system (TAWS)**

**ACCEPTABLE STANDARD FOR TAWS**

An acceptable standard for Class A and Class B TAWS may be the applicable Technical Standards Orders issued FAA/EASA .

**GM1 GA.IDE.A.135 Flight crew interphone system**

**HEADSET**

The term ‘headset’ includes any aviation helmet incorporating headphones and microphone worn by a flight crew member.

**GM1 GA.IDE.A.145 First-aid kit**

**LOCATION**

The location of the first-aid kit in the cabin is normally indicated using internationally recognisable signs.

**GM2 GA.IDE.A.145 First-aid kit**

**CONTENT OF FIRST-AID KITS**

The operator may supplement first-aid kits according to the characteristics of the operation based on a risk assessment. The assessment does not require an approval by the CAAB.

**GM1 GA.IDE.A.170 Emergency locator transmitter (ELT)**

**TERMINOLOGY**

GM1 CAT.IDE.A.280 contains explanations of terms used in point **GA**.IDE.A.170 and in the related AMC.

**GM1 GA.IDE.A.175 Flight over water**

**SEAT CUSHIONS**

Seat cushions are not considered to be flotation devices.

**GM1 GA.IDE.A.180 Survival equipment**

**SIGNALLING EQUIPMENT**

The signalling equipment for making distress signals is described in ICAO Annex 2, Rules of the Air.

**GM2 GA.IDE.A.180 Survival equipment**

**AREAS IN WHICH SEARCH AND RESCUE WOULD BE ESPECIALLY DIFFICULT**

The expression 'areas in which search and rescue would be especially difficult' should be interpreted, in this context, as meaning:

(a) areas so designated by the competent authority responsible for managing search and rescue; or

(b) areas that are largely uninhabited and where:

(1) the authority referred to in (a) has not published any information to confirm whether search and rescue would be or would not be especially difficult; and

(2) the authority referred to in (a) does not, as a matter of policy, designate areas as being especially difficult for search and rescue.

**GM1 GA.IDE.A.190 Radio communication equipment**

**APPLICABLE AIRSPACE REQUIREMENTS**

For aeroplanes being operated under European air traffic control, the applicable airspace requirements include the Single European Sky legislation.

**GM1 GA.IDE.A.195 Navigation equipment**

**AIRCRAFT ELIGIBILITY FOR PBN SPECIFICATION NOT REQUIRING SPECIFIC APPROVAL**

(a) The performance of the aircraft is usually stated in the AFM/POH.

(b) Where such a reference cannot be found in the AFM/POH, other information provided by the aircraft manufacturer as TC holder, the STC holder or the design organisation having a privilege to approve minor changes may be considered.

(c) The following documents are considered acceptable sources of information:

(1) AFM/POH, supplements thereto, and documents directly referenced in the AFM/POH;

(2) FCOM or similar document;

(3) Service Bulletin or Service Letter issued by the TC holder or STC holder;

(4) approved design data or data issued in support of a design change approval;

(5) any other formal document issued by the TC or STC holders stating compliance with PBN specifications, AMC, Advisory Circulars (AC) or similar documents issued by the State of Design; and

(6) written evidence obtained from the State of Design.

(d) Equipment qualification data, in itself, is not sufficient to assess the PBN capabilities of the aircraft, since the latter depend on installation and integration.

(e) As some PBN equipment and installations may have been certified prior to the publication of the PBN Manual and the adoption of its terminology for the navigation specifications, it is not always possible to find a clear statement of aircraft PBN capability in the AFM/POH. However, aircraft eligibility for certain PBN specifications can rely on the aircraft performance certified for PBN procedures and routes prior to the publication of the PBN Manual.

(f) Below, various references are listed which may be found in the AFM/POH or other acceptable documents (see listing above) in order to consider the aircraft's eligibility for a specific PBN specification if the specific term is not used.

(g) RNAV 5

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNAV 5 operations.

(i) B-RNAV;

(ii) RNAV 1;

(iii) RNP APCH;

(iv) RNP 4;

(v) A-RNP;

(vi) AMC 20-4;

(vii) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 2 (TGL 2);

(viii) JAA AMJ 20X2;

(ix) FAA AC 20-130A for en route operations;

(x) FAA AC 20-138 for en route operations; and

(xi) FAA AC 90-96.

