



ICAO

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

WORKING PAPER

ANI/WG/4 — WP/07  
15/08/18

**Fourth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/4)**  
Miami, United States, 21 – 24 August 2018

**Agenda Item 4: Follow-up, Performance Evaluation and Monitoring of the CAR Regional Performance Based Air Navigation Implementation Plan**  
**4.1 Progress Reports of the Task Forces of the ANI WG**

**PBN TASK FORCE PROGRESS REPORT**

(Presented by the ANI/WG PBN Task Force Rapporteur)

**EXECUTIVE SUMMARY**

This working paper presents the progress achieved by the PBN Task Force following the Fifth North American, Central American and Caribbean Working Group Meeting (NACC/WG/5)

<b>Action:</b>	The suggested actions are presented in Section 4
<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>• Final Report of the Third ICAO/IATA/CANSO Performance-Based Navigation (PBN) Harmonization, Modernization and Implementation Meeting for the North American, Caribbean and South American (NAM/CAR/SAM) Regions, ICAO NACC Regional Office, Mexico City, Mexico, 2 to 6 July 2018.</li><li>• Report of sub-project to develop and implement a Performance-Based Navigation (PBN) airspace concept document for the CAR Region, ICAO NACC Regional Office, Mexico City, May 8-11, 2018</li><li>• Final report of Fifth North American, Central American and Caribbean Working Group Meeting (NACC/WG/5) Port of Spain, Trinidad and Tobago, 22 – 26 May 2017</li></ul>

## **1. Introduction**

1.1 During discussions held at the NACC/WG/5 meeting, it was recognized that though there were some improvements to the PBN implementation status of some States, there were also some States which had not made any progress and that in general, the Region as a whole was still not meeting the PBN RPOs outlined in the RPBANIP.

1.2 The NAM/CAR Region is very diverse and complex, not only in terms of the traffic patterns and airspace classifications, but also in terms of the resource capabilities, technological advancement and policies within each State/Territory/Organization. This creates a challenge for a harmonized approach to PBN implementation within the Region. However, based on global objectives for improving safety and efficiency while reducing the negative impact of aviation on the environment, it is vital for the State/Territories/Organizations within the NAM/CAR Region to agree on a harmonized approach to PBN implementation.

## **2. PBN TF Progress and results**

2.1 Reports from the previous PBN Surveys conducted suggest that while the NAM Region has made substantive progress in their PBN implementation plans, there appears to be several roadblocks within the CAR region. There may also be a disconnection between reported implementation and effective implementation. Some States are yet to produce a comprehensive PBN implementation plan and in some cases, those that have submitted a plan, have found difficulty in meeting the objectives of the plan. There are also some States which have not participated in any of the previous surveys conducted by the TF.

2.2 Apart from the previously reported roadblocks such as lack of available training, lack of subject matter expertise, lack of financial and human resources, a major impediment to harmonization is the lack of coordination of PBN initiatives amongst adjacent FIRs/TMAs. Within the CAR Region especially, there are many adjoining FIRs which not only share boundaries with CAR States, but also with States from the NAM and SAM Regions. In 2017, the TF divided the CAR airspace into four (4) subsections, (E/CAR, C/CAR (East), C/CAR (West) and Central America and elected “Champions” to lead the coordination efforts. This was done with the hope that each subsection would find it easier to coordinate amongst themselves and alleviate the inherent issues that present themselves in a larger group.

2.3 In February 2018, the PBN TF Rapporteur requested updates from all members regarding the PBN implementation status from all States/Organizations within.

- RNAV 5 route implementations that have been accomplished following the last PBN Harmonization meeting (December 2016)
- Any statistics regarding fuel savings based on RNAV 5 implementation
- Any updates to PBN approaches, SIDs or STARs that have taken place since JAN 01, 2017 to date
- Any Issues States or ANSPs are still having with PBN approach design/implementation

- Any issues regarding the coordination of the RNAV 5 routes within the NAM/CAR Region
- Issues/Updates relating to reduction of longitudinal separation to 40NM GNSS

2.4 Reports were received from the Champions from the E/CAR and Central American subsections.

2.5 In April 2018, the PBN TF Rapporteur again requested status updates from all members regarding their individual PBN plans. Responses were received from Canada, Central America, Jamaica, Dominican Republic, Trinidad and Tobago (including reports from some E/CAR States) and the United States.

2.6 The reports that were received still showed that within the CAR Region, there were many coordination issues amongst adjacent FIRs and in some cases between the FIR and TMAs within. Additionally, the lack of harmonization continues to be a major issue. Some States were prepared to implement certain concepts, but there were some States which were not prepared. For example, if two FIRs are ready to implement an RNAV 5 route between city pairs, but the FIR in the middle is not capable, the route cannot be implemented.

