

INTERNATIONAL CIVIL AVIATION ORGANIZATION



**REPORT OF
THE SEVENTH MEETING OF THE PERFORMANCE BASED NAVIGATION
IMPLEMENTATION COORDINATION GROUP (PBNICG/7)**

VTC
(21-23 Oct 2020)

The views expressed in this Report should be taken as those of the Meeting and not the Organization

Approved by the Meeting
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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The seventh Meeting of the Performance Based Navigation Implementation Coordination Group (PBNICG/7) was held through vtc, from 21-23 Oct 2020.

2. Attendance

2.1 The meeting was attended by 98 participants from 20 States, one Special Administration Region (SAR) and 3 International Organizations, which are Australia, Bangladesh, China, Fiji, India, Hong Kong China, Indonesia, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Singapore, Thailand, United States of America, Viet Nam, IATA, IFALPA, IFATCA and ICAO.

2.2 The participants from States were multi-disciplinary experts in various fields related to PBN implementation including CAA Regulators, Inspectors, ANSPs, instrument flight procedure designers, engineers and airlines. The relevant presentations and documents are available at <https://www.icao.int/APAC/Meetings/Pages/2020-PBNICG7.aspx>
The list of participants is placed at **Attachment 1**.

3. Opening of the Meeting

3.1 Mr. Raphael Guillet, Chief of ICAO Asia/Pacific Regional Sub Office on behalf of the Regional Director, Mr. Arun Mishra, welcomed the participants of the PBNICG/7. He emphasized that sharing experiences and learning from others were the most important objectives of the meeting. He then invited all States to actively participate in the meeting discussion and provide ideas to sustain the PBN implementation in the APAC region.

3.2 The Chairman of the PBNICG, Mr. Ilaitia Tabakauoro, welcomed participants to the meeting.

4 Officers and Secretariat

4.1 The meeting was chaired by Mr. Ilaitia Tabakauoro. Mr. V. K. Mishra, ICAO Regional Officer ATM (AOM-PBN), and Mr. Raphael Guillet acted as secretary.

5. Working Arrangements, Language and Documentation

5.1. The working language of the meeting was English inclusive of all documentation and this Report. 07 Working Papers (WP), 09 Information Papers (IP), 1 Flimsy were considered by the meeting. The lists of Working/Information Papers are provided at **Attachment 2**.

Agenda Item 1 – Adoption of agenda

1.1 The Chairman introduced the provisional agenda (WP01) to the meeting.

Agenda Item 1: Adoption of Agenda

Agenda Item 2: Global and Regional PBN Updates

Agenda Item 3: Implementation status of the Regional Transition Plan for RNP APCH Chart Identification from RNAV to RNP

Agenda Item 4: States' PBN Implementation Progress

Agenda Item 5: Continuous Descent Operations/ Continuous Climb Operations (CDO/CCO)

Agenda Item 6: Review and update of action list

Agenda Item 7: Any other business

1.2 The meeting reviewed and agreed to the proposed agenda without changes.

Agenda item2: Global and Regional PBN updates**WP02– GLOBAL & REGIONAL PBN IMPLEMENTATION UPDATE (SECRETARIAT)**

2.1 The Secretariat presented global PBN implementation status at international airports. The Secretariat informed that regarding key requirement of ICAO Assembly Resolution A37-11, which is the implementation of approach procedures with vertical guidance (APV) for all instrument runway ends by 2016, implementation of APV procedures were behind global achievement. However, implementation of PBN SID/STAR were above the global implementation status (see **Table 1**).

Table 1. ICAO Assembly Resolution A37-11 Implementation Status

Dec 2019	PBN Approach	APV		PBN SID	PBN STAR
		LNAV/VNAV	LPV		
Global (%)	74.8	56.5	34.1	47.8	43.9
Asia/Pacific (%)	62.6	43.5	0	70	67.8

REVIEW OF APANPIRG/ 30 OUTCOMES (SECRETARIAT)

2.2 Asia/Pacific Regional Transition Plan for RNP APCH Chart Identification from RNAV to RNP as accepted by states in PBNICG/6 and endorsed by ATMSG/7 and CNSSG/23 was adopted by the thirtieth meeting of the Asia/Pacific Air navigation planning and implementation regional group (APANPIRG/30) Bangkok, Thailand, 4 to 6 November 2019. Proposed contingency measure for the Regional Transition Plan for RNP APCH Chart identification was also accepted.

