



ICAO

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

**Second NAM/CAR Air Navigation Implementation
Working Group (ANI/WG) Performance-Based
Navigation (PBN) Implementation Task Force
Meeting**

ANI/WG/PBN/TF/02

Final Report

On line, 10 to 12 August 2021

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HISTORICAL

ii.1 Place and Date of the Meeting

The Second NAM/CAR Air Navigation Implementation Working Group (ANI/WG) Performance-Based Navigation (PBN) Implementation Task Force Meeting (ANI/WG/PBN/TF/02) was held on line, from 10 to 12 August 2021.

ii.2 Opening Ceremony

Mr. Riaaz Mohammed (TTO), PBN/TF Rapporteur provided opening remarks, welcomed the participants and officially opened the meeting.

ii.3 Officers of the Meeting

The ANI/WG/PBN/TF/02 Meeting was held with the participation of Mr. Riaaz Mohammed (TTO), PBN/TF Rapporteur, Mr. Mohammed chaired the meeting plenary. Mr. Eddian Méndez, Regional Officer, Air Traffic Management served as Secretary of the Meeting, assisted by Mr. Ernie Snyder, Regional Officer, Air Traffic Management, both from the ICAO NACC Regional Office.

ii.4 Working Languages

The working languages of the Meeting were English and Spanish. The working papers, information papers and draft report of the meeting were available to participants in both languages.

ii.5 Schedule and Working Arrangements

It was agreed that the working hours for the sessions of the meeting would be from 08:00 to 11:00 hours daily with adequate breaks.

ii.6 Agenda

PROVISIONAL AGENDA

- Agenda Item 1: Adoption of the Provisional Agenda and Schedule**
- Agenda Item 2: Review of the 2021 Version of Proposal for Amendment (PfA) NACC 21/03 – ATM**
- Agenda Item 3: CAR Region Airspace Enhanced Redesign Project**
- Agenda Item 4: Regional Implementation Metrics and Key Performance Indicators (KPIs)**
- Agenda Item 5: Optimized Air Traffic Services (ATS) Route Options**
- Agenda Item 6: Harmonization of CAR Region Upper Airspace Lower Limit**
- Agenda Item 7: Task Force Report to the ANI/WG**
- Agenda Item 8: Other Business**

ii.7 Attendance

The Meeting was attended by 14 States/Territories from the NAM/CAR Regions, 2 International Organizations, and totalling 60 delegates as indicated in the list of participants.

ii.8 List of Conclusions

Number	Title	Page
PBN/TF/02/1	IMPROVEMENT OF THE AGREEMENT AND PUBLICATION PROCESS AND PREPARATION FOR PROPOSAL FOR AMENDMENT(PfA) 2023	2-2
PBN/TF/02/2	TASK FORCE SUPPORT FOR THE FORMULATION OF THE CAR/SAM ANP VOL. III	4-1

ii.9 List of Working and Information Papers and Presentations

Refer to the Meeting web page:

<https://www.icao.int/NACC/Pages/meetings-2021-pbntf2.aspx>

LIST OF WORKING, INFORMATION PAPERS AND PRESENTATIONS

(Presented by the Secretariat)

WORKING PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
WP/01	1	Provisional Agenda and Schedule	21/07/21	Secretariat

INFORMATION PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
IP/01		List of Working, Information Papers and Presentations	21/07/21	Secretariat
IP/02	2	Experience of the Havana FIR with the PfA NACC 21/03 Implementation	21/07/21	Cuba

PRESENTATIONS

Number	Agenda Item	Title	Presented by
1	2	Review of the 2021 Version of Proposal for Amendment (PfA) NACC 21/03 – ATM	Secretariat
2	4	Alignment of the CAR/SAM Regional Air Navigation Plan and the 6th version of the GANP CAR/SAM eANP Vol. III	Secretariat
3	6	Update for the CAR/SAM Regions Upper and Lower Level Limit	Secretariat
4	2	Experience of the Havana FIR with the PfA NACC 21/03 Implementation	Cuba

PRESENTATIONS			
Number	Agenda Item	Title	Presented by
5	3	ATM Metrics & CAR Airspace	Secretariat
6	8	Florida Metroplex Status: SID/STAR/SIAP Changes for August 12, 2021	United States

LIST OF PARTICIPANTS

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1. Willem Vrolijk
2. Linsey Dijkhoff

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5. Twana Lockhart

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7. Andrés Rodríguez
8. Fernando Naranjo

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12. Adriana Tenorio
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Agenda Item 1 Adoption of the Provisional Agenda and Schedule

1.1 The Secretariat presented WP/01 Rev. and invited the Meeting to approve the Provisional Agenda and Schedule. The Meeting approved the Agenda and Schedule as presented.

