International Civil Aviation Organization

The First Meeting of ICAO Asia/Pacific Performance based Navigation Implementation Coordination Group (PBNICG/1)

Beijing, China, 10-12 March 2015

Agenda Item 5: Implementations of PBN in Terminal Area

Agenda Item 6: Implementations of PBN in Domestic En-route Airspace

UPDATE ON HONG KONG, CHINA PBN IMPLEMENTATION

(Presented by Hong Kong, China)

SUMMARY

This paper provides information on the latest progress of PBN implementation in Hong Kong, China.

1. **INTRODUCTION**

1.1   As per the Resolution A36-23 of the 36th session of the ICAO Assembly, since the submission of Hong Kong, China (Hong Kong, to be used for the rest of the paper) PBN Implementation Plan (the Plan) to ICAO at the PBN/TF/4 in March 2009, Hong Kong has been implementing PBN procedures in a steady and progressive manner.

1.2   The Plan adopts a 3-phase approach: Short Term (2009-2012), Medium Term (2013-2016) and Long Term (beyond 2016). See Appendix 1.

1.3   With full support of and close collaboration with the stakeholders in Hong Kong through the PBN Planning and Implementation Team (PBN PIT) established in 2007 and consisting of local airlines, ANSP, regulators and engineers, Hong Kong has completed all of the Short Term and most of the Medium Term projects as planned.

2. **DISCUSSION**

2.1   **Implementation of PBN in Route Operations**

2.1.1   PBN Routes L642 and M771 within Hong Kong FIR have been designated as RNP 4 since 11 December 2014 with the mandate requirement for all aircraft operating at or above FL290 on PBN Routes L642 and M771 within Hong Kong FIR to be approved for RNP 4.

2.2   **Implementation of PBN in TMA Operations**

2.2.1   Hong Kong RNP 1 SIDs and STARs procedures have been implemented since January 2013.

2.2.2   At the moment, approximately 94% of aircraft movement is RNP1 compliance, CAD is planning to phase out conventional procedure progressively from 2nd half of 2015.

2.3   Implementation of Instrument Approaches

2.3.1   Two more RNP AR APCH procedures to HKIA for the Runway 07 (RWY07L and RWY07R) for designated operator were implemented in February 2015. The new procedures are expected to enhance the accessibility to HKIA RWY07 by providing alternative route to HKIA when weather precludes the use of normal ILS/RNP APCH path.

2.3.2   As of March 2015, there are 2 RNP AR APCH for each RWY at HKIA.

2.4   New Navigation Specification (Nav Spec)

2.4.1   Advanced RNP (ARNP) navigation specification (Nav Spec) was officially introduced to the latest edition ICAO Doc 9613, Performance-based Navigation (PBN) Manual in June 2014 for applicability on 13 November 2014. Hong Kong is studying the application of ARNP in Hong Kong airspace.

2.4.2   By applying RNP 0.3NM with the latest PANSOPS design criteria for ARNP, it should be possible to replace some of the RNP AR APCH implemented in Hong Kong so as to eliminate stringent requirements for RNP AR APCH.

3.   ACTION BY THE MEETING

3.1   The meeting is requested to note the information contained in this paper regarding Hong Kong's achievements in respect of PBN implementation.

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Appendix 1

AIRSPACE	SHORT TERM (2008-2012) - completed	MEDIUM TERM (2013-2016)	Long Term (Beyond 2016)
Approach	✈ Implemented RNP AR APCH Procedure to North RWY in 2010	✈ Implemented 8 RNP AR APCH Procedures, 2 on each RWY. ✈ Feasibility study and planning to conduct GBAS trial for capable aircraft/operators ✈ Consider use of appropriate Nav. Spec., e.g. RNP0.3 , Advanced RNP, within approach airspace	✈ Subject to satisfactory results of the trial, consider GBAS as backup to the ILS ✈ Consider use of other Nav. Spec. that suits the operation in HK. o Consider mandate the Nav. Spec. selected for aircraft operating within approach airspace by 2016+ o Achieve 100% implementation of the Nav. Spec. selected within approach airspace
Terminal (SID/STAR)	✈ issued mandate for RNP1 SIDs/ STARs capability in 2012	✈ Implemented RNP 1 procedures in terminal airspace in 2013	
Enroute	✈ Applied 50NM Longitudinal Separation on RNP10 Routes in 2008 ✈ issued mandate for RNP4 capability on PBN routes within HK en-route airspace in 2014	✈ Implemented RNP 4 application within enroute airspace: Mandated RNP 4 on PBN route L642/ M771 within HK FIR in 2014	✈ Consider mandate better navigation specification in accordance with the ICAO regional roadmap, e.g. RNP2