2.3 The secretariat informed the meeting that new Version of ASIA/PACIFICSEAMLESS ANS PLAN V3.0(Nov 2019) is approved by APANPIRG/30 is available on following link:

<https://www.icao.int/APAC/Documents/edocs/Asia%20Pacific%20Seamless%20ATM%20Plan%20V%203.0.pdf>

Agenda Item 3: Implementation status of the Regional Transition Plan for RNP APCH Chart Identification from RNAV to RNP

WP03 – IMPLEMENTATION STATUS OF REGIONAL TRANSITION PLAN FOR RNP CHART IDENTIFICATION (SECRETARIAT)

3.1 The Secretariat presented the Implementation status of the regional transition plan for RNP APCH chart identification from RNAV to RNP, Asia/Pacific Regional Transition Plan for RNP APCH Chart Identification from RNAV to RNP was adopted by APANPIRG/30 vide Conclusion APANPIRG/30/14 (CNS SG/23/8-PBNICG/6/1). The plan is available at the following link on ICAO APAC webpage:

<https://www.icao.int/APAC/Documents/edocs/APX.%20B%20-%20Regional%20Transition%20Plan%20for%20RNP%20Chart%20Identification.pdf>

3.2 The Secretariat presented the approved plan to the meeting and invited the States to see if there is any change in the APAC Regional Transition Plan and to report the completion of the plan to APAC-RSO@icao.int. The secretariat also presented a simplified transition plan to capture only key elements of plan. It was clarified by the secretariat that there is no change in the plan that was agreed to in the last PBNICG/6, reviewed in CNS SG/23 and adopted by APANPIRG/30, its only meant to simplify the content by reducing the number of columns to reflect essential information only. Most of the states supported the simplified plan consisting of much smaller number of columns as compared to the original plan.

Agenda Item 4: States' PBN Implementation Progress

WP04 – PBN IMPLEMENTATION IN CHINA (CHINA)

4.1 China provided updated information on PBN implementation. China informed the meeting that 500 out of 532 instrument runway ends of 246 airports have PBN approach procedures. The meeting was also informed that China implemented 753 PBN routes. By now, Beijing/Capital, Beijing/Daxing, Shanghai/Pudong, Shanghai/Hongqiao and other major airports have implemented RNP APCH procedures. China has also implemented 33 RNP AR procedures including 11 at International airports and 22 at Domestic airports.

IP01 – PBN IMPLEMENTATION IN INDIA AN UPDATE (INDIA)

4.2 India provided information on ATS routes, SIDs/STARs and RNP APCH implementation in accordance with its PBN implementation plan. India has implemented RNP APCH procedures for 52 Runway ends so far. Out of these 23 RNP APCH are for international airports and 29 RNP APCH for domestic airports. As per the regional transition plan for chart identification from RNAV to RNP, India has completed and changed all the chart identification and all new charts are having Chart title RNP. India also informed the meeting about its PBN implementation challenges and solutions. The secretariat pointed out about the requirement of RAIM prediction tool to the states and that states should meet the requirement by either themselves or in coordination with other states, which are already having the tool. India informed the meeting that the tool has been developed in association with ISRO and is working fine. The secretariat reminded the meeting about the RAIM prediction for dispatch and flight planning purposes of the flights. Maldives expressed desire to coordinate with India to which India responded that they are open to cooperation.

IP02 – PBN IMPLEMENTATION IN INDIA AN UPDATE (INDIA)

4.3 India informed the meeting on the progress & update on the development of SBAS (GAGAN) LPV procedures in INDIA. India has identified constraints & challenges of implementing

LPV (GAGAN) procedures and exploring the possibility of implementing LPV procedures in coming months after mitigating those constraints. Validation and approval of the LPV procedures remain a challenge. The secretariat asked about the clarification about GAGAN Mandate, whether it is applicable to Indian aircraft or for international operators also, to which India replied that it is for new aircraft to be registered in India after the cut-off date. The secretariat requested India to share the mandate on GAGAN and India agreed to share the same with meeting. The secretariat also requested India to share safety assessment of LPV procedure in the next GBAS/SBAS, which India responded that they will share a safety assessment of LPV procedures in the next GBAS SBAS ITF meeting.