Agenda Item 2 Review of the 2021 Version of Proposal for Amendment (PfA) NACC 21/03 – ATM

2.1 Under this Agenda Item, the Secretariat presented P/01 with the Review of the 2021 Version of Proposal for Amendment (PfA) NACC 21/03 – ATM.

2.2 The PFA NACC 21/03 – ATM followed the approved process by the implementation Performance Based Navigation Task Force (PBN/TF). Due to the postponement of the ANI/WG/PBN/TF/2 meeting, initially proposed to be held from 13 to 17 April 2020 the process could not be followed as established and the PBN/TF had to do alternative coordination in order to make progress with the proposal for optimization of the CAR Region Airspace Air Traffic Services (ATS) routes network.

2.3 After a consultation process that included coordination teleconference with each of the CAR Flight information Regions (FIRs) and the SAM Regional Office, the final agreements were reached at the ANI/WG/PBN/TF/OPT Meeting, held online from 20 to 23 October 2020.

2.4 Despite the challenges faced by States/Air Navigation Service Providers (ANSPs) under the current circumstances, implementation was carried out as planned. The Task Force (TF) and ICAO supporting this process have gained significant experience on how to enhance the process and move along in a suitable manner for all stakeholders.

2.5 For future initiatives, the Meeting considered that the CAR Region must do everything possible to avoid publication and implementation on more than one date, since 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 can represent a safety problem, because the ATC had to adjust, in a very short time, to get to know two airspace structures and work scenarios, with points that changed their names, others disappeared, others emerged new, modified route trajectories and others totally new.

2.6 Additionally, the TF considered important to take into account the time required to pass the data to the aeronautical information and charts service providers, since air operators rely on these service providers to update their charts and on-board Flight Management System (FMS) databases.

2.7 Some participants expressed concerns about the practice of operators to rely solely on the updates that providers of navigation charts and FMS databases supply them, without consulting the information that each State has published, in which not only the changes to the route structure, Standard Instrument Departure (SID), Standard Instrumental Arrival (STAR), etc. are reflected, but also implementation dates are established along with additional operational requirements.

2.8 Despite the fact that Aeronautical Information Circulars (AIC) are published with required time in advance to provide information regarding changes and detailed operational requirements, at the time of implementation some operators seem to be unaware of these changes, causing air traffic control extra work to provide additional instructions to flight crews.

2.9 The Meeting recognized the advantages offered by service providers of navigation charts and FMS databases, nevertheless encouraged operators to verify and consult the official information published by the States in their Aeronautical Information Publication (AIP) when planning their operations.

2.10 An additional concern that was raised at the meeting is the recurrent practice of not equipped operators that want to file new Area Navigation (RNAV) trajectories by flying direct point-to-point paths rather than along the established RNAV route. They do this because they are not RNAV 5 certified but wish to utilize the more direct tracks provided by the new RNAV5 routes. They are capable of navigating from point to point based on their Global Positioning System (GPS) capability, however, this does not meet the requirements (in terms of integrity, accuracy and availability) to ensure the safety standards are met. If these aircrafts are allowed to perform these operations while there are other RNAV 5 equipped operators also operating in that sector, the separation minima established for parallel RNAV routes may not be applicable and the benefits of RNAV 5 implementation will not be carried out.

2.11 In preparation for the next ATS routes optimization project, the Meeting agreed on the following Decision:

<p>DECISION PBN/TF/02/01</p>		<p style="text-align: center;">IMPROVEMENT OF THE AGREEMENT AND PUBLICATION PROCESS AND PREPARATION FOR PROPOSAL FOR AMENDMENT (PfA) 2023</p>	
<p>What:</p> <p>That the PBN/TF, In order to allow an adequate consensus and preparation for implementation of improvements to the CAR Region ATS network,</p> <p>a) amend the current agreement and publication process to allow a minimum of 8 months for implementation after the final agreement is reached (target dates for publication/implementation are 23 February 2023-20 April 2023); and</p> <p>b) schedule the third PBN/TF Meeting (ANI/WG/PBN/TF/03) for March 2022; and</p>		<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input checked="" type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Operational/Technical</p>	

Why: To enhance the planning and implementation process of new optimization proposals of improvements to the CAR Region ATS Routes Network	
When: March 2022, April 2023	Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed
Who: <input type="checkbox"/> States <input type="checkbox"/> ICAO <input checked="" type="checkbox"/> Other:	PBN/TF

2.12 Under IP/02, Cuba presented the Experience of the Havana FIR with the PfA NACC 21/03 Implementation, complementing with P/04, to summarize the results obtained in the Havana FIR from the implementation of the modifications in the route structure corresponding to the PFA-3 and the impact on the efficiency of air operations.

