Licensing Directive

Seychelles Civil Aviation Authority

LICENSING DIRECTIVE

Number: FCL LD- 2018/01

Issue: 2

22 NOV 2018

Performance-based navigation instrument rating privileges

This Licensing Directive contains information that is intended for mandatory compliance.

Recipients are asked to ensure that this Licensing Directive is copied to all members of their staff who may have an interest in the information (including any 'in-house' or contracted maintenance organisations and relevant outside contractors).

Applicability: All AOC holders, Examiners and Flight Crew License Holders

1 Introduction

1.1 This Licensing Directive is issued to set the mandate framework in relation to the implementation of Commission Regulation (EU) No. 2016/539 Performance Based Navigation (PBN) that amends EASA Part FCL.

2 Performance-based navigation instrument rating privileges

2.1 From 1st January 2020, pilots may only fly in accordance with performance-based navigation (PBN) procedures after they have been granted PBN privileges as an endorsement to their instrument rating (IR).

2.2 A pilot shall be granted PBN privileges where he or she fulfils all of the following requirements:

(a) the pilot has successfully completed a course of theoretical knowledge including PBN, in accordance with FCL.615 of Annex I (Part-FCL);

(b) the pilot has successfully completed flying training including PBN, in accordance with FCL.615 of Annex I (Part-FCL);

(c) the pilot has successfully completed either a skill test in accordance with Appendix 7 to Annex I (Part-FCL) or a skill test or a proficiency check in accordance with Appendix 9 of Annex I (Part-FCL).

3 Applicability for Air Operator Certificates

3.1 All AOC holders should ensure that pilots joining them have received the appropriate PBN training and checking in accordance with their specific operations.

3.2 All AOC holders who conduct PBN operations should ensure that their Recurrent Training Syllabus includes a check of competency during the Operators Proficiency Check (OPC). Refer AMC1 ORO.FC.230(b)(1).

3.3 Operators must make sure that all training is conducted at an ATO that holds appropriate approval for PBN training.

4 Applicability for Examiners

4.1 EASA Part ARA requires the Authority to ensure that there are sufficient and appropriately qualified examiners to support their flight crew population. To enable the initial assessments of competence to be conducted for the PBN endorsement, Examiners shall meet the following pre-requisites:

(a) Senior Examiner (SE) certification is held or a Type Rating Examiner (TRE) or Synthetic Flight Examiner (SFE) or an Instrument Rating Examiners (IRE) Certification has been held granted under EASA Part FCL including privileges for PBN training and checking;

(b) Senior Examiner (SE) certification is held or a Type Rating Examiner (TRE) or Synthetic Flight Examiner (SFE) or an Instrument Rating Examiners (IRE) Certification has been held granted by the Authority has been held for at least 1 year[1]; or a Class Rating Examiner (CRE) Certification has been held for at least 1 year[1] and who satisfy FCL.1005.CRE (b)(2)&(3);

(c) The examiner shows evidence of the required competence either through training[2] or from familiarity [3] with PBN operations including the theoretical knowledge requirements of Commission Regulation (EU) No. 2016/539.

[1] For examiners with less than 1 year experience, one documented mandatory observation shall be required to be undertaken by an examiner meeting the pre-requisite.

[2] The Authority considers this to mean any approved course in accordance with AMC7 FCL.615 (b) or relevant PBN EASA AMC training requirements.

[3] The Authority considers this to mean evidence showing PBN routes and procedures conducted regularly in the past 3 years.

5 Applicability for Flight Crew

5.1 The Authority has adopted a PBN declaration process. To obtain a PBN endorsement pilots have two options:

(a) Undertake PBN IR theoretical knowledge and practical training at an Approved Training Organisation (ATO), which includes passing a theoretical knowledge examination prior to passing a Skill Test or Proficiency Check which includes the applicable PBN IR elements with an examiner authorised to conduct such test or check; or

(b) Make a declaration confirming that the pilot is sufficiently familiar with PBN operations, including the theoretical knowledge elements. Also pass an oral theoretical knowledge assessment prior and in addition to, passing a Skill Test or Proficiency Check which includes the applicable PBN IR elements, with an examiner authorised in accordance with paragraph 4 to conduct such test or check.

5.2 A copy of the PBN declaration form is included at Appendix 1. This form must be printed and completed by the applicant prior to attempting the oral theoretical knowledge assessment and the Skill Test or Proficiency Check.

