



ICAO

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

DISCUSSION PAPER

E/CAR/CATG/4 – DP/01
07/09/18

Fourth Eastern Caribbean Civil Aviation Technical Group (E/CAR/CATG/4) Meeting
Saint George's, Grenada, 6 - 7 September 2018

Agenda Item 3:

Air Navigation Matters

- 3.2 Follow-up on the implementation of the NAM/CAR Regional Performance Based Air Navigation Plan (RPBANIP) and the Port of Spain Declaration Air Navigation Targets in the Eastern Caribbean.**
- 3.2.2 Progress reports of the AIM, AGA, ATM, CNS, MET and SAR Committees**

PROGRESS REPORT OF THE CNS COMMITTEE

(Presented by the CNS Committee Rapporteur)

EXECUTIVE SUMMARY

This Discussion Paper presents an update on the activities carried out by the CNS Committee since the E/CAR/CATG/03 Meeting

Strategic Objectives:

- Safety
- Air Navigation Capacity and Efficiency

References:

- Fourth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/4), Miami, United States, 21 – 24 August 2018
- Fifth North American, Central American and Caribbean Working Group Meeting (NACC/WG/5), Port of Spain, Trinidad and Tobago, 22-26 May 2017;
- Third Eastern Caribbean Civil Aviation Technical Group Meeting (E/CAR/CATG/03), Basseterre, St. Kitts and Nevis, 17 – 18 October 2016

1. Introduction

1.1 The Ad hoc group of the CNS Committee comprising Antigua, Grenada, France, Trinidad and Tobago and ECCAA, met during the meeting of the E/CAR/CATG/04 and reviewed the following documents:

- a) E/CAR/CATG/3 Conclusions related to CNS
- b) ANI/WG/4 Conclusions related to CNS
- c) E/CAR/CATG/04 WP/13, WP/16
- d) Discussions at E/CAR/NTG/8 & E/CAR/RD/6 Meetings

2. Discussion

2.1 Before proceeding to an update on the action items, the Committee reviewed and revised the Terms of Reference as presented in **Appendix A**.

2.2 **Appendix B** to this paper shows the updated Work Programme.

2.3 The following achievements are noted:

ADS-B/MLAT

- a) Barbados:
Barbados updated the meeting on the work done in the areas of ADS-B and Multilateration (MLAT). Since 2014 Barbados embarked on a project to replace its aging MSSR system and provide greater safety and efficiency in its airspace through the use of more modern technologies that would facilitate automation in Management of Air traffic. The system is expected to be fully installed with site acceptance testing scheduled by the end of October 2018.
- b) ECCAA:
In light of the initiative by Trinidad and Tobago to implement ADS-B in the Continental airspace of the Piarco FIR, ECCAA has no plans for separate ADS-B/MLAT.
- c) France
 - France shared that a second MRT DACOTA will be installed in Guadeloupe in 2020. Radar data format will be UDP/IP.
 - In 2019 Guadeloupe will have one ADS-B receiver and one in Martinique installed.
- d) Trinidad and Tobago
Trinidad and Tobago advised that an agreement has been entered into with ICAO TCB for an ADS-B/WAM project in the Eastern Caribbean. It is envisaged that the project will be completed in 2019.
- e) San Juan:
ADS-B is fully implemented.
- f) United States:
The United States shared that in 2010, the Federal Aviation Administration (FAA) published a regulatory requirement for all aircraft operating within certain airspace to be equipped with Automatic Dependent Surveillance – Broadcast (ADS-B) Out technology by January 1, 2020, according to Title 14 of the U.S. Code of Federal Regulations (14 CFR) sections 91.225 and 91.227. This requirement will affect all flights in the designated airspace. To prepare the aviation community and prevent any operational disruptions, the FAA is

promoting the new mandate to the international community so that foreign aircraft intending to operate within the affected airspace will be equipped with the appropriate ADS-B Out system by the compliance date.

3. Suggested Action

3.1 The Meeting is invited to:

- a) take note of the achievements of the CNS Committee;
- b) review and approve the Terms of Reference;
- c) comment on the Work Programme; and
- d) propose any other action or task as deemed necessary.

