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

**Agenda Item 3: NAM and CAR Regional Safety and Air Navigation Priorities**  
**3.1 Regional Air Navigation Objectives and Priorities**

**NAM/CAR AIR NAVIGATION PRIORITIES AND TARGETS**

(Presented by the Secretariat)

<b>EXECUTIVE SUMMARY</b>	
This working paper informs on the NAM/CAR air navigation regional priorities for the next 5-year period and the corresponding targets for monitoring and reporting by all States/territories.	
<b>Action:</b>	The suggested action is presented in Section 3
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"><li>• Safety</li><li>• Air Navigation Capacity and Efficiency</li><li>• Environmental Protection</li></ul>
<i>References:</i>	<ul style="list-style-type: none"><li>• First NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/1), Mexico City, Mexico, 29 July to 1 August 2013</li></ul>

**1. Introduction**

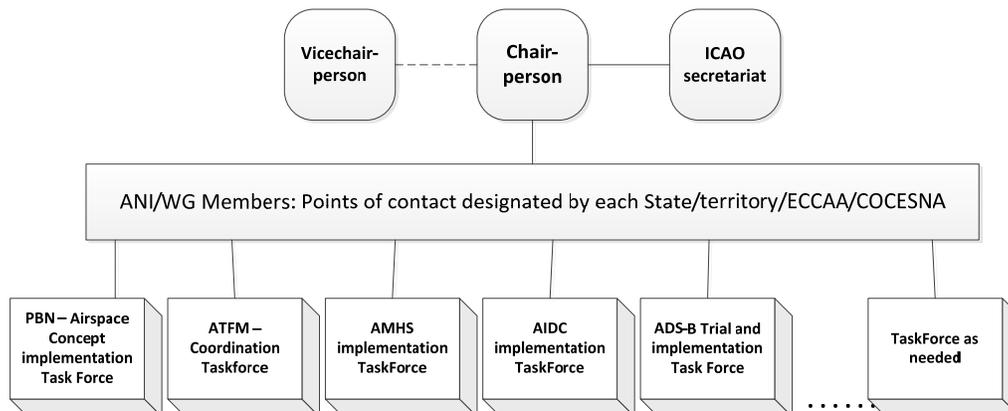
1.1 Since 2008, the CAR Region has adopted the performance-based approach for air navigation planning and implementation as established in the first version of the NAM/CAR Regional Performance Based Air Navigation Implementation Plan (RPBANIP).

1.2 Under the performance-based approach, the RPBANIP includes agreement on performance metrics and indicators for follow-up on and presentation of operational benefits. The different regional implementation groups (Central Caribbean Working Group (C/CAR/WG), Central American Air Navigation Experts Working Group (CA/ANE/WG) and Eastern Caribbean Working Group (E/CAR/WG)) have used the RPBANIP as a reference for implementation of regional air navigation matters. Similarly, the States have developed National Plans in accordance with the RPBANIP.

1.3 Implementation progress and operational benefits have been reported to the Working Groups (WGs) and associated sub-regional director meetings [Meeting of Directors of Civil Aviation of the Central Caribbean (C/CAR/DCA), Meeting of Air Navigation Directors of Central American and Panama (DGAC/CAP) and Meeting of Directors of Civil Aviation of the Eastern Caribbean (E/CAR/DCA)]. During the Third Meeting of the North American, Central American and Caribbean Working Group (NACC/WG/3), metrics and achievements in the safety and efficiency of NAM/CAR Region(s) implementation works obtained as at May 2011 were presented and subsequently presented to the Fourth North American, Central American and Caribbean Directors of Civil Aviation Meeting (NACC/DCA/4).

## 2. Regional Air Navigation Priorities and Targets

2.1 In order to improve the efficiency and effectiveness of the sub-regional working group(s) existing mechanism that supports air navigation implementation, the NACC/DCA/4 formulated Conclusion 4/9 - *Consolidation of Sub-Regional Working Groups in the CAR Region*. In this regard, the NAM/CAR Air Navigation Implementation Working Group (NAM/CAR ANI/WG) was established. The ANI/WG functional structure is as follows:



2.2 With the establishment of the ANI/WG, the RPBANIP was updated to align all Regional Performance Objectives (RPOs) with the ICAO Aviation System Block Upgrade (ASBU) methodology. The RPBANIP establishes the NAM/CAR regional priorities, described as RPOs, to be accomplished from 2013 to 2018, which are aligned with global air navigation priorities, agreed regional performance-based metrics and indicators, and the ICAO ASBU Air Navigation Reporting Forms (ANRFs). RPOs reflect the necessary implementation activities to support air navigation regional priorities. The current RPOs are:

1. Implementation of Performance-Based Navigation (PBN)
2. Implementation of Flexible Use Airspace (FUA)
3. Improve Demand and Capacity Balancing (DCB)
4. Improve Situational Awareness
5. Enhance Capacity and Efficiency of Aerodrome Operations
6. Optimization and Modernization of Communication Infrastructure
7. Implementation of Aeronautical Information Management (AIM)
8. Improve the availability of meteorological information
9. Improve Search and Rescue (SAR) system

2.3 RPOs provide the high-level tasks for implementing the regional priorities, establishing the expected operational benefits, metrics for progress measurement, benefits and achievements. The RPOs may dynamically change depending on the air navigation regional priorities; therefore, these should be coordinated with and made available to all stakeholders within the ATM community in order to achieve timely communication throughout the implementation process.

2.4 Even though the NAM/CAR Regions adopted, in principle, the ASBU 18 B0 modules, only 15 of the modules are described in the RPBANIP with the understanding that the remaining 3 ASBU B0 modules – Airborne Separation (ASEP), Optimum Flight Levels (OFPLs) and Wake Turbulence Separation (WAKE) - shall be included in future reviews of the RPBANIP as required. The RPBANIP adopted the use of the ANRFs. The ANRF is a customized tool for ASBU modules, which is recommended for setting planning targets, monitoring implementation, identifying challenges, measuring implementation/performance, and reporting.

2.5 As agreed at the ANI/WG/01 Meeting, and as reflected in the RBPANIP ANRFs, the targets for implementation monitoring are listed in the **Appendix** to this paper.

2.6 Similarly, as a result of air navigation improvements, an environmental benefit is foreseen. In this regard, an environment target has been defined as:

**Element:** Estimated fuel savings/CO<sub>2</sub> emission reduction based on the ICAO Fuel Savings Estimation Tool (IFSET)

**Target:** Achieve 40,000 tons of regional CO<sub>2</sub> emission reduction per year through en-route PBN implementation

2.7 Regarding performance monitoring, the RPBANIP includes the identification of operational benefits in 5 Key Performance Areas: Access and Equity, Capacity, Efficiency, Environment and Safety.

2.8 Furthermore, the ICAO Regional Dashboard will show that the performance of regional objectives and current metrics are consistent with RPBANIP targets. This new on-line interactive system is scheduled for implementation in March 2014.

### 3. Suggested Actions

3.1 That the Meeting:

- a) take note of the regional priorities and implementation targets for air navigation as developed in the RPBANIP - version 3.0;
- b) promote implementation of the RPOs to achieve the air navigation targets; and
- c) recommend any other action as deemed necessary.

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**APPENDIX**  
**RPBANIP NAM/CAR AIR NAVIGATION TARGETS**

Element	Targets
1. PBN implementation	<ul style="list-style-type: none"> <li>• 80% of international aerodromes to have PBN STARs implemented by Dec.2016</li> <li>• 60% of international aerodromes to have PBN SIDs implemented by Dec.2016</li> <li>• 50% of PBN routes implemented by Dec. 2018</li> </ul>
2. CDO	<ul style="list-style-type: none"> <li>• 50% of international aerodromes to have Continuous Descent Operations (CDOs) implemented by Dec. 2016</li> </ul>
3. CCO	<ul style="list-style-type: none"> <li>• 60% of international aerodromes to have Continuous Climb Operations (CCOs) implemented by Dec. 2016</li> </ul>
4. ATFM	<ul style="list-style-type: none"> <li>• 100% of FIR ACCs to utilize ATFM measures by Dec. 2018</li> </ul>
5. AIM Transition	<ul style="list-style-type: none"> <li>• 85% of States QMS certified by Dec. 2016</li> <li>• 10% of States to have e-TOD implemented by Dec. 2018</li> <li>• 40% of States to have AIXM implemented by Dec. 2018</li> <li>• 45% of States to have e-AIP implemented by Dec. 2018</li> <li>• 35% of States to have digital NOTAM implemented by Dec. 2018</li> </ul>
6. AMHS Implementation Interconnection	<ul style="list-style-type: none"> <li>• 4 States to have Air Traffic Services Message Handling Services (AMHS) interconnected with other AMHS by December 2014</li> </ul>
7. ATS Interfacility Data Communications (AIDC) Exchange	<ul style="list-style-type: none"> <li>• 50% of FIR applicable ACCs to have implemented at least one interface to use AIDC/OLDI with neighbouring ACCs by December 2016</li> </ul>
8. Implementation of ATN infrastructure	<ul style="list-style-type: none"> <li>• 70% of ATN router structure implemented by June 2016</li> <li>• 100% MEVA III IP Network implementation by August 2015</li> </ul>
9. Airspace Planning	100% PBN airspace planning by Dec. 2018
10. Flexible Use Airspace	50% of civil-military segregated airspaces available for civil operations by Dec. 2016
11. AMAN And Time-Based Metering	10% of international aerodromes with AMAN and time-based metering by Dec. 2016
12. Departure Management (DMAN)	10% of international aerodromes with DMAN by Dec. 2016
13. Movement Area Capacity Optimization	20% of international aerodromes with airport ML1 capacity calculated by Dec. 2016
14. ADS-C Over Oceanic and Remote Areas	80% of FIRs to have ADS-C implemented by service providers by Dec. 2016
15. CPDLC	80% of oceanic/remote area FIRs to have CPDLC implemented by service providers by June 2018