5.3 All pilots are reminded of their responsibility to ensure that they are capable of operating at an appropriate level of competence in PBN operations prior to operating on routes or procedures that require use of RNAV systems to meet PBN navigation specifications.

5.4 A list of the areas of knowledge is included in AMC7 FCL.615 (b). Pilots should ensure they are sufficiently familiar with all of these areas, when making the PBN declaration.

5.5 The pilot must present the PBN declaration form to the examiner at the time of undertaking the oral theoretical knowledge assessment. This must be prior to attempting the skill test or proficiency check. The content of the oral assessment is at the discretion of the examiner but will cover the areas of knowledge in AMC7 FCL.615 (b).

5.6 The oral assessment may take up to 2 hours. Failing the oral element test may mean that the flight test is failed or partially failed prior to the flight element taking place.

5.7 A copy of the declaration form and the Examiner's Report must be submitted to the Authority.

5.8 Examiners are required to retain a copy and the Authority recommends that the pilot also keeps a copy.

6 Licensing Administration

6.1 On successful completion of the Proficiency Check the examiner must sign the pilot's Certificate of Revalidation within their licence with PBN endorsement in the following format:

Example: A320IR/PBN

IR SPA ME PBN

6.2 The appropriate Examiner Report Form must be clearly marked in Section 2 with the same annotation as in 6.1.

7 Queries

7.1 Any queries as a result of this Safety Directive should be addressed to Head of Flight Operations and Flight Crew Licensing Inspectorate at the following e-mail address: mjohnson@scaa.sc.

8 Cancellation

Nil

Appendix 1

Performance Based Navigation (PBN) - declaration form regarding PBN Instrument privileges and areas of knowledge.

Please complete the form in BLOCK CAPITALS using black or dark blue ink

1. Personnel Details (fill in details or tick appropriate boxes) To be completed by the applicant.
SCAA Personal reference number ☐☐☐☐☐☐☐ Surname …… Forename(s) …….. Title ……... Date of birth (dd/mm/yyyy) ……. Permanent address …… ……... Postcode ……. Address for correspondence (if different from above) ……..…….…… …… Telephone Number ……. Email address …….

2. Declaration by the pilot To be completed by the applicant
I hereby declare that I meet the requirements laid down in Article 4a of Commission Regulation (EU) No. 1178/2011 regarding PBN privileges by: ☐ Having completed a theoretical knowledge and flight-training course in PBN at an ATO with a copy of the Course Completion Certificate attached to this document. OR ☐ Previous training and/or familiarity with PBN operations through either: ☐ Flying for an operator with RNP approach approval, or; Previous ☐ familiarity with RNAV and RNP approach operations. AND ☐ A successfully completed skill test or proficiency check where I have demonstrated competence in PBN operations in accordance with appendix 7 or 9 to Annex I (Part-FCL).

3. Declaration by the pilot. To be completed by the applicant.
I declare that the information provided by me on this form is correct. Name: ……. Signature: ……. Date: ……..
It is an offence, with intent to deceive to make any false representation for the purpose of either procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission, exemption or other document, or in connection with the making of a declaration to the SCAA. Persons doing so render themselves liable, on summary conviction, to a fine not exceeding the statutory maximum and on conviction on indictment to an unlimited fine or imprisonment for a term not exceeding two years or both. A Cancellation Charge may be applied as per the SCAA Scheme of Charges when an application request has been cancelled by the SCAA or the customer.

4. Declaration of the examiner regarding PBN checking privileges. To be completed by the examiner.
I hereby declare that I as examiner have performed a proficiency check or skill test which included PBN operations with a minimum of one approach, as well as: Previous training and/or familiarity with PBN operations through either: ☐ Having completed a theoretical knowledge and flight training course in PBN at an ATO with a copy of the Course Completion Certificate attached to this document. OR ☐ Flying for an AOC holder with previous RNP approach approval, or; Previous ☐ familiarity with RNAV and RNP approach operations. For Proficiency Checks only, I have endorsed the Certificate of Revalidation in the applicants licence with PBN privileges.

