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WORKING PAPER

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Second Eastern Caribbean Civil Aviation Technical Group (E/CAR/CATG/2) Meeting
Miami, United States, 15 to 17 July 2015

Agenda Item 4: Air Navigation Matters

4.2 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:

PROGRESS REPORT OF THE CNS COMMITTEE

(Presented by the CNS Committee Rapporteur)

EXECUTIVE SUMMARY	
This Working Paper presents an update on the activities carried out by the CNS Committee since the E/CAR/CATG/1 Meeting	
Action:	Suggested Actions are presented in Section 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency• Environmental Protection
<i>References:</i>	<ul style="list-style-type: none">• First Eastern Caribbean Civil Aviation Technical Group Meeting (E/CAR/CATG/1) (Martinique, French Antilles, France, 19 - 21 June 2013)

1. Introduction

1.1 The CNS Committee comprises of members from Anguilla, Antigua and Barbuda, Barbados, Dominica, France, Grenada, Montserrat, Saint Lucia, Saint Kitts, Saint Vincent, Trinidad and Tobago, United States and ECCAA. The Committee is open to new members.

2. Discussion

2.1 **Appendix** to this paper shows the status update since the E/CAR/CATG/01 meeting on the CNS Committee activities, highlighting:

- **Barbados:**
 - A contract was awarded to Selex ES for five (5) MLAT sensors for the airport and seven (7) Wide Area Multilateration (WMLAT) sensors to improve the NW sector of Barbados Terminal Control Area (TMA)). MLAT data may be eventually shared with the E/CAR surveillance data pool. The project has a target date of Q4 2015.
- **ECCAA:**
 - Feasibility studies are underway in the OECS States toward the implementation of ADS-B.
- **Trinidad and Tobago:**
 - Trials are underway for FANS1/A (ADS-C and CPDLC) services from ARINC.
 - A project was undertaken with the E/CAR/AFS network service provider to improve the resiliency of the network and eliminate single point of failure. To mitigate against failure of the Mausica exchange, a redundant path was created from the TTCAA premises to the St. Augustine exchange. In the event of failure of the Mausica exchange, the E/CAR/AFS Network will transfer automatically to the St. Augustine exchange. The failover time from the Mausica exchange to the St. Augustine exchange measured at the Acceptance Tests was thirty (30) seconds. The design allows for the path to automatically revert when the Mausica exchange is normalized. The transfer from St. Augustine back to Mausica is instantaneous and seamless.
 - The International Private Leased Circuits (IPLC) which transports the French radar and the IPLC between Piarco and San Juan will not switch from the Mausica exchange to the St. Augustine exchange. The characteristics of IPLCs do not permit multiple mapping as compared to the Metro-e circuits. In the short term, the integrated French radar (Dacota) was also installed on the E/CAR/AFS Network in Martinique but requires a manual intervention at Piarco to connect it to the ATM system. Connectivity and services to San Juan will continue through the E/CAR/AFS Network via the redundant circuit between Antigua and San Juan.
 - SACCSA (SISTEMA DE AUMENTACIÓN PARA EL CARIBE, CENTRO Y SUDAMÉRICA- Augmentation System for the Caribbean, Central and South America) Project RLA/03/902 to analyze the technical, institutional and financial viability of implementing Satellite Based Augmentation Systems (SBAS)/Global Navigation Satellite Systems (GNSS) system in the CCAR/SAM regions has come to a close. The research has shown positive results. The next stage would be the implementation of the system.
 - The AMSS-TT system is currently functioning in AFTN mode. Cutover of the CADAS-ATS in the Eastern Caribbean States to AMHS has been revised to be completed by the third quarter of 2015.
 - The Technical Letter of Agreement for the Interconnection of AMHS Systems with the FAA has been completed. Testing with the FAA began in February 2014. Cutover date has been revised to the third quarter of 2015. The transition to AMHS will be seamless to the network. The work that is required involves only configuration changes to the AMHS equipment.

