

## **PERFORMANCE BASED NAVIGATION (PBN)**

### **1. Applicability**

This Airworthiness Notice is applicable to all Myanmar registered aircraft for getting Performance Based Navigation (PBN) Approval to operate into areas designated for Performance Base Navigation (PBN). This notice specifically addresses the airworthiness approval process only.

### **2. Definitions**

**Performance-based navigation (PBN)** - Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

*Note.— Performance requirements are expressed in navigation specifications in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.*

### **3. Introduction**

- 3.1 The continuing growth of aviation increases demands on airspace capacity therefore emphasizing the need for optimum utilization of available airspace. Improved operational efficiency derived from the application of area navigation techniques has resulted in the development of navigation applications in various regions worldwide and for all phases of flight.
- 3.2 Requirements for navigation applications on specific routes or within a specific airspace must be defined in a clear and concise manner. This is to ensure that the flight crew and the air traffic controllers are aware of the on-board area navigation system capabilities in order to determine if the performance of the system is appropriate for the specific airspace requirements.
- 3.3 A set of aircraft and aircrew requirements is needed to support PBN operations within a defined airspace. There are two kinds of navigation specification, area navigation (RNAV) and required navigation performance (RNP), as defined by ICAO Document Doc 9613PBN Manual and ICAO Doc 9997 PBN Ops Approval Manual and Guidance Material for PBN issued by DCA, Myanmar.
- 3.4 A navigation specification that includes a requirement for on-board navigation performance monitoring and alerting is referred to as an RNP specification. One not having such requirements is referred to as an RNAV specification. An area navigation system capable of achieving the performance requirement of an RNP specification is referred to as an RNP system.

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DEPARTMENT OF CIVIL AVIATION  
**Airworthiness Notices**

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A/23

- 3.5 Although RNAV and RNP systems are similar, the fundamental difference between the two systems is that RNP operations require Global Navigation Satellite System (GNSS) as a primary navigation sensor while GNSS is optional for RNAV operations.
- 3.6 This Airworthiness Notice is intended to provide information on equipages for obtaining PBN operational approvals. Compliance with the equipage requirements mentioned in this Notice does not constitute an operational approval.

#### **4. Approval Process**

4.1 It is an ICAO requirement that the state of registry of the aircraft to maintain an approval process for grant of each operation approval prior to flights into the designated regions. The approval process consists of 2 steps i.e. airworthiness approval and operational approval. This notice specifically addresses the airworthiness approval process only, and is a prerequisite for operational approval. The Airworthiness Division will issue Airworthiness Approval of Performance Based Navigation after all the airworthiness requirements is satisfied.

Note: Airworthiness approval in itself does not qualify an aircraft to fully operational, and the Airworthiness Division does not issue a separate certificate for each qualified aircraft.

- 4.2 For the application of different PBN operational approvals, the aircraft equipages shall comply with the requirements state in the applicable sub-paragraphs of paragraph 6 of this Notice.
- 4.3 The operator submits documentation of its proposed operation to Airworthiness Division. The contents of PBN application shall include, as a minimum, the following:
- (a) **Aircraft qualification documentation.** Documentation from the aircraft manufacturer showing that the proposed aircraft equipment meets the requirements of PBN approval. This documentation should contain any specific hardware or software equipment requirements, procedural requirements, and limitations.
  - (b) **Type of aircraft and description of aircraft equipment to be used.** Provide a configuration list that details pertinent components and equipment to be used for the operation. The list shall include each make, model, and version of FMS software installed.
  - (c) **Maintenance procedures.** The operator shall submit maintenance procedures that include instructions for airworthiness/maintenance of the equipment/systems to be used in the operation and required training for maintenance personnel.

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DEPARTMENT OF CIVIL AVIATION  
**Airworthiness Notices**

---

A/23

(d) **MEL.** The operator shall submit any revisions to the MEL necessary for the conduct of the operation.

4.4 Aircraft that requires modification to qualify for any of the above approvals must be in accordance with manufacturer's approved data package. This data package will be subjected to review and acceptance by the DCA. Approval of modification shall be in accordance with Airworthiness Notice A/4.

## **5. Continuing Airworthiness**

5.1 In order to maintain the integrity of the design features and to ensure that the aircraft system continue to meet the specified standards, operator are required to review its maintenance procedures and address all aspects of continuing airworthiness. As part of the application for airworthiness approval, the operator shall submit an amendment to the aircraft Maintenance Schedule/ Maintenance Program. This amendment must be traceable to the Maintenance Planning Document (MPD), or any equivalent document issued by the aircraft manufacturer.

5.2 Operator shall ensure that all appropriately licensed engineers are adequately trained. Emphasis on the training shall be on the differences and additional maintenance requirements for airworthiness approval of PBN.

5.3 For operators who engage maintenance contractors for maintenance of their aircraft must ensure that the maintenance contractors are capable and their personnel appropriately trained.

## **6. Requirements**

6.1 RNAV 10 (Designated RNP 10)

RNAV equipages comply with ICAO Document Doc 9613 PBN Manual and Guidance Material for PBN issued by DCA, Myanmar.

6.2 RNAV 5

RNAV equipages comply with ICAO Document Doc 9613 PBN Manual and Guidance Material for PBN issued by DCA, Myanmar.

6.3 RNAV 1 and RNAV 2

RNAV equipages comply with ICAO Document Doc 9613 PBN Manual and Guidance Material for PBN issued by DCA, Myanmar.

6.4 RNP 4

RNP equipages comply with ICAO Document Doc 9613 PBN Manual and Guidance Material for PBN issued by DCA, Myanmar.

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DEPARTMENT OF CIVIL AVIATION  
**Airworthiness Notices**

---

A/23

6.5 RNP 2

RNP equipages comply with ICAO Document Doc 9613 PBN Manual and Guidance Material for PBN issued by DCA, Myanmar.

6.6 Basic-RNP 1

RNP equipages comply with ICAO Document Doc 9613 PBN Manual and Guidance Material for PBN issued by DCA, Myanmar.

6.7 RNP APCH

RNP equipages comply with ICAO Document Doc 9613 PBN Manual and Guidance Material for PBN issued by DCA, Myanmar.

6.8 RNP AR APCH

RNP equipages comply with ICAO Document Doc 9613 PBN Manual and Guidance Material for PBN issued by DCA, Myanmar.

Note : The application for approvals shall submit the appropriate data package for aircraft approval.

**7. Evaluation of Application**

Once the application has been submitted, the Airworthiness Division will begin the process of review and evaluation. If the contents of application are insufficient, the Airworthiness Division will request additional information from the operator. When all the airworthiness requirements of the application are met, the Airworthiness Division will issue Airworthiness Approval of Performance Based Navigation.

**8. Additional Information**

The assessment criteria to the operational approval will be based on Guidance Material for PBN issued by DCA, Myanmar. PBN Operational Approval will be processed by the Flight Standards Division of DCA, Myanmar.