



International Civil Aviation Organization

**THE TENTH MEETING OF PERFORMANCE BASED NAVIGATION IMPLEMENTATION
 COORDINATION GROUP (PBNICG/10)**

(Bangkok, 19 –21 April 2023)

THE PROGRESS OF PBN IMPLEMENTATION IN MYANMAR

(Presented by Myanmar)

SUMMARY

This paper presents the status of the progress of PBN implementation in the Myanmar.

1. INTRODUCTION

1.1 In line with the International Civil Aviation Organization (ICAO) Asia-Pacific Regional PBN Implementation Plan, the Department of Civil Aviation, Myanmar has adopted a 3- phased approach for the PBN implementation;

- Short Term (2010-2014)
- Medium Term (2015-2018)
- Long Term (Beyond 2018)

2. DISCUSSION

2.1 PBN Implementation Progress

As per Myanmar PBN implementation plan, the action plan for PBN Terminal and Approach implementation is adopted as below:

2.1.1 PBN Approach Procedures

Sr. No.	Airports	Approach	Target Date	Current Status	Remark
1	VYYY (Int'l)	RNP APCH with Baro-VNAV	Completed	Published	
		RNP to ILS (ILS Z)	Completed	Published	
2	VYMD (Int'l)	RNP APCH with Baro-VNAV	Completed	Published	
		RNP to ILS (ILS Z)	Dec, 2023	Design Reviewing	
3	VYNT (Int'l)	RNP APCH with Baro-VNAV	Completed	Published	
		RNP to ILS (ILS Z)	Completed	Published	
4	VYBG	RNP APCH with Baro-VNAV	Completed	Published	
5	VYHH	RNP APCH with Baro-VNAV	Completed	Published	
6	VYSW	RNP APCH with Baro-VNAV	Completed	Published	
7	VYTD	RNP APCH with Baro-VNAV	Completed	Published	
8	VYDW	RNP APCH with Baro-VNAV	Dec, 2019	Publication Process	Effective in AUG 2023
9	VYME	RNP APCH with Baro-VNAV	Dec, 2019	Publication Process	Effective in AUG 2023
10	VYTL	RNP APCH with Baro-VNAV	Dec, 2019	Design Finished	FV in 2023
11	VYMK	RNP APCH with Baro-VNAV	Dec, 2020	Design Finished	FV in 2023
12	VYPT	RNP APCH with Baro-VNAV	Dec, 2020	Design Finished	FV in 2023

13	VYKP	RNP APCH with Baro-VNAV	Dec, 2021	Design Finished	FV in 2023
14	VYKT	RNP APCH with Baro-VNAV	Dec, 2021	Conceptual Design	
15	VYKG	RNP APCH with Baro-VNAV	Dec, 2021	Conceptual Design	
16	VYKL	RNP APCH with Baro-VNAV	Dec, 2021	Conceptual Design	
17	VYLS	RNP APCH with Baro-VNAV	Dec, 2021	Conceptual Design	

2.1.2 Terminal SID & STAR Procedures

Sr. No.	Airports	Terminal	Target Date	Current Status	Remark
1	VYYY	RANV1 SID/STAR	Completed	Published	
2	VYMD	RANV1 SID/STAR	Completed	Published	
3	VYNT	RNP1 SID/STAR	Dec, 2023	Design Reviewing	
4	VYBG	RNP1 SID/STAR	Dec, 2023	Design Reviewing	
5	VYHH	RNP1 SID/STAR	Completed	Published	
6	VYSW	RNP1 SID/STAR	Completed	Published	
7	VYTD	RNP1 SID/STAR	Completed	Published	
8	VYDW	RNP1 SID/STAR	Dec, 2019	Publication Process	Effective in AUG 2023
9	VYME	RNP1 SID/STAR	Dec, 2019	Publication Process	Effective in AUG 2023
10	VYTL	RNP1 SID/STAR	Dec, 2019	Design Finished	FV in 2023
11	VYMK	RNP1 SID/STAR	Dec, 2020	Design Finished	FV in 2023
12	VYPT	RNP1 SID/STAR	Dec, 2020	Design Finished	FV in 2023
13	VYKP	RNP1 SID/STAR	Dec, 2021	Design Finished	FV in 2023
14	VYKT	RNP1 SID/STAR	Dec, 2021	Conceptual Design	
15	VYKG	RNP1 SID/STAR	Dec, 2021	Conceptual Design	
16	VYKL	RNP1 SID/STAR	Dec, 2021	Conceptual Design	
17	VYLS	RNP1 SID/STAR	Dec, 2021	Conceptual Design	

