



International Civil Aviation Organization
THE SIXTH MEETING OF PERFORMANCE BASED NAVIGATION
IMPLEMENTATION COORDINATION GROUP (PBNICG/9)

(Video conference, 22 - 24 March, 2022)

Agenda Item 4: States' PBN implementation progress

THAILAND PBN IMPLEMENTATION
 (Presented by Thailand)

SUMMARY

This paper discusses the overall PBN development within Thailand. The paper summarizes the implementation status of PBN approach procedures and SIDs and STARs in terminal airspaces throughout Thailand. It also presents progress of RNP-AR, updates on PBN route enhancement for en-route airspace as well as status on transition plan for RNP APCH Chart Identification.

1. INTRODUCTION

1.1 Resolution A37-11 of the 37th Session of the ICAO General Assembly requested Member States to develop national Performance Based Navigation (PBN) implementation and to implement RNAV and RNP air traffic services (ATS) routes and approach procedures in accordance with the ICAO PBN Manual (Doc 9613).

1.2 To provide appropriate guidance for air navigation service providers in the APAC Region, airspace operators and users, regulating agencies, and international organizations on the evolution of navigation capabilities as one of the key systems supporting air traffic management, Asia and Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) adopted Regional PBN Implementation Plan targeted in short, medium and long term.

2. DISCUSSION

PBN Implementation Status

Approach

2.1 The following table shows the list of 11 international aerodromes as listed in the Asia-Pacific Regional Air Navigation Plan (APAC ANP). Where feasible, all instrument runways will be equipped with RNP APCH with Barometric Vertical Navigation (Baro-VNAV). At the airports where approaches with vertical guidance are currently not available, Baro-VNAV will be introduced during periodic review cycle. In 2021, Baro-VNAV procedures has been introduced for runway 03L and 03R at Don Mueang International airport. At Chiang Mai, and Hat Yai International airport, Baro-VNAV procedures will be implemented in 2022.

International Airport Name	Runway End	LNAV	LNAV/VNAV	RNP AR	RNAV/RNP VA	GLS	Implementation Target
Chiang Mai	18	✓	□	□	□	□	VNAV 2022

	36	✓	□	□	□	□	VNAV 2022
Chiang Rai	03	✓	✓	□	□	□	
	21	✓	✓	□	□	□	
Don Mueang	03L	✓	✓	□	□	□	VNAV 2021
	03R	✓	✓	□	□	□	VNAV 2021
	21L	✓	✓	□	□	□	
	21R	✓	✓	□	□	□	
Hat Yai	08	✓	□	□	□	□	VNAV 2022
	26	✓	□	□	□	□	VNAV 2022
Hua Hin	16	✓	□	□	□	□	
	34	N/A	N/A	□	□	□	
Krabi	14	N/A	N/A	2022	□	□	
	32	✓	□	□	□	□	
Phuket	09	✓	✓	✓	□	TBD	
	27	✓	✓	✓	□	TBD	
Surat Thani	04	✓	✓	□	□	□	
	22	✓	✓	□	□	□	
Samui	17	✓	□	□	□	□	
	35	✓	✓	□	□	□	
Suvarnabhumi	01L	✓	✓	□	□	TBD	
	01R	✓	✓	□	□	TBD	
	19L	✓	✓	□	□	TBD	
	19R	✓	✓	□	□	TBD	
U-Tapao/ Rayong Pattaya	18	✓	✓	□	□	□	
	36	✓	✓	□	□	□	

2.2 An RNP AR approach has been designed for the terrain-challenged airport of Krabi. Subject to aircraft approval and the re-evaluation of operational needs from operators, RNP AR approach is available to be further processed in the next implementation steps.

2.3 GLS implementation planned for Phuket and Suvarnabhumi International Airport has been postponed with a revised plan yet to be determined. The decision to introduce GLS is being reassessed due to low aircraft equipage, the need to conduct further evaluation of Ionospheric inference as well as the need to finalize and acquire suitable installation sites for GBAS equipment at both airports. Once resolved, a more definite implementation plan will be rolled out.

Terminal Airspace

2.4 In 2022, RNAV 1 SIDs/STARs are expected to be implemented at Chiang Mai and Hat Yai International Airport as well as Hua Hin International Airport. This will complete to the goal of having SID/STAR procedures serving all the international aerodromes, where feasible and operationally beneficial. The following table shows the list of the international aerodromes at which PBN SIDs/STARs have been implemented or expected to be in operation by next year.

Airport Name	Runway End	SID	STAR	Implementation Target
Chiang Mai	18	<input type="checkbox"/>	<input type="checkbox"/>	2022
	36	✓	✓	2022
Chiang Rai	03	✓	<input type="checkbox"/>	
	21	✓	<input type="checkbox"/>	
Don Mueang	03L	✓	✓	
	03R	✓	✓	
	21L	✓	✓	
	21R	✓	✓	
Hat Yai	08	<input type="checkbox"/>	<input type="checkbox"/>	2022
	26	<input type="checkbox"/>	<input type="checkbox"/>	2022
Hua Hin	16	<input type="checkbox"/>	<input type="checkbox"/>	SID 2022
	34	N/A	N/A	
Krabi	14	✓	N/A	
	32	✓	✓	
Phuket	09	✓	✓	
	27	✓	✓	
Surat Thani	04	✓	✓	
	22	✓	✓	
Samui	17	✓	<input type="checkbox"/>	
	35	✓	<input type="checkbox"/>	
Suvarnabhumi	01L	✓	✓	
	01R	✓	✓	
	19L	✓	✓	
	19R	✓	✓	
U-Tapao/ Rayong Pattaya	18	✓	<input type="checkbox"/>	
	36	✓	<input type="checkbox"/>	

En-route

2.5 For en-route operations, all of 47 PBN routes are designated as RNAV2. In line with the Asia Pacific Seamless ANS Plan, RNAV2 specification is planned for all new ATS routes, international and domestic. Coordination and planning with neighboring countries will be carried out as appropriated. This year, 4 additional domestic RNAV2 routes overlaying existing conventional routes are being introduced where upper flight levels will be designated for the use of PBN-equipped aircraft.

Regional Transition Plan for RNP APCH Chart Identification from RNAV to RNP

2.6 In September of 2021, the chart identification change from RNAV to RNP has been completed for all airports in Thailand. A total of 68 approach procedures at 38 airports have transitioned over 10 AIRAC cycles and approximately one year.

3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to

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