2.13 The ANSP in the Havana FIR, Cuban Air Navigation Company (ECNA), jointly with the Cuban Institute of Civil Aviation (IACC), created a working group, including Air Traffic Management (ATM), Procedures for air navigation services - Aircraft Operations (PANS-OPS) and Aeronautical Information Management (AIM) managers and specialists, which discussed a number of proposals for modifications of the route network in the Havana FIR, aiming to increase safety and efficiency of air operations.

2.14 During the analysis of the Havana FIR, the traffic flows and city pairs that registered the highest number of air operations were identified. Various traffic flows that could be optimized by creating new routes that would reduce flight distances were detected, as well as offering new options for flight planning in the event of meteorological, operational or other factors that may affect operations.

2.15 The routes implemented have reported significant savings in flown miles, fuel and carbon emissions, with a very positive feedback from air operators.

2.16 The Meeting recognized that the new routes structure did not only consider north/south routes but also included east/west routes. The new routes structure also contributed to an historical event in Air Navigation Services (ANS), the first time traffic was transferred between Houston Centre and the Havana Area Control Centre (ACC).

Agenda Item 3 CAR Region Airspace Enhanced Redesign Project

3.1 Under Agenda P/05, the importance and use of metrics in the business world was shown. A real world example, where metrics were used to show in equitability between arrival and departure delays and this discovery led to over 16 hours of timesaving , aviation metrics in Latin America and the Caribbean were presented as well.

3.2 The year over year passenger growth from 2001-2019 was shown to be a 5.1% average. The presentation shows some metrics addressing the impact of the COVID-19 pandemic and the recovery and expected growth in the region, and the pandemics effect on the aviation industry as well as the expected growth to the need for airspace redesign is evident.

3.3 Regarding the CAR Airspace Redesign, the objectives, strategy and plan were presented through P/05. 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 is to keep the enthusiasm and energy surrounding the redesign up and a timeline for the project was shared.

3.4 A couple of snapshots of the Caribbean traffic were shared, followed by some examples of how metrics can be used to show success. Flights from ATL to MDPC average 3.7 flights a day so a 1.5 minutes savings equates to 33.7 hours a year or 11.6 flights. These savings are financial as well as environmental.

3.5 The questions posed were aimed at determining the metrics that would be used prior to implementation of the redesign as well as restricted airspace limiting potential success. The Meeting also confirmed that everything will be considered without leaving anything on the table, in order to succeed.

Agenda Item 4 Regional Implementation Metrics and Key Performance Indicators (KPIs)

4.1 Under P/02, the Secretariat gave a presentation to provide information on the CAR/SAM Regional Air Navigation Plan (ANP) alignment with the 6th version of the *Global Air Navigation Plan (GANP)* project and the development of the CAR/SAM electronic Air Navigation Plan (eANP) Vol. III.

4.2 The ICAO NACC and SAM Regional Offices are working in a project to formulate CAR/SAM ANP Vol. III, guaranteeing 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 CAR/SAM Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) and SAM Air Navigation Plan based on Performance (SAMPBIP) will be integrated into the CAR/SAM ANP Volume III, to have a regional planning instrument that harmonizes the plans.

4.3 In order to provide an adequate support for this project, the involvement of the PBN/TF is expected. One of the main contributions from the PBN/TF should come from the development of a performance framework for airspace optimization and management. The Meeting discussed several possible alternatives to provide inputs to this project. The Meeting encouraged States/Territories and ANSPs representatives to provide the ICAO NACC Regional Office with information regarding their current methodology to assess airspace performance and rationale to support optimization initiatives and the following draft conclusion was formulated:

DRAFT CONCLUSION	
PBN/TF/02/02	TASK FORCE SUPPORT FOR THE FORMULATION OF THE CAR/SAM ANP VOL. III
<p>What:</p> <p>That, to support the tasks related to the update of the CAR/SAM ANP and the formulation of its Vol. III,</p> <p>a) States/Territories and ANSPs provide the ICAO NACC Regional Office with information regarding their current methodology to assess airspace performance and rationale to support optimization initiatives by March 2022; and</p> <p>b) the PBN Task Force postpone its work programme and activities to support the work related to the development formulation of the CAR/SAM ANP Vol. III</p>	<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Operational/Technical</p>

Why: To ensure adequate formulation of an ANS performance framework for airspace improvement in the CAR/SAM Regions	
When: PBN/TF/03, March 2022	Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed
Who: <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO <input checked="" type="checkbox"/> Other:	PBN TF

Agenda Item 5 Optimized Air Traffic Services (ATS) Route Options

5.1 No documentation was presented under this Agenda Item.

Agenda Item 6 Harmonization of CAR Region Upper Airspace Lower Limit

6.1 Under this Agenda Item, ICAO presented P/03 to provide a follow up and update regarding the analysis made for the CAR/SAM Regions Airspace Upper and Lower Level Limits. At the ANI/WG/PBN/TF/OPT Meeting, held online from 20 to 23 October 2020, an analysis was presented regarding the difference of the lower limits of the upper airspace among FIRs in the CAR Region.