2.1.3 Consideration of RNP AR Approach and Steep Angle Approach

Regarding the airports mentioned above in implementation progress, PBN procedures have been successfully implemented in all international airports and four domestic airports. According to recent study, Kengtung Airport (VYKG) which is located in the mountainous area it is very challenging to design the Conventional Approach and RNP APCH. For the tourism development plan, DCA-Myanmar is considering to initiate the RNP AR APCH PBN Procedures at Kengtung Airport for limited number of international airlines to improve the current operational requirement.

Moreover, Lashio Airport (VYLS) and Kalay Airport (VYKL) which are located in mountainous area are planned to implement additional challenging procedures including Steep Angle Approach due to the short final approach length and geographical situation.

3. Flight Validation

In Myanmar, Flight Validation (FV) has been postponed due to COVID-19 Pandemic and current situation. Consequently, DCA-Myanmar is unable to make a contract with Aerothai for the Flight Validation (FV). However, DCA-Myanmar has made an agreement with Myanmar National Airlines (MNA) to conduct the Flight Validation process including simulator evaluation will be conducted prior to the Flight Validation in accordance with ICAO Doc 9906, Volume 5 – Validation of Instrument Flight Procedures. DCA-Myanmar has prepared a plan to conduct Flight Validation (FV) process at four airports within this year after the monsoon period.

4. The Fleet Readiness for PBN

The fleet readiness for (32) Myanmar registry aircrafts as follow:

NAV Specification	Percentage (%)	Remark
RNP APCH	87%	
Bravo VNAV	74%	
RNP 1	94%	
RNP 2	77%	
RNP 4	61%	
RNAV 1	94%	
RNAV 2	94%	
RNAV 5	94%	

5. PBN OPERATIONAL APPROVAL PROCESS

According to PBN Go Team to Myanmar Action Plan, Guidance Material for PBN Section (2018 Edition) was published and the two international airlines operators in Myanmar successfully received PBN Operational approval from DCA-Myanmar. The PBN Operational Approval Status as follow:

Aircraft Type	No. of Aircraft	PBN OPS Approval (Y/N)	Remark
Myanmar Airways International			
A319-111, A319-112, A319-115	4	Y	
A320-214	4	Y	
E190-100	3	Y	
Myanmar National Airlines			
B737-800 NG	2	Y	
ATR 72-600	8	N	
Air KBZ			
ATR 72-212A (600 Version)	4	N	
Air Thanlwin			
ATR 72-212	2	N	
ATR 72-212A	2	N	
Mann Yadanarpon Airlines			
ATR 72-600	3	N	
Total	32	13	41%

6. PBN TRAINING FOR ATC

Before the Effective Date of Publication, the Flight Procedure Design Office (FPDO) regularly conducts the PBN training for ATC at the relevant airports which are PBN procedures have been developed. As per ICAO Doc. 10056, DCA-Myanmar is organizing Navigation Subject including PBN as a part of the Approach Control Procedural Rating Training (APP), Approach Control Surveillance Rating

Training (APS), Area Control Procedural Rating Training (ACP), and Area Control Surveillance Rating Training (ACS) at Civil Aviation Training Institute (CATI), and has a plan to add Navigation (PBN Subject) to the Basic ATC and Aerodrome Control Course.