- **Anguilla:**
 - Catastrophic failure of the E/CAR/AFS node in Anguilla on 14/10/2014 following the passage of a storm considering that one of the Cisco routers for the E/CAR/AFS Network failed in January 2013. The damage to the equipment was as a result of adverse environmental conditions and would not be covered under the maintenance agreement in effect with Cisco for the routers. Aeronautical Message Handling System (AMHS) services in Anguilla are currently provided via the Internet (SPATIA) as the agreed fail safe for the E/CAR/AFS Network. Anguilla has since then deposited the amount for the replacement equipment. Service through the E/CAR/AFS network is expected to be available by end of July 2015.
- **St. Kitts:**
 - Failure of one of the routers in Saint Kitts also as a result of environmental damage. Saint Kitts is presently pursuing government approval for the funds
- **MEVA-E/CAR Interconnection:**
 - The new dedicated MEVA circuit required for the radar exchange between San Juan and Sint Maarten, and the voice circuits to Anguilla, Antigua and St. Kitts is already installed. Sint Maarten has agreed to cover the full cost of the MEVA voice circuits and the data circuit for radar data from San Juan to Sint Maarten and the radar data from Sint Maarten to San Juan through the MEVA node in San Juan. Technical discussions are on-going with the E/CAR/AFS and MEVA service providers to implement the voice circuit interconnection;
 - The interconnectivity would allow Sint Maarten to share their radar with Trinidad and Tobago as part of the radar feeds that will support the Radar Data Server project to be implemented for the E/CAR States/Territories in addition to the exchange of radar between Sint Maarten and San Juan.
- **Radar Sharing with E/CAR:**
 - Further to the review of the operational requirements by the ECCAA for providing situational awareness and the information exchange on operational experiences on situational awareness conducted between France, Saint Lucia and ECCAA, several members of the Radar Data Sharing Group expressed their commitment to move on with the implementation of the IRMA computers donated by France, considering their geographical situation within the French radar coverage of the Dakota radar data;
 - In this regard, the installations of the IRMA computers have been completed for St. Vincent (January 27, 2015), Antigua (March 19, 2015), Grenada (April 17, 2015), Montserrat (May 18, 2015), Dominica (June 12, 2015), Barbados (June 18, 2015), St. Kitts (June 25, 2015) and Nevis (June 25, 2015). Anguilla will be scheduled after the routers are replaced.

3. Suggested Actions

3.1 The Meeting is invited to:

- a) review the information contained in this working paper;
- b) identify any new tasks or progress on the tasks of the CNS Committee; and
- c) agree to any other actions as deemed appropriate

CNS COMMITTEE ACTIVITIES

ID	TASK NAME	DELIVERABLE	RESPONSIBLE	REFERENCE	COMMENTS	STATUS
COMMUNICATION						
1	Improve VHF and HF/AMS coverage and mitigate deficiencies	Deficiencies Identification and Corresponding corrective action plan	States/ Territories coordinated by WG Trinidad and Tobago	References to CNS tables 2A and 2B	<p>1. Evaluation of the existing VHF and HF AMS coverage in the E/CAR Sub-region in accordance with operational requirements and considering users' reports: for ex. LHD reports</p> <p>2. Identification of any deficiency or improvement and involved parties.</p> <p>3. Development of action plan to implement improvement/solution</p> <p>In this respect, based on LHD report, improvement to HF AMS Coverage in Piarco FIR shall be evaluated and improvements of Piarco VHF AMS coverage are also expected to be informed.</p> <p>To mitigate against congestion on the existing ACC and Approach frequencies, Trinidad and Tobago signed contracts to implement seven air/ground (VHF mobile) frequencies. In keeping with the TCAA ATM modernization plan three new VHF frequencies; 126.5 MHz, 133.1 MHz and 124.0 MHz. The total replacement of the equipment for the existing 123.7 MHz and 125.4 MHz, one new frequency was added for Terminal Control (119.55MHz) and the other (119.0 MHz) for Piarco Terminal/Approach. The 123.7, 125.4, 133.1 and 126.5 are operated in 5-carrier offset and are installed at high sites Antigua, Barbados, Saint Lucia, Trinidad and Tobago. The 124.0 is operated in 2-carrier offset and is installed at high sites in Barbados and Trinidad. The 119.55 is operated in 2-carrier offset and is installed in Tobago and Trinidad.</p> <p>The circuits used are IPLCs and are not part of the E/CAR AFS Network due to delay settings for the carrier offset.</p> <p>The new AMS network was commissioned in September 2012.</p> <p>In May 2011 Trinidad and Tobago formalized an agreement with ARINC for the provision of HF service in the Piarco Oceanic airspace.</p> <p>Barbados- new VHF equipment installed. Area covered. No IATA reports. Frequencies: (TWR) 118.7, 121.9, 121.5, (Ground) 121.8, (App) 129.35, 128.85, 120.7, 121.2, 121.5, (ATIS) 132.725</p> <p>San Juan –No VHF issues</p>	Completed