APPENDIX A

EASTERN CARIBBEAN CIVIL AVIATION TECHNICAL GROUP COMMUNICATION, NAVIGATION AND SURVEILLANCE COMMITTEE (CNS/COMM)

1. Background

(a) The Eastern Caribbean CNS Committee was originally established by the Eastern Caribbean Working Group (E/CAR/WG) which has now been renamed the Eastern Caribbean Civil Aviation Technical Group. The CATG was established in October 2012 by the Directors of Civil Aviation of the Eastern Caribbean at their 24th Meeting (E/CAR/DCA/24) through Conclusion 24/7 - New NAM/CAR Air Navigation Implementation Working Group, item (b) to continue the performance-based work programme for the implementation and improvement in all air navigation fields in the Eastern Caribbean.

(b) The CNS Committee should periodically update the terms of reference, the scope of the tasks of the Committee and the work programme which establishes the list of items to be analyzed in accordance with the scope defined in the terms of reference.

2. Terms of Reference

(a) Review and complete the planning of the CNS systems, in accordance with the CAR/SAM RPBANIP, on the results of the inter-regional planning and co-ordination and on ICAO SARPs and technical guidelines, and user expectations (Aviation System Block Upgrades (ASBU) Block 0 Modules) related with the coordinated implementation and harmonization of CNS/ATM systems.

(b) Facilitate operational improvement initiatives through action plans and implementation strategies and associated technologies to improve safety, increase operational and economic efficiency and/or capacity of regional CNS systems.

(c) Share information on implementation initiatives for enhancing interoperability of air traffic systems through CNS improvements.

3. Work Programme

See the attached work programme.

4. Working Methods

(a) The CNS Committee of the E/CAR/CATG work programme should present their activities in terms of objectives, responsible and deliverables. Further details can be provided in the form of Work Breakdown Schedule (WBS);

(b) The CNS/COMM will avoid duplication of work within the E/CAR/NTG and maintain close coordination among the existing entities (like the Air Navigation Implementation Technical Group: ANI/WG) to optimize the use of available resources and experience;

(c) The CNS/COMM may designate, as necessary, ad-hoc groups to work on specific topics and activities; all tasks and activities should be clearly defined by time and deliverables;

(d) The CNS/COMM shall co-ordinate and advance its works as follows to maximize efficiency and reduce costs:

- conduct work via electronic written correspondence
- conduct work via phone and teleconference calls

- hold meetings when necessary
- (e) The CNS COMM will report and coordinate the progress of assigned tasks to the E/CAR/CATG.

5. Membership

See attached Membership List. ICAO will act as technical adviser to the CNS/COMM.

6. Activities

- a) Develop essential minimum CNS specifications for Control Tower operations. ECCAA
- b) Develop operational requirements for AIDC. Piarco - Barbados
- c) Develop contingency procedures for CNS equipment and services. France
- d) Recommend training areas in concepts to ICAO. All States and ECCAA

7. Rapporteur

Ms. Veronica Ramdath (Trinidad and Tobago)

CNS Committee Membership Rapporteur: Veronica Ramdath, Trinidad and Tobago, Antigua and Barbuda, Barbados, France, Trinidad and Tobago, United States and ECCAA.

STATE	MEMBER	E-MAIL ADDRESS	TEL
Antigua and Barbuda	Lorraine Davis ATS Operations Officer Ministry of Civil Aviation	Lorraine.davis@ab.gov.ag	+ 268 562 5232
Barbados	Kendrick Mason Technical Officer - Training & Systems (Ag) Barbados Civil Aviation Department	kendrick.mason@barbados.gov.bb	+ 246-535 0004
France	Michel HUMBERT, SNA/AG Technical Manager French Civil Aviation Directorate Air Navigation Services Antilles-Guyana	michel.humbert@aviation-civile.gouv.fr	+ 596 596 42 24 93,
Trinidad and Tobago	Veronica Ramdath Manager Communication Navigation Surveillance Trinidad and Tobago Civil Aviation Authority	vramdath@caa.gov.tt	+ 1 868 669 4706
United States	Dulce M. Rosés Program Manager, International Telecommunications CAR/SAM	Dulce.roses@faa.gov	+ 1 305 716-1830
ECCAA (Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines)	Trevor Davis Manager, CNS Unit Eastern Caribbean Civil Aviation Authority	tdavis@eccaa.aero	+ 1 268 462 0000