5. Declaration by the examiner. To be completed by the examiner.
I declare that the information provided by me on this form is correct. Name: ……. SCAA Personal reference number ☐☐☐☐☐☐☐ Signature: ……. Date: ……..……

It is an offence, with intent to deceive to make any false representation for the purpose of either procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission, exemption or other document, or in connection with the making of a declaration to the SCAA. Persons doing so render themselves liable, on summary conviction, to a fine not exceeding the statutory maximum and on conviction on indictment to an unlimited fine or imprisonment for a term not exceeding two years or both. A Cancellation Charge may be applied as per the SCAA Scheme of Charges when an application request has been cancelled by the SCAA or the customer

6. Instructions for completing the declaration form

Performance Based Navigation (PBN) - declaration form regarding PBN Instrument privileges and areas of knowledge.

The form shall be completed at least once for every pilot that has an instrument rating issued without PBN privileges included.

Sections 1 to 3 shall be completed by the applicant.
Sections 4 and 5 shall be completed by the examiner.

This form should be submitted together with the application form for an instrument or type rating (if applicable) or with the completed Examiners Report form.

7. Self-checklist for previous familiarity with PBN experience

I have received theoretical and practical instructions and consider myself proficient with normal and abnormal procedures in the following areas, tick (√) each item as required;

Area	Theoretical	Practical
PBN limitations		
PBN departure		
PBN en-route		
PBN arrival		
2D approach		
3D approach		
Missed approach according to PBN		
Training received at ATO (if applicable)		
Training received (dd/mm/yy) (if applicable)		

Appendix 2

PBN Learning objectives

Learning objective Reference	Subject
062 07 00 00	PBN
062 07 01 00	PBN concept (as described in ICAO Doc 9613)
062 07 01 01	PBN Principles
LO	List the factors used to define RNAV or RNP system performance requirements (accuracy, integrity, continuity and functionality).
LO	Explain the concept of continuity.
LO	Explain the concept of concept of integrity.
LO	State that, unlike conventional navigation, performance-based navigation is not sensor-specific.
LO	Explain the difference between raw data and computed data.
062 07 01 02	PBN components
LO	List the components of PBN as NAVAID infrastructure, navigation specification and navigation application.
LO	Indentify the components from an example.
062 07 01 03	PBN scope
LO	State that in oceanic/remote, en-route and terminal phases of flight PBN is limited to operations with linear lateral performance requirements and time constraints.
LO	State that in the approach phases of flight PBN accommodates both linear and angular laterally guided operations.
062 07 02 00	Navigation specifications
062 07 02 01	RNAV and RNP
LO	State the difference between RNAV and RNP in terms of the requirement for on-board performance monitoring and alerting.
062 07 02 02	Navigation functional requirements

LO	List the basic functional requirements of RNAV and RNP specifications (continuous indication of lateral deviation, distance/bearing to active waypoint, g/s or time to active waypoint, navigation data storage and failure indication).

062 07 02 03	Designation of RNP and RNAV specifications
LO	Interpret “X” in RNAV X or RNP X as the lateral navigation accuracy (total system error) in nautical miles, which is expected to be achieved at least 95 per cent of the flight time by the population of aircraft operating within the airspace, route or procedure.
LO	State that aircraft approved to the more stringent accuracy requirements may not necessarily meet some of the functional requirements of the navigation specification having a less stringent accuracy requirement.
LO	State that RNAV10 and RNP4 are used in the oceanic/remote phase of flight.
LO	State that RNAV5 is used in the en route and arrival phase of flight.
LO	State that RNAV2 and RNP2 are also used as navigation specifications.
LO	State that RNP2 is used in the en route and oceanic/remote phases of flight.
LO	State that RNAV1 and RNP1 are used in the arrival and departure phases of flight.
LO	State that RNP APCH is used in the approach phase of flight.
LO	State that RNP AR APCH is used in the approach phase of flight.
LO	State that RNP 0.3 navigation specification is used in all phases of flight, except for oceanic/remote and final approach, primarily for helicopters.
062 07 03 00	Use of PBN
062 07 03 01	Airspace planning
LO	State that navigation performance is one factor used to determine minimum route spacing.
062 07 03 02	Approval
LO	State that the airworthiness approval process assures that each item of the area navigation equipment installed is of a type and design appropriate to its intended function and that the installation functions properly under foreseeable operating conditions.
LO	State that some PBN specifications require operational approval.