Element	Targets
16. APV with Baro VNAV	80% of international aerodromes to have instrument runways with APV with Baro VNAV procedures implemented by service providers and users by Dec. 2016
17. APV with SBAS (WAAS)	20% of international aerodromes to have instrument runways provided with APV with SBAS/WAAS procedures implemented by service providers and users by Dec. 2018
18. APV with GBAS	20% of international aerodromes to have instrument runways provided with APV GBAS procedures implemented by service providers by Dec. 2018
19. LNAV	60% of international aerodromes to have instrument runways with LNAV procedures implemented by service providers and users by Dec. 2016 – as per Assembly Resolution A37-11
20. Surveillance System for Ground Surface Movement (PSR, SSR, ADS B or Multilateration)	30% of international aerodromes to have SMR/SSR Mode S/ADS-B Multilateration for ground surface movement implemented by States/airport operators by June 2018
21. On-board Surveillance Systems (transponder with ADS-B capacity)	20% of aircrafts to have on-board surveillance systems (transponder with ADS B capacity) installed by aircraft operators by June 2018
22. Vehicle Surveillance Systems	20% of vehicles at international aerodromes to have cooperative transponder systems installed by vehicle operators at selected airports by June 2018
23. Visual Aids for Navigation	70% of international aerodromes in compliance with visual aid requirements as per Annex 14 by Dec. 2015
24. Aerodrome Bird/Wildlife Organization and Control Programme	70% of international airports to have an aerodrome bird/wildlife organization and control programme implemented by Dec. 2018
25. Airport – CDM	60% of international aerodromes to have Airport-CDM implemented by Dec. 2018
26. Aerodrome Certification	40% of international aerodromes certified by Dec. 2018
27. Heliport Operations	30% of heliports to have operational approval by Dec.
28. Implementation of ADS-B	30% of selected international aerodromes to have ADS-B implemented by Dec. 2018
29. Implementation of Multilateration	80% of selected international airports to have a multilateration system implemented by June 2018
30. Automation System (presentation)	70% of ACCs to have an automation system implemented by Dec. 2017
31. ACAS II (TCAS Version 7.1)	10% of aircrafts equipped with ACAS II (TCAS Version 7.1) by Dec. 2018
32. Short-term Conflict Alert Implementation (STCA)	80% of ATS units to have ground-based safety nets short term Conflict Alerts (STCA) implemented by Dec. 2014
33. Area Proximity Warning (APW)/ Minimum Safe Altitude Warning (MSAW)	70% of ATS units to have ground-based safety nets (APW/MSAW) implemented by Dec. 2015

Element	Targets
34. Medium-term Conflict Alert (MTCA)	80% of ATS units to have ground-based safety nets (MTCA) implemented by Dec. 2016
35. WAFS	100% of States to have WAFS Internet File Service (WIFS) implemented by Dec.2014
36. IAVW	70% of MWOs to have IAVW procedures implemented by Dec. 2014 - Volcanic Ash Advisory Centre, Washington USA
37. Tropical Cyclone Watch	100% of MWOs to have tropical cyclone watch procedures implemented by Dec. 2014 - Tropical Cyclone Advisory Centre, Miami, USA
38. Aerodrome Warnings	50% of international aerodromes/AMOs to have aerodrome warnings implemented by Dec. 2014
39. Wind Shear Warnings and Alerts	20% of international aerodromes/AMOs to have wind shear warning procedures implemented by MET provider services by Dec. 2015
40. SIGMET	90% of international aerodromes/MWOs to have SIGMET procedures implemented by MET provider services by Dec. 2014