



International Civil Aviation Organization

**The Second Meeting of ICAO Asia/Pacific Performance based Navigation
Implementation Coordination Group (PBNICG/2)**

Bangkok, Thailand, 11-12 June 2015

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11/06/2015 - 12/06/2015

Agenda Item 2: Global and Regional PBN Updates

**INFORMATION ON ICAO SARPs AND PANS AMENDMENT
AS RELATED TO PBN, AOM AND FPD**

(Presented by Secretariat)

SUMMARY

This paper provides information concerning ICAO SARPs and PANS Amendments which are related to PBN, AOM and FPD and expected to be applicable in November 2014 to 2016.

1. INTRODUCTION

1.1 Currently, many ICAO Panels and Study Groups are working cooperatively to amend ICAO SARPs and PANS to reflect recent development of technologies as well as to support Global Air Navigation Plan (Doc 9750). As a result, some SARPs and PANS were adopted and approved for amendment and some were circulated as the proposal for the amendment by the ICAO Council last year, while some are still under discussions within various panels and expert groups.

1.2 In this regards, to ensure effectiveness of its deliberation, members of APAC PBNICG are invited to form a common perspective on the timeframe of current developments of SARPs and PANS related to PBN, Airspace Organization and Management and Flight Procedure Design.

2. DISCUSSION

Adopted and approved amendments to ICAO Annexes and PANS

2.1 Approval of Amendments 6 to the fifth edition of the PANS-OPS Vol I and Vol II (Doc 8168), applicable on 13 November 2014 (Ref.: AN 11/19-14/37, 23 June 2014). The contents of the approved amendments are as follows:

- a) automatic dependent surveillance – broadcast (ADS-B), controller-pilot data link communications (CPDLC) and in-trail procedure (ITP) to facilitate en-route climb and descent in oceanic and remote continental airspace where the lack of ATS surveillance coverage is a limiting factor; and
- b) flight procedure design criteria and associated charting requirements for performance-based navigation (PBN), in particular for the new navigation specifications as well as for helicopter point-in-space (PinS) approach and departure operations.

2.2 Approval of Amendment 6 to the PANS ATM (Doc 4444), applicable on 13 November 2014 (Ref.: AN 13/2.1-14/48, 30 June 2014) and its Corrigendum of 3 November 2014. The contents of the approved amendment is related to:

- a) controller-pilot data link communications (CPDLC) and in-trail procedure (ITP) to facilitate en-route climb and descent in oceanic and remote continental airspace where the lack of air traffic services (ATS) surveillance coverage is a limiting factor;
- b) automatic dependent surveillance — contract (ADS-C) and CPDLC to improve surveillance, flight monitoring and communications of aircraft operating in oceanic/remote areas, including the provision of timely and adequate search and rescue services;
- c) volcanic ash cloud to improve coordination and operations related to pilot and controller procedures when a volcanic ash cloud is reported or forecast;
- d) strategic lateral offset procedures (SLOP) to enhance the existing offset capabilities to include micro-offsets and introduce new procedures that will employ the capability of modern aircraft to offset in tenths of nautical mile;
- e) 9.3 km (5NM) terminal separation based on required navigation performance (RNP1), performance-based navigation (PBN) and VOR/GNSS lateral separation; and
- f) consequential amendment of PANS-ATM provisions resulting from Amendment 11 to Annex 14 — Aerodromes, Volume I — Aerodrome Design and Operations related to air traffic control (ATC) phraseologies with respect to runway surface condition and aircraft braking action.
- g) In addition, Corrigendum of 3 November 2014 rectifies editorial inconsistencies related to the controller-pilot data link communication (CPDLC) and automatic dependent surveillance-contract (ADS-C) procedures.

Proposed amendments to ICAO Annexes and PANS

2.3 Proposal for the amendment of Annex 6, Parts I, II, and III, the PANS-ATM and the PANS-OPS, Volume I regarding harmonization and alignment of terms, performance-based navigation (PBN), vision systems, icing phraseology and airborne collision avoidance system (ACAS) which requires action by 15 July 2015 (Ref.: AN11/1.1.30-15/9, 15 April 2015). Among them, PBN related items are as follows:

- a) revised performance-based navigation (PBN) provisions aligned with the current PBN framework necessary to solve issues related to one State's recognition of another State's approvals by simplification of the PBN approval process;
- b) a framework in the form of a template, similar to the commercial air transport operations specifications (OPSPECS) template, that would standardize specific approvals (letters of authorization) for general aviation; and
- c) the introduction of the concept of “complex” PBN operations for “out of the ordinary” operations (e.g., similar to Cat II and III instrument approach operations) which would be subject to a specific approval. For commercial air transport operations, specific approvals are required to be included in the

OPSPECS and for GA specific approvals would need to be included in the proposed specific approval template.

- d) For information, the FLTOPSP in coordination with the PBN Study Group (PBNSG) are updating the Performance-Based Navigation (PBN) Operational Approval Manual (Doc 9997) to provide guidance on what should be considered a complex PBN operation. The amendment to the manual in this regard is expected to be available by the end of 2015.