7. Civil-Military Cooperation

As per cooperation with Ministry of Transport and Communications (MOTC), the Civil Military ATM Coordination (CMAC) workshop was conducted in June, 2022. According to the outcomes of the workshop, DCA-Myanmar and Myanmar Air Force were executed the coordination meeting on MAF training area in February, 2023. As a result, DCA Myanmar has received the required information related with training areas for Flexible Use of Airspace, therefore, MAF and DCA are continuing to discuss and negotiate whether the Training Areas and Flight Level requested by MAF are well clear of the existing airspaces for both Domestic and International ATS Routes, Flight Procedure Design including PBN SID & STAR procedures or not. Hence, the outcomes are very useful for the implementation of not only the Flight Procedure Designs but also Domestic & International Airways including the RNP2 City-pair Parallel Routes structure. Furthermore, there is a tentative mutual agreement between MAF and DCA to make the final decision for the safety and efficiency use of airspace. At present, MAF training areas in (12) airports are requested by MAF. After the final decision has been made with MAF, the DCA-Myanmar expects for the successful implementation of RNP2 City-pair Parallel Routes as follows:

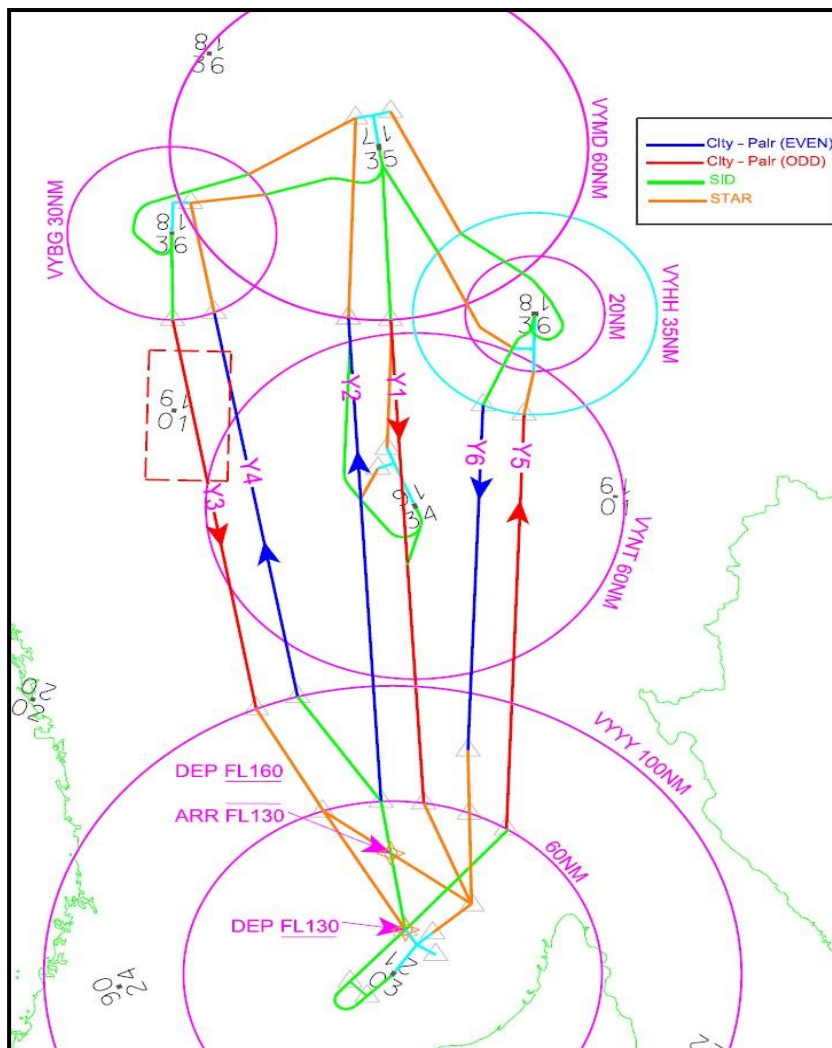


Fig: 7(a) The RNP2 City-Pair Parallel Routes Structure in Yangon FIR

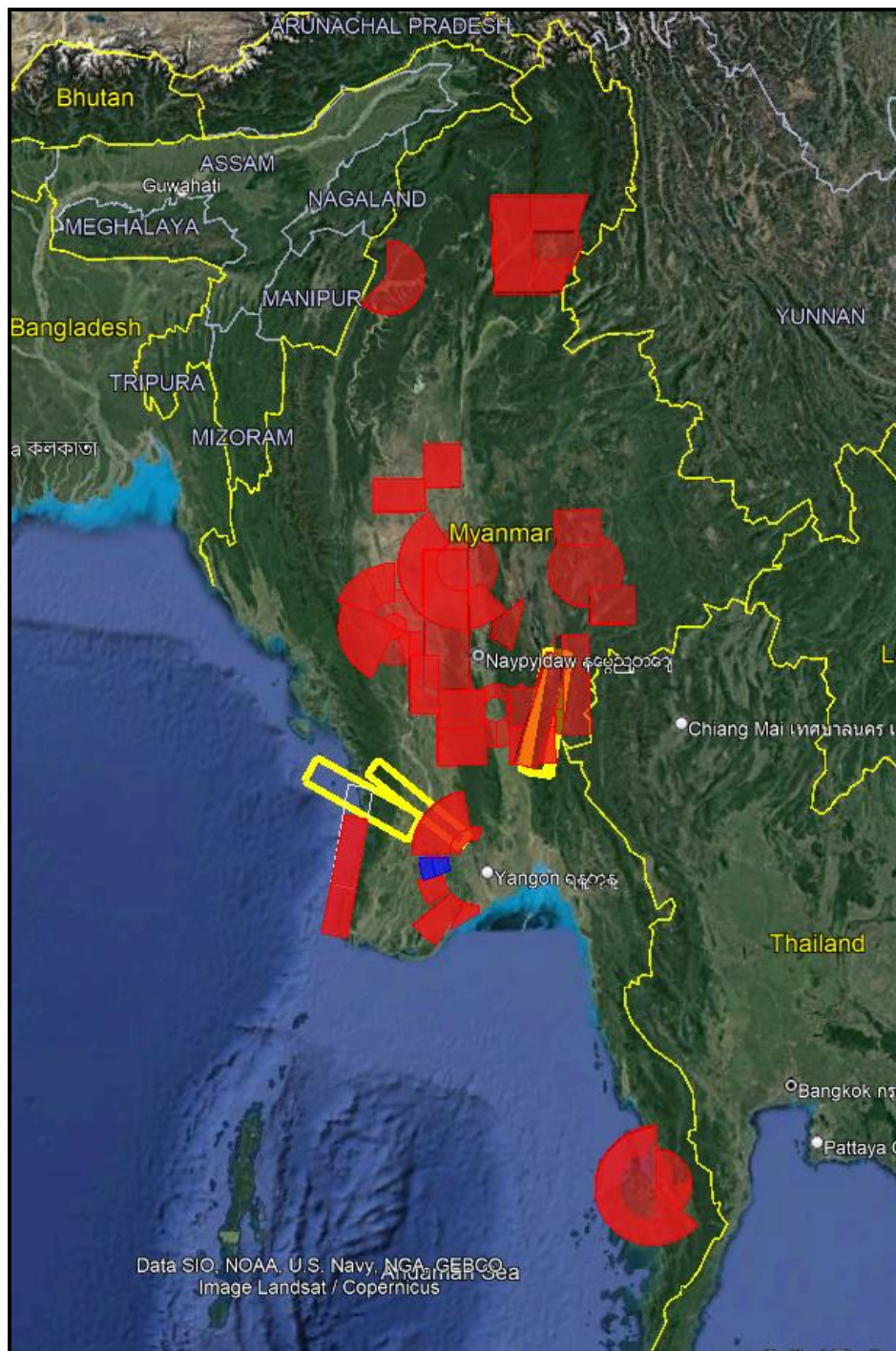


Fig: 7(b) The Training Areas Proposed by MAF for (12) Airports

8. OPERATIONAL REQUIREMENT

For the successful implementation of PBN in Myanmar, DCA-Myanmar needs operational requirements as follow:

- Due to the shortage of instructor, needs to train more trainer for PBN Training for ATC.
- Due to the shortage of Flight Procedure Designer, need to recruit more FPD.
- Due to the requirement of more training for RNP AR and steep angle approach operation.

9. ACTION REQUIRED BY THE MEETING

9.1 The meeting is kindly invited to:

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