



ICAO

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

WORKING PAPER

ANI/WG/PBN/TF/OPT — WP/03
15/10/20

**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

Agenda Item 4: Harmonization of the CAR Region Upper and Lower Level Limits

CAR REGION UPPER AND LOWER AIRSPACE LIMITS

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This Working Paper presents the current difference in the vertical limits of upper and lower airspaces for the Flight Information Regions (FIRs) of the CAR Region and proposes further analysis by the ANI/WG PBN Task Force	
Action:	Suggested actions are included in Section 5.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency
<i>References:</i>	<ul style="list-style-type: none">• ICAO Annex 11- Air Traffic Services• CAR/SAM Digital – Air Navigation Plan (e-ANP) Vol. II

1. Introduction

1.1 The CAR/SAM eANP Vol. II PART IV - *AIR TRAFFIC MANAGEMENT (ATM)* complements the provisions in ICAO Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) related to Air Traffic Management (ATM). It contains dynamic plan elements related to the assignment of responsibilities to States for the provision of ATM facilities and services within a specified area in accordance with Article 28 of the Convention on International Civil Aviation (Doc 7300) and mandatory requirements related to ATM facilities and services to be implemented by States in accordance with regional air navigation agreements. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified.

1.2 The Planning and Implementation Regional Groups (PIRG), through regional air navigation agreement, is responsible for the optimization of the traffic flows through the continuous improvement of the regional ATS route network through the set-up of appropriate mechanisms for regional and inter-regional planning and coordination.

1.3 The CAR/SAM eANP Vol. II PART IV also contains the ATS routes agreed through regional air navigation or bi/multi-lateral agreement, as appropriate, detailing the basic ATS route network in the lower and upper airspaces of the Caribbean and South American Regions.

2. Background

2.1 Annex 11 – *Air Traffic Services* establishes the requirements for ATS routes identification. The ATS route designator shall consist of a basic designator supplemented, if necessary, by one prefix to indicate:

- a. a low-level route established for use primarily by helicopters;
- b. that the route or portion thereof is established in the upper airspace;
- c. a route established exclusively for use by supersonic aircraft during acceleration, deceleration and while in supersonic flight.

2.2 The table of ATS routes classification of the CAR/SAM eANP separates routes in the upper and lower airspace, using the Annex 11 criteria.

2.3 While the prefix U “upper” is normally used in communications and aeronautical information processes in general, there’s no clear definition of what the upper airspace refers.

3. Analysis

3.1 In practice, air navigation professionals have a common understanding of what are we referring to as upper airspace; however, the definition and rationale for the establishment of the vertical limits of the upper and lower airspaces have different interpretations.

3.2 The table below shows the different limits established in FIRs across the CAR Region:

CAR REGION FIRs	UPPER AIRSPACE LIMITS		LOWER AIRSPACE LIMITS	
	lower limit	upper limit	lower limit	upper limit
SAN JUAN	18,000 FT (MSL)	600	5,500 FT (MSL)	17,999 (MSL)
PIARCO	245	UNL	MSL	245
CURACAO	195	UNL	2500	195
NASSAU	N/A	N/A	1,500 MSL	12,000 MSL in Nassau TMA; 6,000 MSL everywhere else
CENTRAL AMERICAN	195	UNL	GND	195
NEW YORK OCEANIC WEST	18,000 FT (MSL)	600	5,500 MSL	17,999 MSL
KINGSTON	245	UNL	GND	245
HABANA	245	UNL	MEA	245
SANTO DOMINGO	195	UNL	GND	195
PORT-AU-PRINCE	245	UNL	GND	245
MEXICO	195	UNL	GND	195

CAR REGION FIRs	UPPER AIRSPACE LIMITS		LOWER AIRSPACE LIMITS	
	lower limit	upper limit	lower limit	upper limit
MIAMI OCEANIC	18,000 FT (MSL)	600	<i>12,001 MSL over Nassau TMA; 6,001 MSL everywhere else over Nassau FIR; 2,700 MSL outside of Nassau FIR</i>	17,999 MSL
HOUSTON	280	600	1,200 (MSL)	27,999 MSL
HOUSTON OCEANIC	280	600	1,200 (MSL)	27,999 MSL
MIAMI	18,000 FT (MSL)	600	2,700 (MSL)	17,999 MSL

3.3 Since the regional agreement of ATS routes are carried out for upper and lower ATS routes, we could have an aircraft flying an upper ATS route in one FIR and transitioning to a different lower ATS route in a neighbouring FIR, or no route at all, since some ATS routes are published for the upper airspace only. In addition, we could have a non-equipped aircraft flying a conventional lower ATS route transitioning to an upper Area Navigation (RNAV) route in the neighbouring FIR, for which the aircraft is not approved.

3.4 The previous analysis does not apply entirely to United States, since the Federal Aviation Administration (FAA) does not use the prefix U for their publication of ATS routes.

4. Conclusion

4.1 Airspace harmonization is not an easy task. Some of the established procedures have been in place for many years, and to promote some changes is quite a challenge.

4.2 However, the proper understanding of the operational conditions leads to an enhanced analysis of traffic situation and ultimately to take actions where necessary to adapt the best possible way to improve safety.

4.3 The data presented in this Working Paper gives the opportunity to the ANI/WG PBN Task Force to gather further information to present the best possible options to decision makers.

5. Suggested Actions

5.1 The meeting is invited to:

- a) take note of the information provided in this Working Paper;
- b) ask the ANI/WG PBN Task Force to conduct a more exhaustive analysis of this situation and propose actions, if considered necessary, and present the result of this analysis to the next Task Force Meeting;
- c) suggest any other actions deemed appropriate