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International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

CAR/DCA/OPSAN — WP/07
10/01/14

Safety and Air Navigation Directors of the CAR Region Meeting (CAR/DCA/OPSAN)
Mexico City, Mexico, 18 to 19 February 2014

Agenda Item 4: Regional Performance Indicators and Metrics for Implementation of Improvements in Safety and Air Navigation
4.4 CAR Regional Performance-Based Navigation (PBN) Implementation

IMPLEMENTATION OF PERFORMANCE-BASED NAVIGATION (PBN)

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This working paper presents implementation targets related to the CAR Region PBN programme.	
Action:	Suggested action presented in Section 3
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency• Economic Development of Air Transport• Environmental Protection
<i>References:</i>	<ul style="list-style-type: none">• Doc 9750 - <i>Global Air Navigation Plan</i>• Doc 9854 - <i>Global Air Traffic Management Operational Concept</i>• Doc 9859 - <i>Safety Management Manual (SMM)</i>• Doc 9613 - <i>Performance-based Navigation (PBN) Manual, 4th Edition</i>• NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (NAM/CAR RPBANIP)• http://www.icao.int/NACC/Pages/nacc-regionalgroups-aniwg.aspx

1. Introduction

States and Territories agreed on the implementation of operational improvement strategies for Air Navigation Services (ANS), which were reflected as Regional Performance Objectives (RPOs) in the NAM/CAR RPBANIP and approved at the Third Meeting of the North American, Central American and Caribbean Directors of Civil Aviation (NACC/DCA/3). The RPOs maintain a short and medium-term dynamic and systemic implementation approach, identifying ANS operational improvements. Comprehensive PBN implementation requires coordination by a multidisciplinary team to analyze Airspace Organization and Management (AOM) redesign.

2. Analysis

2.1 100% of CAR States and Territories have presented their action plans. As follow up, CAR States have been working on the gradual implementation of a PBN Airspace Concept.

2.2 To achieve implementation of a comprehensive PBN Airspace Concept, States are required to implement Area Navigation (RNAV) 5/2 routes in the continental upper airspace and publish Continuous Descent Operation (CDO) and Continuous Climb Operation (CCO) criteria in terminal areas through Standard Instrument Departures (SIDS) and Standard Instrument Arrivals (STARs) with RNAV/Required Navigation Performance (RNP) navigation specifications. In addition, pursuant to Assembly Resolution A37-11, States are required to publish RNP approach procedures.

2.3 Successful PBN implementation in the CAR Region includes:

- a) RNP 10 and random RNAV routes in the West Atlantic Route System (WATRS) oceanic airspace, the Gulf of Mexico, and Houston and Miami Oceanic FIRs
- b) Random RNAV routes in the Piarco FIR
- c) RNAV 5 routes in the upper continental airspace
- d) 60% of international aerodromes have instrument approach procedures with vertical guidance (APV), Barometric Vertical Navigation (BARO-VNAV and/or Global Navigation Satellite System (GNSS) augmentation) either as primary approach or as support to precision approaches
- e) 60% of international aerodromes have SIDS/STARs with PBN navigation specifications and CDO/CCO criteria
- f) Costa Rica, Honduras, Jamaica, Mexico, Trinidad and Tobago, and COCESNA have provided documentation regarding implementation of new PBN airspace redesign projects
- g) In January 2013, analysis of RNP 10 implemented in the upper airspace of the Gulf of Mexico showed total fuel savings of 712,066 kg. resulting in cost savings of approximately USD 1,491,807 per month.

2.4 In accordance with progress presented previously, and considering that several tasks have been completed, it is proposed to establish new CAR Region metrics for the near term as follows:

- 80% of international aerodromes to have PBN STARs; implemented by December 2016
- 60% of international aerodromes to have PBN SIDs; implemented by December 2016
- 50% of routes to be PBN; implemented by December 2018
- 50% of international aerodromes to have CDO; implemented by December 2016
- 60% of international aerodromes to have CCO; implemented by December 2016

2.5 There is remarkable progress with PBN implementation; however, key requirements to continue the progress include increasing the number of qualified personnel; improving training programmes, and improving PBN operational approval/certification. Therefore, States must review and improve their own PBN implementation targets, programmes, and achievements in coordination with ICAO Regional Office.

3. Suggested Action

3.1 The Meeting is invited to:

- a) take note of information contained in this working paper;
- b) review and approve the PBN implementation targets included in paragraph 2.4; and
- c) recommend other actions considered appropriate for successful PBN implementation in the CAR Region.