IP03 –PBN IMPLEMENTATION PROGRESS OF THE REPUBLIC OF KOREA (REPUBLIC OF KOREA)

4.4 The Republic of Korea (ROK) presented its PBN implementation status in approach, SID/STAR and ATS routes. The meeting was informed that the entire RNAV5 routes operated within the Incheon FIR were converted to the RNAV2. The meeting was informed that of 18 airports (civil / joint civil and military) in ROK, LVAV / VNAV approach procedures have been established at 29 out of 56 runway ends, while LNAV procedure has been established at 34 runway ends. It was also informed that some civil/military joint airports are still experiencing a delay in implementing PBN due to concerns of the extended noise affected areas from the change in flight path. The secretariat pointed out that as PBN provides flexibility of establishing flight path, so it should not be an issue. Korea replied that changing to PBN changes the noise area and military does not agree to that. USA commented that their experience is similar to that of Korea. India asked what is plan from RNAV to RNP in Enroute to which Korea replied that there is no plan to change from RNAV to RNP in Enroute due to non-implementation in neighboring Japan and China.

IP04 - RNP APCH CHART IDENTIFICATION FROM RNAV TO RNP IN REPUBLIC OF KOREA

4.5 The ROK has completed converting naming of 32 charts from RNAV (GNSS) RWY XX to RNP RWY XX as of 15 August 2019.

IP05- PBN IMPLEMENTTION IN THE MALDIVES

4.6 Maldives has published 22 RNP APCH procedures, 16 LNAV and 6 LANV/VNAV. Eight more procedures will be published for the newly developed domestic airports. The meeting was informed that the process to change the identification of PBN instrument flight procedure approach charts from RNAV to RNP was completed in May 2019. Maldives has published 10 domestic routes based on the RNP 1 navigation specification, to connect the airports in the South.

4.7 The secretariat raised the rationale for selecting RNP 1, which is designed for terminal airspace, Nav Specs for these routes and Maldives should consider replacing RNP 1, with RNAV 2 or RNP 2 routes. Maldives replied that due to lateral spacing requirement, they have implemented this and it is in line with PBN manual requirements. The secretariat indicated that RNP 1 is for terminal operations as per ICAO PBN Manual.

IP06 – THE PROGRESS OF PBN IMPLEMENTATION IN MYANMAR

4.8 Myanmar provided information on the PBN implementation progress in Terminal, Approach and En-route in accordance with their PBN implementation plan. However, the implementation process has been delayed due to some constraints involving military airspaces, prohibited area, gun firing area and the gap of surveillance capability for low level aircraft. Vietnam asked about frequency of validation flight of Baro-VNAV procedures, Myanmar replied that it is done before publication of the procedure. The secretariat clarified the validation process to be followed before publication of the procedure as defined in ICAO Doc 9906.

4.9 India requested Myanmar about the status of India's proposed ATS Route connectivity between Imphal and Yangon/Mandalay via Kalay NDB. Myanmar stated that they are examining the proposal. Nepal also asked Myanmar about a joint working paper of Himalaya 2 route, which will be presented in ATM SG/8 meeting. Myanmar replied that they will soon revert back to Nepal.

IP07 – THE PROGRESS OF PBN IMPLEMENTATION IN NEPAL

4.10 Nepal provided information on the latest progress of PBN implementation in Terminal, Approach and En-route in accordance with their PBN implementation plan. The meeting was informed that Feasibility study for RNP APCH (SBAS) will be done and regional cooperation will be sought for the planned implementation if such procedures are desirable. RNP AR Departures will be designed and implemented at TIA Kathmandu. The meeting was informed that the process to change the identification of PBN instrument flight procedure approach charts from RNAV to RNP was completed in March 2020.

4.11 The secretariat pointed out that Surveillance monitored longitudinal spacing may be implemented within Category S airspace without changing the designation of the ATS route. Nepal responded that as NDBs used to define the conventional routes no longer exist, the routes are being changed to PBN. Pakistan asked about RNP AR departure criteria, to which Nepal responded that its being designed using criteria used by industry and some States. The secretariat clarified that presently there is no published criteria of RNP AR departure in ICAO documents. The chairperson also briefed about the RNP AR Departure criteria being used by some states in different regions.