CNS/COMM WORK PROGRAMME

TASK NUMBER	TASK DESCRIPTION	PRIORITY	STATUS
CNS/1	General Matters		
CNS/1/1	Review, identify, evaluate and recommend solutions with the necessary priority assignment on the deficiencies of the CNS systems.	A	Permanent
CNS1/2	Examine the CNS systems in the adjacent regions, with the aim of contributing to a coordinated and harmonious interconnection development.	B	Permanent
CNS/1/3	Support ICAO initiatives and measures for the protection of the radio frequency spectrum management.	A	Permanent
CNS/2	Communication		
CNS/2/1	Continue the guidance and follow-up to the development of communication networks and develop regional guidelines for the inter-operability between the communication networks of the CAR and SAM Regions and neighboring areas.	B	Permanent
CNS/2/2	Coordinate and implement the transition for inter network ATN service (AMHS).	A	Valid
CNS/2/3	In keeping with the AIDC Implementation plan, coordinate the implementation of the ground-ground applications such as AIDC.	B	Valid
CNS/2/4	Monitor the performance of the HF service in the Oceanic portion of the Piarco FIR and implement improvements in conjunction with contracted service provider as required.	A	Permanent
CNS/2/5	Monitor the performance of the VHF service and implement improvements as necessary.	A	Permanent

CNS/3	Navigation		
CNS/3/1	Study and analyze the regional implementation alternatives of a GBAS system, taking into account the evolution of GNSS and GNSS augmentation systems.	C	Valid
CNS/3/2	Review and update the NDB deactivation plan accordingly based on individual States' situations.	B	Valid
CNS/3/3	Evaluate the required nav. infrastructure to satisfy PBN based nav. requirements, identifying improvements and deficiencies.	B	Valid
CNS/4	Surveillance		
CNS/4/1	Promote Surveillance Data Sharing implementation in the Region.	A	Permanent
CNS/4/2	Evaluation of surveillance infrastructure to satisfy navigation requirements for PBN	B	Valid
CNS/4/3	Promote the surveillance coverage in the continental airspace of the Piarco FIR (ADS-B, RADAR, MLAT)	A	Valid
CNS/4/4	In order to support and guide implementation of ADS-B in the CAR Region and to achieve regional milestone date of December 2018 for the implementation of ADS-B OUT, the Regional ADS-B CONOPS document initial version be adopted as a guide to planning and implementation of ADS-B service to the States/ANSPs in the region.	A	Valid
CNS/4/5	In order to support and guide implementation of ADS-B in the CAR Region and to achieve regional milestone date of December 2018 for the implementation of ADS-B OUT, Technical Specification (RTCA D0260B) document be adopted as a guide for the acquisition and implementation of ADS-B service.	A	Valid

CNS/4/6	Monitor and evaluate the progress and results of ADS-C/ CPDLC.	A	Valid
CNS/4/7	Support the implementation of CPDLC and ADS-C. The States involved in this implementation shall adopt as references the CPDLC Implementation Considerations and a CPDLC/ADS-C IMPLEMENTATION Action Plan respectively.	A	Valid
CNS/5	ATM Automation		
CNS/5/1	Support functional levels for the implementation of ATM automation.	C	Valid

- A High priority tasks, on which work should be speeded up.
- B Medium priority tasks, on which work should commence as soon as possible, but without detriment to Priority **A** tasks.
- C Tasks of lesser priority, on which work should commence as time and resources allow, but without detriment to Priority **A** and **B** tasks.