062 07 03 03	Specific RNAV and RNP systems functions
LO	Recognise the definition of an RF leg.
LO	Recognise the definition of a fixed radius transition.
LO	Recognise the definition of a fly-by-turn and a fly-over.
LO	Recognise the definition of a holding pattern.
LO	Recognise the definition of an ARINC 424 path terminator.
LO	Recognise the definition of the following path terminators: IF, TF, CF, DF, FA, CA.
LO	Recognise the definition of an offset flight path.
062 07 03 04	On board performance monitoring and alerting
LO	State that on-board performance monitoring and alerting of flight technical error is managed by on-board systems or crew procedures.
LO	State that on-board performance monitoring and alerting of navigation system error is a requirement of on-board equipment for RNP.
LO	State that on-board performance monitoring and alerting of path definition error are managed by gross reasonableness checks of navigation data.
062 07 04 03	Abnormal situations
LO	State that abnormal and contingency procedures are to be used in case of loss of the PBN capability.
062 07 04 04	Database management
LO	State that, unless otherwise specified in operations documentation or AMC, the navigational database must be valid for the current AIRAC cycle.
062 07 05 00	Requirements of specific RNAV and RNP specifications
062 07 05 01	RNAV 10
LO	State that RNAV10 requires that aircraft operating in oceanic and remote areas be equipped with at least two independent and serviceable LRNSs comprising an INS, an IRS FMS or a GNSS.
LO	State that aircraft incorporating dual inertial navigation systems (INS) or inertial reference units (IRU) have a standard time limitation.
LO	State that operators may extend their RNAV10 navigation capability time by updating.
062 07 05 02	RNAV 5

LO	State that manual data entry is acceptable for RNAV 5.
062 07 05 03	RNAV/RNP1/2
LO	State that pilots must not fly an RNAV/RNP1/2 SID or STAR unless it is retrievable by route name from the on-board navigation database and conforms to the charted route.
LO	State that the route may subsequently be modified through the insertion (from the database) or deletion of specific waypoints in response to ATC clearances.
LO	State that the manual entry, or creation of new waypoints by manual entry, of latitude and longitude or place/bearing/ distance values is not permitted.
062 07 05 04	RNP 4
LO	State that at least two LRNSs, capable of navigating to RNP4 and listed in the flight manual, must be operational at the entry point of the RNP airspace.
062 07 05 05	RNP APCH
LO	State that pilots must not fly an RNP APCH unless it is retrievable by procedure name from the on-board navigation database and conforms to the charted procedure.
LO	State that an RNP APCH to LNAV minima is a non-precision instrument approach procedure designed for 2D approach operations.
LO	State that an RNP APCH to LNAV/VNAV minima has lateral guidance based on GNSS and vertical guidance based on either SBAS or BaroVNAV.
LO	State that an RNP APCH to LNAV/VNAV minima may only be conducted with vertical guidance certified for the purpose.
LO	Explain why an RNP APCH to LNAV/VNAV minima based on BaroVNAV may only be conducted when the aerodrome temperature is within a promulgated range.
LO	State that the correct altimeter setting is critical for the safe conduct of an RNP APCH using BaroVNAV.
LO	State that an RNP APCH to LNAV/VNAV minima is a 3D operation.
LO	State that an RNP APCH to LPV minima is a 3D operation.
LO	State that RNP APCH to LPV minima requires an FAS datablock.
062 07 05 06	RNP AR APCH

LO	State that RNP AR APCH requires authorisation.

062 07 05 07	A-RNP
LO	State that Advanced RNP incorporates the navigation specifications RNAV5, RNAV2, RNAV1, RNP2, RNP1 and RNP APCH.
LO	State that Advanced RNP may be associated with other functional elements.
062 07 05 08	PBN Point in Space (PinS) departure
LO	State that a PinS departure is a departure procedure designed for helicopters only.
LO	State that a PinS departure procedure includes either a “proceed VFR” or a “proceed visually” instruction from landing location to IDF.
LO	Recognise the differences between “proceed VFR” and “proceed visually” instruction.
062 07 05 09	PBN Point in Space (PinS) approach
LO	State that a PinS approach is an instrument RNP APCH procedure designed for helicopters only, and that may be published with LNAV minima or LPV minima.
LO	State that a PinS approach procedure includes either a “proceed VFR” or a “proceed visually” instruction from the MAPt to a landing location.
LO	Recognise the differences between “proceed VFR” and “proceed visually” instruction.