IP08 – THAILAND PBN IMPLEMENTATION (THAILAND)

4.12 Thailand provided PBN implementation status in approach, SIDs and STARs, and ATS route implementation. In addition, the meeting was informed the progress of RNP AR APCH procedure, the plan for GBAS installation at Phuket International Airport as 2024 and for Suvarnabhumi International Airport postponed. For En-route operations, new RNAV2 routes (L880, M633, N506, P629) between Bangkok and Phnom Penh FIR have been developed and became operational in October. In line with the Asia Pacific Seamless ANS Plan, RNAV2 specification is planned for all new ATS Routes, international and domestic.

IP09- VIET NAM PBN IMPLEMENTATION PROGRESS

4.13 VIETNAM provided the status information on RNP APCH, SIDs and STARs and ATS route development in accordance with their PBN implementation plan. The meeting was informed about the lesson learnt, such as Airlines not being approved for RNP APCH and coordination required with Military.

4.14 The secretariat suggested that Flexible use of Airspace(FUA)could provide a solution to some of the issues related to Military coordination. In this regard ICAO Circular on Civil Military Cooperation in ATM, ICAO Circular 330 could be looked into. Vietnam thanked the secretariat for the advice.

Agenda Item 5: Continuous Descent Operations/ Continuous Climb Operations (CDO/CCO)

WP05 – CDO/CCO IMPLEMENTATION IN CHINA (CHINA)

5.1 China shared with the meeting implementation process for CDO/CCO, its benefits, and implementation status so far and planned implementation of CDO/CCO in China. It explained in detail about the technical research, Implementation Steps and Implementation results. It further elaborated that the guidance was derived from GANP, APAC Seamless Air Traffic Plan, CDO, CCO

and PBN Manual to design the implementation strategy. It also described the benefits from CDO/CCO such as Safety Improvement, Green Environment, reduction in Cockpit workload, improvement in comfort for the passengers. So far CDO/CCO have been implemented at six international airports including Guangzhou Baiyun Intl. airport and Kunming Changshui Intl. airport and etc. CDO/CCO will be implemented in more airports in China in phases.

5.2 The secretariat asked whether the CDO/CCO is published for International Operators, China replied that the procedures are for both domestic as well as International operators. The secretariat pointed out that success of CDO/CCO largely depends upon the design of SIDs/STARs and particularly the altitude restrictions at conflict points between SIDs/STARs and how China achieved that, China explained it is undertaken during the planning stage.

5.3 India asked about how to recognize the opportunity to use CDO/CCO, phraseology used and feedback mechanism, China explained in detail.

5.4 There was a point raised if CDO/CCO is applicable in Radar Vectoring, China replied that in case of Radar Vectoring to deviate its lateral flight path, CDO/CCO stops.

5.5 Bangladesh enquired whether CDO/CCO is used at Joint civil/Military Airports, China said no it is not used. Bangladesh also asked how to handle CDO/CCO for low and high-speed aircraft. China replied that different flight for low speed aircraft is utilized. Bangladesh also requested China to share how they operate CCO & CDO and also to share the AIP link for AIC reference. China shared the AIP page.

5.6 Nepal asked about challenges, NOTAMs for trial and Nav-Specs for CDO/CCO. China responded that the planning stage is the most challenging, guidelines are issued for trial operations and Nav-specs is RNAV 1 or RNP 1 for SIDs/STARs.

5.7 Thailand asked for busier airports, what is China's experience in allowing CDO/CCO operations. China explained that its normally used during off-peak period at busy airports.

5.8 USA commended the CDO/CCO implementation in China and said that it will be beneficial to operators. According to US experience, CDO/CCO enhances the efficiency and safety of aircraft operations.

5.9 Vietnam raised an issue with the map China presented. The Chairperson clarified that this group is technical and therefore matter may be raised at an appropriate forum.

WP06 – CDO/CCO IMPLEMENTATION IN INDIA

5.10 India discussed with the meeting implementation process for CDO/CCO implementation at Delhi, its benefits, and challenges in terms of Traffic Pattern, Airspace Constraint, Pilot sensitization, ATC training etc. It shared some of the pictures from the actual CDO/CCO conducted at Delhi Airports and explained in detail how it is being done at one of the busiest airport with several airspace constraints.

