



*International Civil Aviation Organization*

**TWELFTH MEETING OF THE PERFORMANCE BASED NAVIGATION  
IMPLEMENTATION COORDINATION GROUP (PBNICG/12)**

*(Beijing, China 16- 18 December 2025)*

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**Agenda Item 4: States' PBN Implementation Progress and the challenges faced by the States  
and lessons learnt.**

**UPDATE ON PBN IMPLEMENTATION PROGRESS IN VIETNAM  
AND CHALLENGES ENCOUNTERED**

*(Presented by Viet Nam)*

**SUMMARY**

This paper presents an overview of Vietnam's PBN implementation progress and the ATS route network, highlighting the successful application of new flight procedures at Tan Son Nhat and Long Thanh International Airports in 2025. The paper also identifies challenges regarding RNP AR implementation and proposes areas for regional cooperation and support.

**1. INTRODUCTION**

1.1 The Civil Aviation Authority of Vietnam (CAAV) issued the PBN Implementation Plan in 2016, with a review and revision conducted in 2019. Adhering to this roadmap, Vietnam has synchronously implemented PBN at airports and within the ATS route network in both Hanoi and Ho Chi Minh FIRs.

**2. DISCUSSION**

**2.1 PBN Implementation at Airports**

2.1.1 The flight procedure systems at 22 airports in Vietnam have undergone a significant transition to PBN.

SID/STAR: RNP 1 is the primary standard applied nationwide, currently implemented at 19/22 airports (86.4%), including major international airports such as Tan Son Nhat and Cam Ranh. The remaining airports are applying RNAV 1 standards.

Approach Procedures: LNAV has been deployed at 100% of airports in Vietnam; Baro-VNAV: Currently in operation at 15 airports. For the remaining 05 airports (Cam Ranh, Phu Quoc, Phu Bai, Van Don, and Lien Khuong), the design dossiers have been completed and are pending evaluation and promulgation.

At Dien Bien Airport, due to the valley terrain and surrounding high mountains limiting obstacle clearance and gradient (unsuitable for Baro-VNAV), Vietnam has researched and designed RNP AR procedures.

Additionally, the implementation of the Point Merge System (PMS) at Tan Son Nhat Airport since 2019 has significantly contributed to increasing airspace capacity from 30–40 flights/hour (750 flights/day) to 54 flights/hour (951 flights/day).

2.1.2 2025 Key Update (Tan Son Nhat - Long Thanh Airport): In 2025, Vietnam successfully designed and commissioned new PBN procedures for the Tan Son Nhat and Long Thanh airport.

The new PBN procedures for Tan Son Nhat International Airport commenced operation in early December 2025.

Inaugural flights utilizing PBN procedures at Long Thanh International Airport are scheduled for 19 December 2025.

## **2.2. PBN Implementation on ATS Route Network**

2.2.1 The ATS route network in Hanoi and Ho Chi Minh FIRs is being transitioned to meet operational demands. The current structure consists of:

Conventional routes: 41 routes (57.7%).

PBN routes: 30 routes (42.3%).

2.2.2 In the coming time, Vietnam plans to:

Expand the application of RNP 1 for SID/STAR and deploy Baro-VNAV at the entire airport system.

Establish RNAV 2 routes overlaying the domestic conventional route network, specifically applying to 24 'W' routes.

## **2.3. RAIM Implementation**

2.3.1 Vietnam recognizes that Receiver Autonomous Integrity Monitoring (RAIM) is critical for assessing the integrity of GPS signals in safety-critical GPS applications, especially for PBN operations.

2.3.2 To ensure service availability and integrity for airspace users, Vietnam has implemented a web-based RAIM information service developed by Flightkeys.

2.3.3 This system provides multiple features to support flight planning and operations, including:

- Constellation Service Status display;
- Airport Prediction;
- Route Prediction; and
- Other related functionalities.

## **2.4. Challenges and Difficulties**

Despite positive results, Vietnam faces challenges due to a lack of practical experience in RNP AR (Authorization Required). This has led to difficulties in the design, validation, and operational approval phases for airports with complex terrain (e.g., Dien Bien Airport).

## **3. ACTION REQUIRED BY THE MEETING**

3.1 The meeting is invited to: amend as appropriate

- a) note the information contained in this papers; and
- b) discuss any relevant matters as appropriate.

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