ID	TASK NAME	DELIVERABLE	RESPONSIBLE	REFERENCE	COMMENTS	STATUS
						<p>SLU/GC- (TWR) 118.0 - radio stations reported to telecoms agency NTRC, 121.5, (GND) 121.9 (interference from Martinique who use this as approach) SLU to make a report, report made to NTRC initially to identify source of interference.</p> <hr/> <p>SLU-H (APP) 119.8 (the request to implement a discrete radio link was made to SLASPA regarding noise from cell sites and radio stations-implementation to be completed in Q4 2013), (TWR) 118.3, (Ground) 121.6, (EMG) 121.5</p> <hr/> <p>Martinique – TWR coverage is good. APP- OK</p> <hr/> <p>Guadeloupe -APP OK TWR – OK</p> <hr/> <p>France is presently updating regulations on frequency protection in keeping with ITU regulations.</p> <hr/> <p>Antigua- (TWR) 118.2, (APP) 119.1, 121.5 (EMG), (Ground) 121.9</p> <hr/> <p>There have been IATA reports on the TWR frequency in the Western part regarding coverage on 118.2. An action plan to relocate the 118.2 antenna and a radio link was forwarded with a target date to implement Q4 2013</p> <hr/> <p>Dominica/ Melville Hall TWR - 118.9, 121.9 and 121.5 –No issues</p> <hr/> <p>Dominica/ Canefield TWR 118.7, 121.9 and 121.5 –No issues</p> <hr/> <p>St Vincent –No issues</p> <hr/> <p>Grenada- (APP) 119.4-coverage issues in the north east. Plan to relocate antenna and install remote radio link to resolve problem Equipment already purchased. Implementation date TBD</p> <hr/>

ID	TASK NAME	DELIVERABLE	RESPONSIBLE	REFERENCE	COMMENTS	STATUS	
						<p>Montserrat – Issue at high site -a radio link was lost between high site and airport therefore reduced coverage in the south. Plans in place to restore high site by end Q42013</p> <p>St Kitts – Coverage problem in north with aircraft coming from St. Maarten –radio link to be replaced by end Q4 2013</p> <p>Nevis- Equipment needs to be replaced/no longer supported by manufacturer. RFQ sent out</p>	
4	Evaluation of required communication infrastructure to satisfy the navigation requirements based on PBN -	Analysis of communication infrastructure	States/ Territories coordinated by WG E/CAR/NTG		<p>For the development of this task, operational PBN requirements need to be defined.</p> <p>The E/CAR/WG, under the ATM, shall define these requirements and the priority of this implementation.</p>	Awaiting this information from the ATM Committee in conjunction with the CAR PBN Cooperative project.	Valid
5	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		<p>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.</p> <p><i>(via data link to the aircraft-VDL mode 2/4 or ACARS)</i> <i>System connects the AFTN and automatically creates the message-no manual intervention by ATC</i></p>	<ol style="list-style-type: none"> 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- No ATIS 12. St. Vincent-No ATIS 13. San Juan- San Juan ATCT ATIS Freq. is 125.80 Main Transmitter located at the San Juan RTR. 	Valid
11	Technical evaluation of communications and interfaces for AIDC implementation over the AFTN	Technical recommendations for AIDC implementation over the AFTN	States/ Territories coordinated by WG Trinidad and Tobago and the Piarco FIR and Guadeloupe and Martinique when both ATM		<p>For the development of this task, operational AIDC requirements need to be defined including the corresponding ATS units involved.</p> <p>The E/CAR/WG, under the ATM, shall define these requirements and the priority of this implementation.</p>	A regional implementation Plan is being coordinated by ICAO and will be presented to the ANI/WG/01 Meeting. Telecommunication requirements will be reviewed based on PIARCO AIDC implementation.	Valid

ID	TASK NAME	DELIVERABLE	RESPONSIBLE	REFERENCE	COMMENTS	STATUS	
			systems are replaced 2020				
12	Perform activities for the implementation of the ATN and its applications according to the CAR/SAM Regional strategy for the implementation of the ATN and its applications. (Appendix of Agenda 3 of GREPECAS/13 Report).: i) ACT PLAN COM: 12. Perform AMHS operation trials	Trial results	USA, Trinidad & Tobago E/CAR/NTG		Involved parties shall inform of relevant activities on the planning or results of these trials.	AMHS interconnection activities are to be carried out with United States and Trinidad and Tobago. AMHS implementation is carried out based on the regional AMHS Implementation Plan.	Valid
13	ii) ACT PLAN COM: 13. Evaluation of regional networks to support ATN Applications	Trial results	States/ Territories coordinated by WG E/CAR/NTG		Evaluation of AMHS – ATN ground-ground application shall be conducted by E/CAR/NTG Group. The E/CAR/WG shall determine, based on operational requirements, the priority and gradual implementation of the ATN supporting network.	The new E/CAR AFS Network (MPLS) can expand to accommodate ATN applications. AMHS trials between Piarco and United States (San Juan).	Valid
14	iii) ACT PLAN COM: 14. Update of Regional Plan for ATN ground-ground applications	Updates to Regional Plan for ATN ground-ground applications	States/ Territories coordinated by WG E/CAR/NTG	References to CNS table 1Bb	E/CAR/WG members shall provide any update to current Regional Plan for ATN ground-ground applications (CNS Table 1Bb). Information available on: http://www.mexico.icao.int/CNS.html	AMHS implementation will be carried out within all E/CAR AFS Network members	Valid
17	iv) ACT PLAN COM: 17. Participate on training seminars and events	Participation on events	States/ Territories		On-going task. Several E/CAR States participated in the ATN Ground-Ground and Air-ground Application seminar held on Dominican republic on Nov 2009. Information available on: http://www.mexico.icao.int/CNS.html		Valid
NAVIGATION							
23	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 corresponding corrective Action plan	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 implementation.		Valid
26	Plans on GNSS systems (SBAS and 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.	The E/CAR through Trinidad and Tobago has joined the SACCSA Project RLA/03/902. GNSS Plan to be developed	Valid