5.11 The secretariat asked India to share the CDO CCO AIP/AIC with the meeting. India agreed to share.

5.12 IATA asked how do ATC know that the pilots are flying CDOs manually. India responded that controller can see the flight profile whether its manual or FMS managed.

5.13 Thailand asked about collecting the number of CDO/CCO carried out. India responded that Operators are requested to report through an email.

5.14 Nepal asked about any provision to establish a functional airspace regardless of State boundaries where CCO/CDO can easily be initiated for those states who have limitation airspace. India replied that airspace is not a limitation for them. The secretariat clarified that with the

cooperation between the states this could be achieved.

5.15 The secretariat also clarified that closed STARs are not a pre-requisite for conduct of CDO and it could very well be done with open STARs.

5.16 India suggested appropriate standard phraseology for CDO/CCO should be developed.

5.17 It was suggested by Bangladesh to hold webinar on CDO/CCO in next six months or next PBNICG. States are invited to share their experiences about CDO/CCO.

Agenda Item 6: Review and update of action list

WP07 – PROGRESS OF ACTION ITEMS (SECRETARIAT)

6.1 The Secretariat presented the list of action items agreed by the previous meetings. There were 07 actions left for discussion at the meeting.

6.2 The meeting was informed of the progress of each action item and agreed to close 06 items after deliberations. Pakistan pointed out that there is in-consistency between the number of instrument runways available in Asia/Pac e-ANP Volume II and data used by i-STARs for some States. After deliberations it was decided to add a new action item that “number of International Instrument Runway Ends to be included in iSTARs should be based on the latest information”.

Agenda Item 7: Any other business

7.1 ICAO APAC RSO informed the meeting about the Webinars being organized on ATM Safety Assessment from 3-5 Nov 2020 and ATS Route Implementation on 9 Nov 2020 and urged the states to participate in the webinars.

Next meeting

7.2 The Chairperson invited States to propose to host the next PBNICG meeting. The Secretary asked any State, who is interested in hosting, to approach the Secretary to discuss the next meeting. The PBNICG/8 will tentatively be held in June/July 2021 preferably face to face. Detailed venue will be notified to the States by State letter.

Closing of the meeting

7.3 The Chairperson thanked the participants for their contributions and expressed appreciation to the ICAO Asia/Pacific Regional Sub Office (RSO) for their support.

7.4 Mr. Raphael Guillet thanked all the participants and ICAO secretariat personnel for making this meeting fruitful.

**The 7th Meeting of PBN Implementation Coordination Group (PBNICG/7)**

(Video Conference, 21 – 23 October 2020)

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List of Working Papers and Information Papers- PBNICG/7

- *WP/01- Provisional agenda (Secretariat)*
 - *WP/02- Global PBN Implementation Update (Secretariat)*
 - *WP/03- Implementation status of the Regional Transition Plan for RNP APCH Chart Identification from RNAV to RNP (Secretariat)*
 - *WP/04 - China-WP-States' PBN implementation progress_PBNICG7*
 - *WP/05 - CDO/CCO – China*
 - *WP/06 - INDIA_AAI_ CDO_ CCO*
 - *WP/07 - Review of PBNICG Action list (Secretariat)*
-
- *IP/01 - PBN Implementation Progress in INDIA_PBNICG7_06.10.2020*
 - *IP/02 - PBNICG7 LPV implementation status in INDIA*
 - *IP03- ROK's PBN Implementation Update*
 - *IP04 - RNP APCH CHART Identification from RNAV to RNP in ROK*
 - *IP-05- PBN Implementation in Maldives*
 - *IP/06 - Progress of PBN Implementation in Myanmar_PBNICG7_2020*
 - *IP/07 – Progress of PBN Implementation report Nepal*
 - *IP/08 - Thailand's PBN Implementation Progress_PBNICG7_151020*
 - *IP/09 - Viet Nam PBN Implementation Progress*

