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North American, Central American and Caribbean Office

WORKING PAPER

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**Sixth North American, Central American and Caribbean Working Group Meeting (NACC/WG/6)**

On-line, 25 to 27 August 2021, 09:00 to 13:00 (UTC-5)

- Agenda Item 2: Follow-up on Valid Conclusions and Previous Agreements of the NACC/WG, GREPECAS, NACC/DCA and Other Related Meetings**
- 2.3 Follow-up to GREPECAS improvements and AN Projects (AIM, ATM, AGA, CNS, MET and SAR)**

**PRELIMINARY PROGRESS REPORT BY THE PBN TASK FORCE**

(Presented by the PBN Task Force Rapporteur)

<b>EXECUTIVE SUMMARY</b>	
This working paper presents the progress achieved by the Performance-Based Navigation Implementation Task Force (PBN/TF) following the Fifth NAM/CAR Air Navigation Implementation Working Group (ANI/WG/5) Meeting.	
<b>Action:</b>	Suggested actions are described 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>• Report of Fifth NAM/CAR Air Navigation Implementation Working Group Meeting ANI/WG/5, Mexico City, Mexico, 27 – 31 May 2019.</li><li>• Report of Optimization of the CAR Region Airspace Meeting NAM/CAR Air Navigation Implementation Working Group (ANI/WG) Performance-Based Navigation (PBN) Airspace Concept Task Force (ANI/WG/PBN/TF/OPT), Online 20 – 23 October 2020.</li><li>• Draft Report of Second NAM/CAR Air Navigation Implementation Working Group (ANI/WG) Performance-Based Navigation (PBN) Implementation Task Force Meeting ANI/WG/PBN/TF/02, Online, 10 - 12 August 2021.</li></ul>

## 1. Introduction

1.1 The activities of the PBN/TF continue to be adversely impacted by the effects of the COVID 19 pandemic as many organizations are still faced with issues of staffing unavailability and financial constraints. Despite the challenges however, the region was able to realize the goal of successfully implementing the 25 proposals included in the 2021 Version of Proposal for Amendment (PfA) NACC 21/03 – ATM.

1.2 Whilst the pandemic has had many negative effects on the aviation industry, one opportunity that presented itself was the capacity, (through reduced flight demand and the resultant decrease in Air Traffic Control Officers (ATCO) workload and complexity), of some Air Navigation Service Providers (ANSPs) to allow operators to fly more optimized flight paths. Preliminary reports indicate that, though there are some technological and procedural issues to be addressed, the benefits gained by the operations are significant and warrant further testing.

1.3 The diversity of the NAM/CAR Region continues to be the major challenge in realizing the goal of a harmonized approach to Performance-Based Navigation (PBN) implementation. The technology, human resource capabilities and traffic patterns vary distinctively in some areas, making a “one size fits all” approach virtually impossible. During the ANI/WG/5, there was a discussion on the need to review the needs of the region from an “Airspace Optimization” standpoint as opposed to only defining specific PBN parameters for implementation. In this regard, efforts may be focussed on critical areas that would bring measurable benefits to stakeholders as opposed to statistics on the “number of implementations”.

## 2. PBN/TF Progress and Results

2.1 The process established for the development, agreement and implementation of route proposals (**Appendix** – Figure 1 – Current PfA Process) was followed for PFA NACC 21/03, however, due to the postponement of PBN/TF/2, and the challenges posed by the pandemic, an alternative method of coordination had to be utilized. Online CDM meetings were set up with each of the Flight Information Regions (FIRs) of the CAR Region and the SAM Regional Office and the final agreements were reached at the ANI/WG/PBN/TF/OPT Meeting, held online from 20 – 23 October 2020.

2.2 Due to the inability of some States (within NAM/CAR and SAM) to agree on one publication date and one implementation date, the roll out of PfA NACC 21/03 involved two separate sets of publication and implementation dates. This caused an increased amount of work for States/ANSPs aeronautical information systems, and double training and Air Traffic Control (ATC) simulations for ATC personnel. This could present a safety concern in that ATC and Pilots had to adjust to two sets of changing routes and waypoints in a very short space of time. It also required two sets of changes to Air Traffic Management (ATM) system databases and parameters as well as Aircraft Flight Management Systems in close succession. It is imperative that the NAM/CAR and SAM Regions agree on one publication date and one implementation date for future proposals involving routes that span across multiple FIRS from both regions.

2.3 During the recently concluded ANI/WG/PBN/TF/02 meeting, the following dates were agreed to:

- Schedule the third PBN/TF Meeting (ANI/WG/PBN/TF/03) for March 2022.
- In order to allow an adequate consensus and preparation for Implementation, amend the current agreement and publication process to allow a minimum of 8 months for implementation after the final agreement is reached. (See Appendix Fig-2 – Revised PFA Process).
- Target date for final agreements is 31 August 2022
- Target dates for publication/implementation are 23 February 2023-20 April 2023 (These dates were forwarded to the SAM Office for their information).