2.7 Following several discussions between the ICAO NACC Regional Officer (ATM/SAR) and the PBN TF Rapporteur, it was decided that under the ICAO Regional Technical Cooperation Project (RLA/09/801), a project team would meet to develop a PBN Airspace Concept Document for the CAR Region. The objectives of the project were:

- To provide the minimum requirements that each State or International Organization should consider in developing their individual PBN implementation plan.
- To provide an analysis of PBN implementation within the region.
- To document reported challenges.
- To provide recommendations to assist those States/Organizations which are currently encountering difficulty in meeting PBN implementation objectives.

2.8 It was decided that since the objectives were very broad, the project would be would require a three (3) -phased process:

- Phase 1 – Concept Development
- Phase 2 – Data collection and analysis
- Phase 3 – Assessment and development of individual plans

2.9 During the first phase (Concept Development), five (5) SMEs from across the CAR Region met at the ICAO NACC Office in Mexico City, 8 – 11 May, 2018, to identify the following minimum requirements that the Region would require each State/Organization to meet:

*Upper Space*

- Implementation of RNAV 5 routes as agreed to in the Regional ANP
- Removal of conventional routes made redundant by PBN route implementation
- Implementation of RNAV 1/2 STAR/SIDs (CCOs and CDOs) to TMAs within the FIR
- Implementation of 20 NM longitudinal separation at FIR Boundaries (WHERE APPLICABLE)
- All waypoints corresponding to routes from the regional air navigation plan, published by the States in their AIP, are identical to the coordinates stored in the ICARD database.
- For oceanic airspace, use of 50 NM lateral separation.
- For oceanic airspace, use of 30 NM longitudinal and lateral separation (Where applicable)

*Lower Airspace*

- Implementation of RNAV 1/2 STAR/SIDs (CCOs and CDOs) to TMAs within the FIR
- Implementation of at least LNAV approaches for International Airports
- LNAV/VNAV (BARO VNAV) Approaches if analysis determines a benefit
- Implementation of RNP AR Approaches if analysis determines a benefit
- Implementation of APV (GBAS) Approaches if analysis determines a benefit

2.10 The project team also developed a new survey form to be promulgated to all States/Territories and Organizations within the CAR Region. This would be part of phase 2. The PBN TF would analyse the survey results and prepare a portfolio on each State/Territory/Organization. During phase 3, the PBN TF would work with those States/Territories/Organizations identified as having critical PBN implementation issues, to develop individual plans.

2.11 The Third ICAO/IATA/CANSO Performance-Based Navigation (PBN) Harmonization, Modernization and Implementation Meeting for the North American, Caribbean and South American (NAM/CAR/SAM) Regions was held at the ICAO NACC Regional Office, Mexico City, Mexico, 2 to 6 July 2018. This meeting had previously been rescheduled on two (2) prior occasions. First due to the unfortunate incident of the earthquake in Mexico City in September 2017 and then due to a logistical issue in April 2018.

2.12 The meeting was very productive in that the pitfalls encountered during the last Proposal for Amendment of routes were analysed and steps were taken to ensure that similar mistakes were not repeated. One of the additional steps added to the process was the requirement for each FIR/TMA representative involved in a route agreement, to verify the proposal with their signatures. It is hoped that this would alleviate the problem of States agreeing to route proposals that they were not ready and capable of implementing. During the meeting, there were thirty-four (34) agreements reached for either new, realignment or extension of RNAV 5 routes. The meeting also clearly outlined all of the steps required for the amendments to be approved and added to the Regional ANP. An implementation date of January 31, 2018 was agreed to by all for the implementation of these proposals.

2.13 During the meeting, there was a meeting between the ICAO NACC ATM/SAR RO, CANSO, IATA and the PBN TF Rapporteur to discuss the TORs of the PBN TF. It was agreed by all that there was a need for a change, both in the way the TF operated and also the composition of TF members. It was decided that this would be discussed at the ANI/WG4 meeting and that the TORs would be adjusted thereafter. It was also agreed that an ad hoc group be formed during the ANI/WG4 to analyse the PBN RPOs contained within the RPBANIP and to provide any required changes to the meeting.

### **3. PBN TF Recommendations**

- States/Territories/Organizations should participate in the ICAO CAR Region PBN Survey and provide accurate, up to date information which would then allow the PBN TF to provide a proper analysis on their PBN implementation status.
- States/Territories/Organizations should ensure the follow-up activities required for the implementation of PBN initiatives they have agreed to.
- States/Territories/Organizations should continue to participate in the regional project to harmonize both the upper and lower level airspace routings within the NAM/CAR/SAM Region.
- The TORs for the PBN TF should be amended to improve its effectiveness.

### **4. Suggested Actions**

4.1 The Meeting is invited to:

- a) Evaluate the progress of the PBN TF;
- b) Review and support the PBN TF recommendations indicated in Section 3; and
- c) Propose any other actions as deemed necessary