Action Item	Action	Owner	Contributors	Target date	Status
2/3	ICAO RSO to assess the feasibility of an engine for assisting desirous States with computing their metrics as per option B.	APAC RSO	ICAO HQ & iSTARS	Before PBNICG/5	Closed
4/7	States and ICAO to develop a regional transition plan on the RNP approach chart depiction once ICAO guidance material is available	All States; Frederic Lecat	APAC RSO	Guidance material is available	Closed
6/1	ICAO APAC RSO to consult ICAO HQ and related Panel/Study Group to better understand the rationale supporting the designation of PBN routes, conventional routes, PBN airspace, and the reason for not allowing vertical division of ATS routes.	APAC RSO	ICAO HQ, IFPP and related Panel/Study Group	Before PBNICG8	Open
6/2	ICAO APAC RSO to consult ICAO HQ and related ICAO Panel/Study Group to request the removal of the PBN requirement box need from the RNP APCH chart and priority of changes.	APAC RSO	ICAO HQ, PBN SG, IFPP and related Panel/Study Group	30-Jun-19	Closed
6/3	ICAO APAC RSO to coordinate contingency plan during the RNP APCH chart transition period with ICAO PBN Programme Office.	APAC RSO	ICAO PBN Programme Office	30-Jun-19	Closed
6/4	APAC RSO to hold a three day PBN Safety Assessment Workshop in October 2019.	APAC RSO		31-Oct-19	Closed
6/5	The Secretary to coordinate the proposed indicator changes for Seamless ATM monitoring with the APAC Regional Office	APAC RSO	APAC Regional Office	31-Aug-19	Closed
7/1	ICAO APAC RSO to coordinate with ICAO HQ that number of International Instrument Runway Ends to be included in iSTARS should be based on the latest information.	APAC RSO	ICAO HQ, iSTARs Group	31-Mar-21	Open
C7/1	<p>Draft Conclusion PBNICG/7/1 - PBN Implementation Reporting in iSTARS</p> <p>What: Considering ICAO iSTARS does not reflect the updated status of PBN Implementation at International Runways</p> <p>a) ICAO APAC RSO to coordinate with ICAO HQ that number of International Runway Ends to be included in iSTARS should be based on the latest information.</p>	PBNICG		31-Mar-21	

RNAV to RNP Chart Identification Change

Regional Transition Plan Template

Region: **APAC**

Circ. 353 Reference	5.2.2	5.4.4.1				5.4.4.3		
State	Project Team Manager or designated focal point	Current number of RNAV Charts	Planned	total	Proposed number of AIRAC cycles	Time required for planning and communication	Proposed start date for publication of new charts	Remarks/State's comment
Afghanistan		6		0				
Australia	Jacqueline Vials International Standards Aviation Environment Jacqueline.Vials@infrastructure.gov.au	639		653	3 yrs (periodic review cycle) 18 months (resources available)	3 to 6 months advance notice	At any time	At any time subject to a period of 3 to 6 months' advanced notice for planning purposes and submission lead times Airservices would propose to leverage the triennial procedure revalidation cycle and make changes to most procedures at the time they are subject to periodic review An accelerated deployment would be possible, subject to additional resources being made available, which could possibly achieve the transition in 18 months Australian DAP is published quarterly, Airservices preference would be to promulgate updated procedures only on these dates only and not a 'regular' AIRAC date
Bangladesh	Sabera Rahman mitasr@gmail.com	1		1				5 RNP, 1 RNAV(GNSS)
Bhutan		3	0	0	1	1 year		RNP AR cloud break procedure will be published with new chart title by Jul 2018 (tentatively)
Brunei Darussalam		2		0				
Cambodia		5		0				
China	Mr. Wang Bihe, Flight Operations Management Division, Flight Standards Department of CAAC, bh_wang@caac.gov.cn	10		317	30		Oct 2018	Transition period: 11 Oct 2018 - 31 Dec 2020 Published PBN approach procedures are in domestic AIP and will not affect regional transition.
Hong Kong, China	Ms. Jenny Lee jyylee@cad.gov.hk		0	8	6	12 AIRAC Cycle	2020	Completed
Macao, China	Mr. Bryan, K.H. Chiu bryanchiu@aacm.gov.mo		1	5	6	12 AIRAC cycle	2020	New one RNP (AR) procedure is planned.
Taipei FIR				0				
Cook Islands		15		0				
Democratic People	Mr. An Kyong Hwa gaca@silibank.com	3		0				