2.4 It should be emphasized that internal coordination amongst all stakeholders should take place within each State/Organization on all proposals relevant to that State/Organization, prior to the final agreement date. Additionally, once an agreement is reached, States/Organizations should make every effort to comply with it.

2.5 Based on coordination and assistance provided by adjacent Flight information regions (FIRs), there was successful implementation of the 40NM longitudinal separation based on Global navigation satellite system (GNSS) in the Port-Au-Prince FIR.

2.6 One of the most challenging tasks within the PBN/TF Work Programme is the development of an overarching Airspace Concept for the CAR Region, which caters for the varying needs of the States/Organizations and the stakeholders that operate within. Previous work of the TF delivered a model structure for en-route (both continental and remote) and terminal control areas that allows for the harmonized flow of traffic in both upper and lower airspace of contiguous FIRs and Terminal Control Areas (TMAs). The subsequent analysis of each FIR and TMA within the region (phase 2) posed great challenges to the TF based on the sheer volume of the workload. Through ICAO State Letter E.OSG - NACC86396, it was revealed that a specialized team of Subject Matter Experts (SME) will be formulated and tasked with this project under the leadership of Mr. Ernie Snyder, Regional Officer, Air Traffic Management and Search and Rescue. During the recently concluded ANI/WG/PBN/TF/02 meeting, the objectives, strategy and plan for this project were presented. It consists of a two-tier process: first, the long-term (2-3 years) process of the redesign, secondly, a series of short-term fixes that can be measured and celebrated. The purpose of this is to keep enthusiasm and energy surrounding the redesign up, a timeline for the project was shared. The PBN/TF is supportive of the initiative and is ready and willing to lend assistance to this project.

2.7 The ICAO NACC and SAM Offices are working on a project to formulate Volume III of the CAR/SAM ANP, with the objective of ensuring the application of the performance-based approach in the planning processes for the implementation of interoperable air navigation systems and facilities and their modernization. The Volumes I and II of the CAR/SAM ANP will be reviewed and the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) and SAM Performance-Based Air Navigation Plan (SAMPBIP) Regional Plans will be integrated into the CAR/SAM ANP Volume III, to have a regional planning Instrument that harmonizes the plans. The PBN/TF will assist in the development of a performance framework for airspace optimization and management. During the ANI/WG/PBN/TF/02 meeting, the TF discussed several possible options to provide inputs to this project. States/Territories and ANSPs representatives were asked to provide the ICAO NACC Office with information regarding their current methodology to assess airspace performance and rationale to support optimization initiatives.

2.8 The harmonization of CAR Region Upper Airspace Lower Limit continues to generate discussion amongst the States/Organizations within. During the ANI/WG/PBN/TF/02 meeting it was noted that the SAM Region harmonized its upper airspace lower limit at FL245 and that four FIRs in the CAR Region have also adopted this same lower limit while the remaining nine FIRs have different levels. Questions were raised as to whether the rationale used for the application of F245 by the SAM Region was applicable in the CAR Region based on the fact that the majority of the FIRs were not challenged with the mountainous conditions faced by the SAM Region. It was decided that the PBN/TF will continue to analyse this issue and the representatives of the States and ANSPs of the CAR Region were invited to present their comments regarding this matter, as well as to raise operational and safety benefits in this regard.

2.9 During the ANI/WG/5 meeting there was the suggestion that the PBN/TF should broaden its Terms of Reference (ToRs) to include all elements associated with Airspace Optimization. This has been discussed at the last two TF meetings and there is general consensus amongst the representatives that this is a step in the right direction. There was concern raised that the implementation of PBN was still a high priority of ICAO and that changing the name and the TORs of the TF may give the perception of a shift away from the relevance and inherent benefits of PBN implementation in the Region. However, the PBN concept should be looked at as one of the enablers of improved Airspace Optimization and there are benefits that may be achieved outside of PBN route implementation. An example of this is the successful reduction of longitudinal separation through the CARSAM region based on GNSS. During the ANI/WG/PBN/TF/02, an Ad hoc group was created to support the Rapporteur with the task of developing a proposal to transition the current PBN/TF Terms of Reference to:

- Adjust the current name
- Ensure that the importance and benefits of PBN implementation are retained.

The Ad hoc group is comprised of the PBN Rapporteur, representatives from Bahamas, Curaçao, COCESNA, and is supported by the Secretariat. The amended terms of reference will be provided as a discussion paper during the ANI/WG/6.

2.10 Following consultation with the ICAO NACC ATM/SAR RO and discussion at the ANI/WG/PBN/TF/02, regarding the integration of the RPBANIP and SAMPBIP regional plans into the CAR/SAM Air Navigation Plan (ANP) Volume III, it was decided that some of the tasks in the current work programme of the TF should be temporarily postponed pending completion of the exercise. This will give the TF the time to assist the ATM/SAR RO with the activities associated with 2.7 and 2.8 of this report. Additionally, once the performance objectives for the region are clearly outlined in the CAR/SAM ANP Volume III, the TF can amend its work programme accordingly.