ID	TASK NAME	DELIVERABLE	RESPONSIBLE	REFERENCE	COMMENTS	STATUS	
SURVEILLANCE							
28	Radar Data Sharing implementation	Agreements and implementation of radar data sharing	Barbados, French Antilles, Saint Lucia, Trinidad & Tobago, Venezuela and Sint Maarten		<p>The involved parties are expected to inform their advances in the agreements and implementation of radar data sharing activities, including advances in the implementation for a multi-radar data feed.</p> <p>The Radar Data Sharing Task Force shall provide their report on this subject.</p>	Trinidad and Tobago is host for the radar data sharing server and presently receives the radar system tracks from Martinique and Guadeloupe. The complete project encompasses receiving radar system tracks from Barbados, Antigua, Sint Maarten and Venezuela. The merged image will be made available to the E/CAR States via the E/CAR AFS Network.	Valid
29	Evaluation of surveillance infrastructure to satisfy navigation requirements for PBN	Analysis of surveillance infrastructure	States/ Territories coordinated by WG		<p>For the development of this task, operational PBN navigation specifications need to be defined.</p> <p>The E/CAR/WG, under the ATM, shall define these requirements and the priority of this implementation.</p>		Valid
30	Implementation of 24 bits Address registry	24 bits Aircraft Address registry	States/ Territories coordinated by WG		<p>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).</p>	<p>Trinidad and Tobago – completed</p> <p>OECS - completed</p> <p>Martinique and Guadeloupe - completed</p> <p>Barbados -outstanding</p>	Valid
31	ADS-B, ADS-C and MLAT trials	Trials on ADS-B, MLAT and ADS-C	States/ Territories coordinated by WG		<p>E/CAR States shall inform 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.</p>	<p>Barbados A contract was awarded to Selex ES for five (5) MLAT sensors for the airport and seven (7) Wide Area Multilateration (WMLAT) sensors to improve the NW sector of Barbados Terminal Control Area (TMA)). MLAT data may be eventually shared with the E/CAR surveillance data pool. The project has a target date of Q4 2015.</p> <p>ECCAA advised that they are conducting feasibility studies in the OECS States toward the implementation of ADS-B</p> <p>France – Simulations carried out in Martinique and French Guyana with 8 stations- results were not sufficient to cover all the airspace for Approach.</p> <p>ADS-B – one receiver in French Guyana. To be implemented in 2014.</p> <p>ADS-B trials on-going with one receiver in Martinique but will not implement</p>	Valid

ID	TASK NAME	DELIVERABLE	RESPONSIBLE	REFERENCE	COMMENTS	STATUS	
						Trinidad and Tobago ADS-B and C trials on-going in the Piarco terminal and oceanic airspace respectively.	
32	ADS-C/ CPDLC evaluation and trial Plans	Plan on ADS-C and CPDLC	States/ Territories coordinated by WG			Trinidad and Tobago Trials are underway for FANS1/A (ADS-C and CPDLC) services from ARINC. San Juan – Information to be provided	Valid
33	ADS-B cost – benefit analysis		States/ Territories coordinated by WG		Cost-benefit analysis for ADS-B shall be organized to justify implementation and enforcement of ADS-B use.	Cost-benefit analysis to be carried out	Valid
38	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	E/CAR States shall inform on their plans for Mode S implementation. 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 .)	Trinidad and Tobago – Mode S Barbados – No Mode S Antigua – No Mode S San Juan – No Mode S France – No Mode S	Valid

— END —