Fiji	ILAITIA TABAKAUCORO ilaitia.tabakaucoro@caaf.org.fj	8	5	13	1		8 Nov 2018	Planned 2 GPS based approaches
India	Mr. A.K. Meena akmeena@aai.aero	3		4				
Indonesia	Mega Herdiyansya m3g4_666@yahoo.com	76		0				
Japan	Mr. Makito Oohashi oohashi-m07ys@mlit.go.jp	127	0	93	TBD		TBD	Published 25 GPS based approaches. Planned to redesign GPS procedures to RNAV(GNSS), then begin to transition
Kiribati		2		0				
Lao Peoples' Democ	Sohnsacksit KHAMKEO saykhamkeo@gmail.co	5		0				
Malaysia	Mr. Nordian Ibrahim nordian@dca.gov.my	50		50	6		Jan 2020	
Maldives	Mr. Ibrahim Hameed i.hameed@macl.aero		0	16	1	1.5 AIRAC cycle	Oct 2018	Published 4 GPS based approaches Transition began effective on Jan 2 2019
Marshall Islands		6		0				
Micronesia		10		0				
Mongolia	Ms. Zolzaya Yulen zolzaya@mcaa.gov	3		0				
Myanmar	Mr. Soe Paing ats@dca.gov.mm Soepng1@gmail.com	1	0	0	NA	NA	NA	
Nauru				0				
Nepal	Mr. Mahesh Kumar Basnet atsdr@caanepal.org.np; cnsatm@mos.com.np	4	0	4	2		Mar 2019	
New Zealand	Ray Harvey ray.harvey@caa.govt.nz	148	10	136	5 years	1 year	2020	Progressive changes in accordance with periodic maintenance schedule of 5 years. International aerodromes first. Prefer to integrate changes at international aerodromes with neighboring States Concerns on FMS acceptance and aerodromes which have RNP APCH and RNP AR APCH AIC and CAA Safety Promotion material will be published
Pakistan	Mr. Muhammad Aslam Awan Aslam.Awan@caapakistan.co.pk	43	1	44	12		01 Jan 2019	
Palau		2		0				
Papua New Guinea		2		0				

Philippines	Mrs. Jessica Adeline D. Jamero jadjamero@caap.gov.ph jamerojessica@gmail.com	33	10	41	12	2020	12 AIRAC cycles in 3 years, completed by 20 Nov 2022 CAAP is transitioning to a new chart software in 2018. Migration of old charts to new system will be completed in 2019
Republic of Korea	Mr. Koh Hanseung koh119@korea.kr	38	15	47	1	Mar 2019	
Samoa		5		0			
Singapore	Mr. Michael Shee michael_shee@caas.gov.sg	6	0	6	2	Anytime	1 month prior to issuance of AIP supplements to inform of the new charts which would be effective in 2 AIRAC cycles Nil
Solomon Islands	Mr. Alfred Tannyson Pitaa apitaa@mca.gov.sb; ats@solomon.com.sb			0			
Sri Lanka	M A K Prasanna dans@caa.lk	0		0			
Thailand	Mr. Karan Chantrong karan.c@caat.or.th	62	10	72	10	1 year	Jan 2020
Timor Leste				0			
Tonga	Tino Fuka tfuka@tongaairports.com	8		0			
Tuvalu		2		0			
Vanuatu	Mr. Paul Lennis paul.civa@vanuatu.com.vu	13		0			
Vietnam	Mr. Nguyen The Hung hungand@caa.gov.vn	9		0			
New Caledonia	Mr. Maxime Fournier maxime.fournier@aviation-civile.gouv.fr		5	14	1	20 Jun 2019	
French Polynesia	Aurélié Laplane aurelie.laplane@aviation-civile-gouv.fr		12	47	2	18 Jul 2019	
Wallis and Futuna	Mr. Maxime Fournier maxime.fournier@aviation-civile.gouv.fr		2	4			

United States of A	Victoria Williams		0	19	NA		NA	The US does not intend to change chart identification for 6596 RNP APCH and 413 RNP AR procedures. The US will include PBN requirements box information on all new and amended approach procedures as routinely published.
Total		1350						