ID	TASK NAME	DELIVERABLE	RESPONSIBLE	REFERENCE	COMMENTS	STATUS	
COMMUNICATION							
1	Adoption of “equipment modernization/DATIS Service implementation plan for int’l airports” compliance to ATM requirements	DATIS Modernization and Implementation Plan	States/ Territories coordinated by WG		E/CAR States are invited to inform on the implementation of ATIS (DATIS) Services, also the identification of this ATM requirements for defined airports shall be determined. <i>(via data link to the aircraft-VDL mode 2/4 or ACARS) System connects the AFTN and automatically creates the message-no manual intervention by ATC</i>	1. Trinidad and Tobago- automated voice 2. Antigua- automated voice 3. Barbados –automated voice 4. Dominica-No ATIS 5. Grenada-No ATIS 6. Guadeloupe-recorded by ATC. No plans to change this. 7. Nevis-No ATIS 8. Martinique- recorded by ATC. No plans to change this. 9. Montserrat-No ATIS 10. St. Kitts-No ATIS 11. St. Lucia (both airports)- automated voice 12. St. Vincent-automated voice implemented 13. San Juan - ATCT ATIS Freq, is 125.80 Main Transmitter located at the San Juan RTR.	Valid
2	Coordination among E/CAR ANSP and National spectrum Authorities for the protection of the VHF band	E/CAR States collect data on RF interference with aviation VHF frequencies and also advise CNS COMM on any new frequencies implemented	States/ Territories coordinated by WG				Valid
NAVIGATION							
1	Evaluation of required nav. infrastructure to satisfy PBN based nav. requirements, identifying improvements and deficiencies	Analysis of required navigation infrastructure for example: DME-DME coverage for selected ATS routes for RNAV 5; and Identification of deficiencies; and	States/ Territories coordinated by WG	Reference to CNS table 3	For the development of this task, operational PBN navigation specifications need to be defined. The E/CAR/WG, under the ATM, shall define these requirements and the priority of this	Valid	

APPENDIX B

E/CAR/CATG/4 – DP/01

		corresponding corrective Action plan			implementation.		E/CAR/CATG/4 – DP/01
2	Plans on GNSS systems (GBAS) and trial conduction	GNSS trial plan	States/ Territories coordinated by WG	Navigation Infrastructure alternatives for PBN	Based on GREPECAS references (http://www.mexico.icao.int/CNS.html), the E/CAR states shall plan or agree on future trials for GBAS and SBAS evaluation.	SACCSA Project RLA/03/902 has ended. States to advise on GNSS initiatives (GBAS) ECCAA, Barbados and France has no plans to implement GBAS at this time	Valid
SURVEILLANCE							
1	Evaluation of surveillance infrastructure to satisfy navigation requirements for PBN	Analysis of surveillance infrastructure	States/ Territories coordinated by WG		For the development of this task, operational PBN navigation specifications need to be defined. The E/CAR/WG, under the ATM, shall define these requirements and the priority of this implementation.		Valid - B2 -
2	Implementation of 24 bits Address registry	24 bits Aircraft Address registry	States/ Territories coordinated by WG		The involved parties are expected to inform their advances in the development and implementation of their national registry of 24-bit aircraft addresses in accordance to Annex 10, Vol III Chap 9 and GREPECAS guidance (http://www.mexico.icao.int/CNS.html).	Trinidad and Tobago – completed OECS - completed Martinique and Guadeloupe - completed Barbados -completed	Completed
3	ADS-B, ADS-C and MLAT trials	Trials on ADS-B, MLAT and ADS-C	States/ Territories coordinated by WG		E/CAR States shall informed their national plans for conducting trials on ADS-B, ADS-C, MLAT and E/CAR/WG shall consolidate a plan for these trials to benefit of its results.	Barbados - ADS-B/MLAT installation to be completed by Dec 2018 <hr/> France – Two (2) ADS-B stations should be ordered and installed	Valid

						<p>in Martinique and Guadeloupe for trials in 2019</p> <hr/> <p>Trinidad and Tobago ADS-B: 1 receiver implemented</p> <hr/> <p>San Juan – ADS-B fully implemented</p>	
4	ADS-C/ CPDLC evaluation and trial Plans	Plan on ADS-C and CPDLC	States/ Territories coordinated by WG			<p>Trinidad and Tobago - ADS-C /CPDLC implemented July 7, 2016 but CPDLC not operational due errors.</p> <hr/> <p>San Juan – Information to be provided</p> <hr/> <p>France - ADS-C is not planned nor required in FWI.</p>	Valid
5	Mode S radar implementation and update to Regional Plan on Surveillance Systems	Information on Mode S Radar implementation and updates to Regional Plan	States/ Territories coordinated by WG	Reference to CNS table 4A	<p>E/CAR States shall inform on their plans for Mode S implementation.</p> <p>This information and other surveillance systems implementation shall be used to update the regional Plan on Surveillance System (CNS table 4A available on http://www.mexico.icao.int/CNS.html.)</p>	<p>Trinidad and Tobago – Mode S</p> <p>Barbados – No Mode S-no intention of renewing radar</p> <p>Antigua – No Mode S.</p> <p>San Juan – No Mode S</p> <p>France – No Mode S. Planned in 2020 and 2021</p>	Valid

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