6.2 Subsequently, due to the works to review and update the CAR/SAM eANP it was identified a previous agreement (199 CAR/SAM Regional Air Navigation Meeting) regarding the plane of division between the lower and upper airspace in the CAR and SAM Regions. It was noted that the SAM Region harmonized its upper airspace lower limit at FL245. States representatives that participated at the Meetings where these agreements were reached provided rationale and background for this harmonization. Four FIRs in the CAR Region harmonized their upper airspace lower limit at FL245; the remaining nine FIRs have different levels (four at FL195).

6.3 The rationale and background for these agreements were discussed and also the current context for operational benefits and possible consequences. The PBN/TF will continue to analyse this issue in order to complete a pending decision on this matter. 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.

Agenda Item 7 Task Force Report to the ANI/WG

7.1 Under this Agenda Item, the Meeting discussed the Task Force report to be presented to the Sixth North American, Central American and Caribbean Working Group (NACC/WG/06) Meeting.

7.2 One of the main topics for discussion was the intention to rename the PBN/TF as Airspace Optimization Task Force. For several years this has been under consideration, since some TF members are of the opinion that the current name does not accurately reflect the whole range of activities and tools used to support airspace optimization in the NAM and CAR Regions.

7.3 Some participants suggested caution with this course of actions, given the fact that PBN is one of the main organizational priorities and changing the current name could be perceived as if this was going to be altered and PBN relevance was going to be lost. An Ad hoc working group was created to support the Rapporteur with this Task, in order to develop a proposal to enhance the current PBN/TF Terms of Reference (ToRs) to adjust the current name and maintain the PBN implementation permanence. The Ad-hoc group is comprised by representatives from Bahamas, Curacao, COCESNA, PBN Rapporteur and supported by ICAO.

7.4 As there are other airspace optimization elements outside of PBN (reducing longitudinal separation, CANSO/CADENA activities, IATA conceptual FREE Route Airspace, etc), participants recommended that these elements be considered by the Ad hoc Airspace Optimization Group when adjusting scope and TF ToRs.

Agenda Item 8 Other Business

8.1 Under P/06 United States briefed the Meeting on the optimization of the South Florida Airspace System, referred to as Florida Metroplex. The South Florida Metroplex Project developed procedures based on a region, rather than focusing on a single airport or set of procedures. The optimization plan takes into account all airports and airspace that support the South Florida area as well as how air traffic in those areas interact.

8.2 Implementation date for this project was 12 August 2021 and comprised the following:

- Implementation of 93 Instrument Flight Procedures:
 - ✓ 76 procedures will be published and implemented; and
 - ✓ 17 procedures published on April 22, 2021 and NOTAM NA will be implemented
- STARs, SIDs, SIAPs, along with associated airspace changes.

**APPENDIX
EXECUTIVE LIST OF DRAFT CONCLUSIONS/DECISIONS**

Number	Conclusion/Decision	Responsible for action	Deadline
D/01	IMPROVEMENT OF THE AGREEMENT AND PUBLICATION PROCESS AND PREPARATION FOR PROPOSAL FOR AMENDMENT (PfA) 2023		
	That the PBN/TF, in order to allow an adequate consensus and preparation for implementation of improvements to the CAR Region ATS network,		
	a) amend the current agreement and publication process to allow a minimum of 8 months for implementation after the final agreement is reached (target dates for publication/implementation are 23 February 2023-20 April 2023); and	PBN/TF	March 2022, 20 April 2023
	b) schedule the third PBN/TF Meeting (ANI/WG/PBN/TF/03) for March 2022		
C/02	TASK FORCE SUPPORT FOR THE FORMULATION OF THE CAR/SAM ANP VOL. III		
	That, to support the tasks related to the update of the CAR/SAM ANP and the formulation of its Vol. III,		
	a) States/Territories and ANSPs provide the ICAO NACC Regional Office with information regarding their current methodology to assess airspace performance and rationale to support optimization initiatives by March 2022; and	States, ICAO, PBN/TF	PBN/TF/03, March 2022
	b) the PBN Task Force postpone its work programme and activities to support the work related to the development formulation of the CAR/SAM ANP Vol. III		