2.4 Proposals for the amendment of Annex 2 relating to speed variation and to the PANS-ATM (Doc 4444) relating to separation between arrival and departure operations which requires action by 26 June 2015 (Ref.: AN 13/1.8-15/17, 13 March 2015). The proposed amendment of the PANS-ATM introduces the concept of arrival protection area to separate departing aircraft from arriving aircraft following a RNAV or RNP instrument flight procedure and applies to procedurally controlled terminal airspace. For certain arrival/departure combinations, this provision enables the ATS authority to design the airspace in such a way that a departure route becomes separated from the arrival route once the arriving aircraft has reported passing a specified waypoint, at which point the departing aircraft can then be released for take-off.

Annexes and PANS Amendment planned for 2016

2.5 The Annexes and PANS amendment planned for the applicability in November 2016 are presented in **Appendix 1**.

3. ACTION 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.

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Appendix 1. Annexes and PANS Amendment planned for 2016

Ref. No.	Content	Expert Group
	Annex 4 - Aeronautical Charts	
1109	Harmonization of Charting Criteria, Databases of Criteria, and Avionics Systems with IFP Design	IFPP
	Annex 6 - Operation of Aircraft, Part I - International Commercial Air Transport - Aeroplanes	
26	SARPS to embed PBN into traditional operations.	FLTOPSP
315	Standards on the use of PBN on Conventional routes	FLTOPSP
350	Amend SARPs to differentiate those NAVSPECS that require operational approval and those that do not.	FLTOPSP
	Annex 6 - Operation of Aircraft, Part II - International General Aviation - Aeroplanes	
27	SARPS to embed PBN into traditional operations.	FLTOPSP
351	Amend SARPs to differentiate those NAVSPECS that require operational approval and those that do not.	FLTOPSP
	Annex 6 - Operation of Aircraft, Part III - International Operations - Helicopters	
28	SARPS to embed PBN into traditional operations.	FLTOPSP
352	Amend SARPs to differentiate those NAVSPECS that require operational approval and those that do not.	FLTOPSP
	Annex 11 - Air Traffic Services	
1097	Provisions on Responsibility of States regarding implementation of Flight Procedures	IFPP
586	Re-introduce FRT suffixes for ATS routes into Annex 11	FLTOPSP
1112	Harmonization of Charting Criteria, Databases of Criteria, and Avionics Systems with IFP Design	IFPP
	Annex 15 - Aeronautical Information Services	
1111	Harmonization of Charting Criteria, Databases of Criteria, and Avionics Systems with IFP Design	IFPP
	PANS-ATM	
200	Procedures and phraseologies for SID/STAR	ATMOPSP
861	20 NM lateral separation to support ½ degree oceanic flex tracks	SASP
862	GNSS/RNP 2 Lateral separation on intersecting and non-intersecting tracks	SASP
860	RLongSM 5 minutes longitudinal separation between ADS-C aircraft on same identical tracks	SASP
856	Refined route spacing, separation minima and procedures for all PBN navigation specifications	SASP
354	Enhanced separation minima addressing: - 45 ° RNAV arrival and departure separation - PBN based Lateral	SASP
1460	PANS-ATM (Doc 4444) / Enhanced separation minima addressing: - VOR/GNSS lateral separation. PANS-ATM (Doc 4444) / Enhanced separation minima addressing: - VOR/GNSS lateral separation. - 5 nm RNP 1 terminal separation & Circular 324	SASP
	PANS-OPS Volume I - Flight Procedures	
571	Procedure design criteria on LP/Baro-VNAV	IFPP
1104	Provisions on IFP for Helicopter PBN operations	IFPP
281	Amended definitions as a consequential to the new approach classification	ACTF

Ref. No.	Content	Expert Group
341	PANS-OPS Procedures connecting PBN with XLS final approach and APV Procedure criteria for PinS route visual segment missed approach Visual procedures utilizing PBN	IFPP
	PANS-OPS Volume II - Construction of Visual and Instrument Flight Procedures	
103	New Baro-VNAV design criteria PBN charting information box and identification consistency	IFPP
570	Procedure design criteria on LP/Baro-VNAV	IFPP
314	New procedure design requirements to support RNP2 and Advanced RNP. New charting requirements including PBN information box and magnetic bearings on PBN routes	IFPP
563	Charting of PBN routes including accuracy value	IFPP
1105	Provisions on IFP for Helicopter PBN operations	IFPP
266	Procedure design criteria on SBAS Cat I	IFPP
282	Amended definitions as a consequential to the new approach classification	ACTF
851	Procedure design criteria for reduced divergence departures	SASP
1114	Harmonization of Charting Criteria, Databases of Criteria, and Avionics Systems with IFP Design	IFPP
1259	Use of CF Leg ad first leg type of departure procedures	IFPP
845	Procedure design criteria for GLS parallel approaches Procedures for Air Navigation Services — Aircraft Operations (OPS) (Doc 8168)	IFPP
1250	Determine necessary changes to existing guidance regarding the renaming of waypoints in the case of relocation	IFPP
1252	Clarification of the “Path Descriptor “rules for procedure design	IFPP
1262	Depiction of accuracy requirements for en route segments	IFPP
1257	Finalization of turn protection and turn area obstacle assessment	IFPP
1261	GBAS with GP inoperative	IFPP
342	PANS-OPS Procedures connecting PBN with XLS final approach and APV Procedure criteria for PinS route visual segment missed approach Visual procedures utilizing PBN	IFPP