(h) RNAV 1/RNAV 2

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNAV 1/RNAV 2 operations.

(i) RNAV 1;

(ii) PRNAV;

(iii) US RNAV type A;

(iv) FAA AC 20-138 for the appropriate navigation specification;

(v) FAA AC 90-100A;

(vi) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 10 Rev1 (TGL 10); and

(vii) FAA AC 90-100.

(2) However, if position determination is exclusively computed based on VOR-DME, the aircraft is not eligible for RNAV 1/RNAV 2 operations.

(i) RNP 1/RNP 2 continental

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP 1/RNP 2 continental operations.

(i) A-RNP;

(ii) FAA AC 20-138 for the appropriate navigation specification; and

(iii) FAA AC 90-105.

(2) Alternatively, if a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above and position determination is primarily based on GNSS, the aircraft is eligible for RNP 1/RNP 2 continental operations. However, in these cases, loss of GNSS implies loss of RNP 1/RNP 2 capability.

(i) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 10 (TGL 10) (any revision); and

(ii) FAA AC 90-100.

(j) RNP APCH — LNAV minima

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH —cLNAV operations.

(i) A-RNP;

(ii) AMC 20-27;

(iii) AMC 20-28;

(iv) FAA AC 20-138 for the appropriate navigation specification; and

(v) FAA AC 90-105 for the appropriate navigation specification.

(2) Alternatively, if a statement of compliance with RNP 0.3 GNSS approaches in accordance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LNAV operations. Any limitation such as ‘within the US National Airspace’ may be ignored since RNP APCH procedures are assumed to meet the same ICAO criteria around the world.

(i) JAA TEMPORARY GUIDANCE MATERIAL, LEAFLET NO. 3 (TGL 3);

(ii) AMC 20-4;

(iii) FAA AC 20-130A; and

(iv) FAA AC 20-138.

(k) RNP APCH — LNAV/VNAV minima

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LNAV/VNAV operations.

(i) A-RNP;

(ii) AMC 20-27 with Baro VNAV;

(iii) AMC 20-28;

(iv) FAA AC 20-138; and

(v) FAA AC 90-105 for the appropriate navigation specification.

(2) Alternatively, if a statement of compliance with FAA AC 20-129 is found in the acceptable documentation as listed above, and the aircraft complies with the requirements and limitations of EASA SIB 2014-04, the aircraft is eligible for RNP APCH — LNAV/VNAV operations. Any limitation such as 'within the US National Airspace' may be ignored since RNP APCH procedures are assumed to meet the same ICAO criteria around the world.

(l) RNP APCH — LPV minima

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP APCH — LPV operations.

(i) AMC 20-28;

(ii) FAA AC 20-138 for the appropriate navigation specification; and

(iii) FAA AC 90-107.

(2) For aircraft that have a TAWS Class A installed and do not provide Mode-5 protection on an LPV approach, the DH is limited to 250 ft.

(m) RNAV 10

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNAV 10 operations.

(n) RNP 4

(i) RNP 10;

(ii) FAA AC 20-138 for the appropriate navigation specification;

(iii) AMC 20-12;

(iv) FAA Order 8400.12 (or later revision); and

(v) FAA AC 90-105.

(1) If a statement of compliance with any of the following specifications or standards is found in the acceptable documentation as listed above, the aircraft is eligible for RNP 4 operations.

(i) FAA AC 20-138B or later, for the appropriate navigation specification;

(ii) FAA Order 8400.33; and

(iii) FAA AC 90-105 for the appropriate navigation specification.

(o) RNP 2 oceanic

(1) If a statement of compliance with FAA AC 90-105 for the appropriate navigation specification is found in the acceptable documentation as listed above, the aircraft is eligible for RNP 2 oceanic operations.

(2) If the aircraft has been assessed eligible for RNP 4, the aircraft is eligible for RNP 2 oceanic.

