



Twenty First Meeting of the Africa-Indian Ocean Planning and Implementation Regional Group (APIRG/21)
(Nairobi, Kenya, 9 – 11 October 2017)

Agenda Item 9: Any other Business
Global and Inter Regional Activities

PBN Approach Charts – Transition from RNAV to RNP

(Presented by the Secretariat)

SUMMARY
This paper provides high-level information on the transition plan that is under development by ICAO for feedback from the regions.
REFERENCE: Doc 9750, Global Air Navigation Plan
Related ICAO Strategic Objective(s): A, B, C & E

1. INTRODUCTION

1.1 Performance based navigation was introduced by ICAO to harmonize existing implementations of Area Navigation that were in place throughout the world. The *Performance-based Navigation (PBN) Manual* (Doc 9613) contains details of the navigation specifications which are used to develop PBN routes and procedures.

1.2 As this PBN concept was brought in to replace existing Area Navigation Implementations, there has inevitably been some confusion regarding the old and new terminology. It was considered by ICAO and supported by many in industry that this was becoming a problem which resulted in poor understanding of the PBN concept.

1.3 In order to address this, a plan to further harmonize the terminology used for PBN was developed. This would ensure that all references were consistent, as shown by the following table:

OM (PBN Operations)	PBN Requirements Box	Chart Name
RNP APCH	RNP APCH	RNP RWY 13

2. DISCUSSION

2.1 In Nov 2014, Amendment 6 to PANS OPS Vol II became applicable which introduced a change to the way the PBN Approach Chart Identification was published. The summary of this change can be seen in the table below:

Navigation Specification	Existing chart title, permitted until 30 November 2022	Chart title required from 1 st December 2022
RNP APCH	RNAV (GNSS) RWY 23	RNP RWY 23
RNP AR APCH	RNAV (RNP) RWY 23	RNP RWY 23 (AR)

2.2 As can be seen from the table, the transition period established with the adoption of this change allowed for several years for implementation. Apart from the extended implementation timescale, no further structure was proposed regarding a planned transition for the new charts.

2.3 Many States have already begun to implement the new chart identification, and a number of new charts have been published in the State AIP. The list of States and the number of charts published is at **Appendix A**.

2.4 Subsequent to the change becoming applicable in PANS OPS Vol II, discussions were held, primarily within the Performance-Based-Navigation Study Group (PBNSG) but also in other Panels and expert groups, regarding the transition. These focused on two areas:

- a) the issue of the FMS not being updated to match the new chart identifications; and
- b) the ATM system wide implications of a patchwork approach to implementation.

2.5 The PBNSG investigated both issues and presented their initial findings to the Air Navigation Commission. Subsequently a working paper on the same subject was also presented at the Technical Commission of the 39th Assembly of ICAO (WP-216). In both cases a task was given to ICAO to develop a coordinated transition plan to address item (2) above. It was accepted that an open transition period lasting several years would result in a large degree of variation in the charts used by international pilots, and that this situation could be improved by coordinating, as much as possible, the transition to the new chart identifications.

2.6 The PBNSG is in the process of developing guidance to replace Circ 336 (Area Navigation (RNAV) to Required Navigation Performance (RNP) Instrument Approach Chart Depiction) which will provide guidance on how such a transition plan is proposed to be implemented. The publication of this new circular is expected in the fall of 2017. Following the June meeting of PBNSG and integration of final comments from SG members.

2.7 Whilst the exact details of the plan are still being finalized, it is clear that there will be a need for coordination from both the Regional Offices and the PIRGs to assist with this transition. The aim will be to identify how best to develop the regional plan to minimize the variation across the region in the way charts are presented, and to assist States with making a smooth change.

2.8 Initial analysis suggests that preparation work of up to a year may be needed before introducing the new charts, and that there is a need to ensure good communication for all stakeholders prior to this change. Training will be required for pilots and controllers to ensure they are familiar with the new charts, and that they know how to confirm their operational approval to conduct relevant PBN operations.