2.11 Decision ANI/WG/5/11 required states to integrate, in their working plans, activities to assess the possibility and requirements for the Free Route Airspace (FRA) implementation in the NAM/CAR Regions. The negative impact of the pandemic on the airspace demand within the region provided an opportunity for some organizations to provide operators with user preferred routes in some segments of their flights. During discussions at the ANI/WG/PBN/TF/02, some of the challenges identified were:

- Possible issues with flight plans being rejected by some ATM systems that were unable to calculate points of entry and exit for flight plans that did not specify a waypoint on the FIR boundary or within the Area of Interest.
- Possible AIDC issues based on flight paths that were not utilizing named coordination points.
- Medium Term Conflict Detection (MTCD) issues based on the inability of the ATM system to generate the correct flight plan track.

It was suggested that the technology to resolve these concerns is available and may require discussion between ANSPs and their system vendors. Additionally, establishing procedures for ATCOs on amending Current Flight Plans(CPLs) could alleviate some of the issues with the MTCD.

2.12 The PBN/TF continues to urge States/Organizations that have the subject matter expertise, to assist those (as far as practicable) States that may not have the human resource capability. An example of such type of collaboration is presented in an information paper presented by Trinidad and Tobago on the CDM process within the Eastern Caribbean.

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

- States/Territories/Organizations to take note of the process for the next set of PFAs and the dates specified in 2.3 of this report.
- States/Territories/Organizations to ensure the follow-up activities required for the implementation of PBN initiatives they have agreed to.
- States/Territories/Organizations to provide the TF with information regarding their current methodology to assess airspace performance and rationale to support optimization initiatives.

- States/Territories/Organizations to provide the TF with their comments regarding the harmonization of the Upper Level Lower Limit within the CAR Region, as well as to raise operational and safety benefits in this regard.
- States/Territories/Organizations in conjunction with the TF, ALTA and IATA, continue to test and document the benefits/challenges associated with issuing user preferred routes within the Region.
- The ANI/WG to support the PBN/TF's decision to transition its name to the Airspace Optimization TF, and to approve the resultant amendments to the terms of reference.
- The ANI/WG to support the TF decision to temporarily suspend some elements of its current work programme pending the its transition to the new terms of reference and the completion of the performance objectives of CAR/SAM ANP Volume III.

**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.

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APPENDIX

Figure 1.0 - Current Process for Proposal for Amendment of ATS Routes within CAR Region

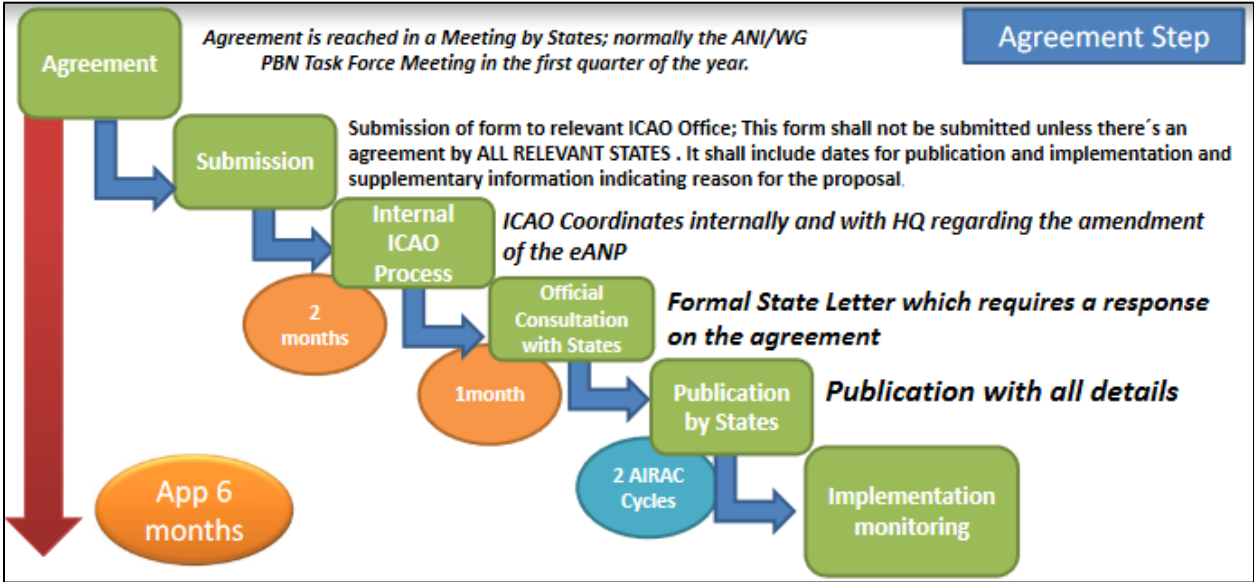


Figure 2.0 - New Process for Proposal for Amendments of ATS Routes within CAR Region