(p) Special features

(1) RF in terminal operations (used in RNP 1 and in the initial segment of the RNP APCH)

(i) If a statement of demonstrated capability to perform an RF leg, certified in accordance with any of the following specifications or standards, is found in the acceptable documentation as listed above, the aircraft is eligible for RF in terminal operations.

(A) AMC 20-26; and

(B) FAA AC 20-138B or later.

(ii) If there is a reference to RF and a reference to compliance with AC 90-105, then the aircraft is eligible for such operations.

(q) Other considerations

(1) In all cases, the limitations in the AFM/POH need to be checked, in particular the use of AP or FD which can be required to reduce the FTE primarily for RNP APCH, RNAV 1, and RNP 1.

(2) Any limitation such as ‘within the US National Airspace’ may be ignored since RNP APCH procedures are assumed to meet the same ICAO criteria around the world.

**GM2 GA.IDE.A.195 Navigation equipment**

**GENERAL**

(a) The PBN specifications for which the aircraft complies with the relevant airworthiness criteria are set out in the AFM/POH, together with any limitations to be observed.

(b) Because functional and performance requirements are defined for each navigation specification, an aircraft approved for an RNP specification is not automatically approved for all RNAV specifications. Similarly, an aircraft approved for an RNP or RNAV specification having a stringent accuracy requirement (e.g. RNP 0.3 specification) is not

automatically approved for a navigation specification having a less stringent accuracy requirement (e.g. RNP 4).

**RNP 4**

(c) For RNP 4, at least two LRNSs, capable of navigating to RNP 4, and listed in the AFM/POH, may be operational at the entry point of the RNP 4 airspace. If an item of equipment required for RNP 4 operations is unserviceable, then the pilot-in-command may consider an alternate route or diversion for repairs. For multi-sensor systems, the AFM/POH may permit entry if one GNSS sensor is lost after departure, provided one GNSS and one inertial sensor remain available.

**GM1 GA.IDE.A.195(a) Navigation equipment**

**NAVIGATION EQUIPMENT — SCOPE OF RNAV SUBSTITUTION**

(a) Applications of RNAV substitution include use to:

(1) determine aircraft position relative to or distance from a VOR, marker, DME fix or a named fix defined by a VOR radial or NDB bearing;

(2) navigate to or from a VOR, or NDB, except as lateral guidance in the FAS of an IAP;

(3) hold over a VOR, NDB, or DME fix;

(4) fly an arc based upon DME;

(5) fly an overlay of a conventional departure, arrival, approach or route except as lateral guidance in the FAS of an IAP.

(b) RNAV substitution for ADF, marker and VOR may be used where airborne and/or ground-based equipment is not available.

(c) RNAV substitution for DME may be used where the ground-based DME transponder is unserviceable or the airborne DME transceiver is found to be unserviceable in flight. Caution must be exercised by the pilot-in-command when calculating and using GNSS distances to the active waypoint as reference points are often different.

**GM2 GA.IDE.A.195(a) Navigation equipment**

**NAVIGATION EQUIPMENT — SUITABILITY OF THE RNAV SYSTEM FOR RNAV SUBSTITUTION**

GNSS (E)TSOs are referenced in AMC1 **GA**.IDE.A.195(a) since most of the aircraft conducting **GA** are equipped with an RNAV stand-alone system which exclusively bases its positioning on GNSS.

**GM3 GA.IDE.A.195(a) Navigation equipment**

**NAVIGATION EQUIPMENT — RNAV SUBSTITUTION — OPERATING PROCEDURE**

Although RNAV substitution may not be used for lateral guidance in the FAS, this does not preclude the use of the RNAV system to fly the FAS, provided that raw data from the associated conventional navigation aids is monitored.

**GM1 GA.IDE.A.205 Management of aeronautical databases**

**AERONAUTICAL DATABASE APPLICATIONS**

The certification of a Type 2 DAT provider should ensures data integrity and compatibility with the certified aircraft application/equipment.

**GM2 GA.IDE.A.205 Management of aeronautical databases**

**TIMELY DISTRIBUTION**

The operator should distribute current and unaltered aeronautical databases to all aircraft requiring them in accordance with the validity period of the databases or in accordance with an established procedure if no validity period is defined.