2.9 Regional coordination to minimize the impact of the change may require States to consider implementing the new charts earlier than the final deadline of 30 November 2022. Planning for this change will need to start early enough to ensure a smooth transition. The APANPIRG is therefore requested to consider this activity in their plans and to ensure sufficient time is allocated to this task to successfully implement the new charts.

2.10 ICAO will be providing the central repository of information on the chart transitions. This will identify, graphically, those States that have indicated a timeline for the transition as well as those which have finally completed this work. This will be available through <https://www.icao.int/safety/charting/>.

2.11 Additionally it is understood that during this transition, other elements of the chart can and should be used to confirm the correct procedure has been identified. In particular reference to the published minima can be used as confirmation, and for this to be useful more emphasis will need to be placed on the standardized depiction of these minima on the published charts. The below table shows how these can be used to identify the appropriate chart:

Navigation Specification	Chart title required from 1st December 2022	Minima Used
RNP APCH (Baro-VNAV)	RNP RWY 23	LNAV, LNAV/VNAV
RNP APCH (SBAS)	RNP RWY 23	LP, LPV
RNP AR APCH	RNP RWY 23 (AR)	RNP 0.3, RNP 0.15 etc.

2.12 Along with the central repository to record chart transition status, ICAO will set up a facility for users to report non-standard chart depictions, as described in detail in IP/8 in order to assist in identifying the correct procedures to use.

2.13 ICAO Regions will be requested to consider the transition from RNAV to RNP in the regional plans and ensure sufficient time is allocated to this task to successfully implement the new charts.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information presented and refer to appropriate APANPIRG subgroup.

Tables current as of 15 September 2017

	A	B	C	D
1	State	Total RNP Procedures with new name	RNP APCH	RNP (AR)
2	Argentina	4	4	
3	Armenia	5	5	
4	Congo	2	2	
5	Costa Rica	2		2
6	Cuba	11	11	
7	Egypt	41	41	
8	Germany	39	39	
9	Iraq	2	2	
10	Israel	6	5	1
11	Mali	5	5	
12	Mauritania	4	4	
13	Mongolia	1	1	
14	Myanmar	4	4	
15	Namibia	8	8	
16	Peru	6	3	3
17	Portugal	3		3
18	Qatar	6	6	
19	Saint Helena	2	2	
20	Sri Lanka	4	4	
21	Sweden	6	5	1
22	Togo	2	2	
23	United Arab Emirates	2	2	
24				
25	Total	165	155	10

	A	B	C	D	E	F	G	H
1	State	Total PBN APTs	NewNamePBN_APTs	NewNamePBN_APTs %	Total PBN Approaches	RNP APCH	RNP AR	
2								
3	COMPLETED							
3	Armenia	2	2		5	5		
4	Egypt	17	17		41	41		
5	Israel	2	2		8	7	1	
6	Mongolia	1	1		1	1		
7	Namibia	5	5		10	10		
8	Saint Helena	1	1		2	2		
9	Sri Lanka	2	2		4	4		
10								
11	IN PROGRESS							
12	Costa Rica	1	1	100.00%	3		2	66.67%
13	Argentina	11	9	81.82%	18	15		83.33%
14	Congo	3	2	66.67%	6	4		66.67%
15	Myanmar	3	2	66.67%	5	4		80.00%
16	Qatar	3	2	66.67%	8	6		75.00%
17	Peru	7	4	57.14%	11	3	3	54.55%
18	Sweden	9	5	55.56%	13	6	1	53.85%
19	Cuba	14	7	50.00%	27	13		48.15%
20	Equatorial Guinea	2	1	50.00%	4	2		50.00%
21	I.R. Iran	2	1	50.00%	2	1		50.00%
22	Mauritania	2	1	50.00%	6	4		66.67%
23	Togo	2	1	50.00%	4	2		50.00%
24	Germany	54	19	35.19%	123	48		39.02%
25	Ireland	3	1	33.33%	7	2		28.57%
26	Mali	4	1	25.00%	8	2		25.00%
27	Portugal	4	1	25.00%	7		3	42.86%
28	Kenya	9	2	22.22%	18	4		22.22%
29	Iraq	6	1	16.67%	13	2		15.38%
30	United Arab Emirates	8	1	12.50%	24	2		8.33%

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