Ninth Eastern Caribbean Network Technical Group (E/CAR/NTG/9) and Seventh Eastern Caribbean Radar Data Sharing Ad hoc Group (E/CAR/RD/7) Meetings

Final Report

Online, 14 - 15 July 2020

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Agenda Item 7						
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HISTORICAL

ii.1 Place and Date of the Meeting

The Ninth Eastern Caribbean Network Technical Group (E/CAR/NTG/9) and Seventh Eastern Caribbean Radar Data Sharing Ad hoc Group (E/CAR/RD/7) meetings were held online from 14 to 15 July 2020.

ii.2 Opening Ceremony

Mr. Julio Siu, Deputy Regional Director of the North American, Central American and Caribbean (NACC) Regional Office of the International Civil Aviation Organization (ICAO), provided opening remarks and thanked the participants for supporting this online initiative. He outlined the challenges and requested from the E/CAR Directors concerning the technical groups to be more efficient and result-oriented, and thanked the Groups for their active work to ensure the E/CAR Network performance and interconnection. Finally, he welcomed the collaboration of the region to move forward on the radar data sharing implementation.

Ms. Veronica Ramdath, E/CAR/NTG Rapporteur, welcomed the participants, noting the challenges and difficulties resulting from COVID-19. The meeting last year was initially postponed due to the withdrawal of the host (UK Territories) and then by the outbreak of the COVID-19 and the limitations to travel and possible impact on health and well-being. She noted that ten (10) States, two (2) Territories, three (3) International Organizations, four (4) industries and one (1) service provider had registered for these meetings for an estimated total participation of forty seven (47) persons.

ii.3 Officers of the Meeting

The E/CAR/NTG/9 and E/CAR/RD/7 meetings were chaired as plenary by Ms. Veronica Ramdath as the E/CAR/NTG Rapporteur and Mrs. Mayda Ávila, Regional Officer, Communications, Navigation and Surveillance of the NACC Regional Office of ICAO, acted as Secretary of the Meeting.

ii.4 Working Languages

The working language of the meetings was English and the working papers, information papers, presentations and report of the meetings were available to participants in said language.

ii.5 Schedule and Working Arrangements

It was agreed that the working hours for the sessions of the meetings would be from 09:00 to 14:00 hours daily with adequate breaks.

ii.6 Agenda

- Agenda Item 1: Review and Approval of the Agenda, Working Method and Schedule of the Meetings
- Agenda Item 2: Review of Valid Conclusions from E/CAR/NTG/8, E/CAR/RD/6, and ANI/WG/5
 Meetings Related to the Work of the NTG and RD
 - 2.1 Follow-up on previous E/CAR/NTG-RD's Conclusions and Decisions
 - 2.2 Follow-up on the ANI/WG/5 Meeting

Agenda Item 3: E/CAR Aeronautical Fixed Services (AFS) Network Performance and Operation

- 3.1 Network Performance and general aspects
- 3.2 E/CAR Network Integration to the MEVA IV telecommunications network

Agenda Item 4: Surveillance Sharing Activities

- 4.1 Surveillance/Automatic Dependent Surveillance Broadcast (ADS B)/Multilateration (MLAT) Developments/Updates
- 4.2 Integration of E/CAR Surveillance activities to the ANI/WG Surveillance Task Force
- 4.3 E/CAR Surveillance data coverage status (Radar Data Display and E/CAR needs)

Agenda Item 5: Aviation Restart and Recovery from COVID-19 Pandemic

- 5.1 Council Aviation Recovery Taskforce (CART) Documentation
- 5.2 ICAO NACC Strategy for the restart and recovery of aviation

Agenda Item 6: Update of E/CAR/NTG and E/CAR/RD Terms of Reference and Work Programme

Agenda Item 7: Other Business

ii.7 Attendance

The Meeting was attended by ten (10) States/Territories, two (2) International Organizations and four (4) industries with total participation of forty seven (47) delegates as indicated in the list of participants.

ii.8 Draft Conclusions and Decisions

The Meeting recorded its activities as Draft Conclusions and Decisions as follows:

DRAFT

report.

CONCLUSIONS: Activities requiring endorsement by the Directors of Civil Aviation of the Eastern

Caribbean (E/CAR/DCA).

DECISIONS: Internal activities of the Eastern Caribbean Network Technical Group

(E/CAR/NTG) and the E/CAR Surveillance Sharing Ad hoc Group (E/CAR/RD).

Draft Conclusions

Number	Title	Page		
ECARNTG9-	REGIONAL AVIATION CAPACITY AND INFRASTRUCTURE INTEGRATION	2-1		
ECARRD7/01				
ECARNTG9-	INCREASE THE RELIABILITY OF THE NODES AND THE NETWORK			
ECARRD7/02				
ECARNTG9-	REVIEW OF THE DIGITAL REGIONAL AIR NAVIGATION PLAN (E-ANP)	2-4		
ECARRD7/03	CAR/SAM TO ENSURE UPDATED INFORMATION ON INFRASTRUCTURE			

An executive summary of these draft conclusions is presented in **Appendix A** to this

ii.9 List of Working and Information Papers and Presentations

Refer to the Meeting web page:

https://www.icao.int/NACC/Pages/meetings-2020-ecartng9.aspx

	WORKING PAPERS						
Number	Agenda Item	Title	Date	Prepared and Presented by			
WP/01	1	Approval of Meeting Agenda, Work Method and Schedule	02/07/20	Rapporteur			
WP/02	2.1	Follow-Up on Previous E/CAR/NTG-RD Conclusions and Decisions	01/07/20	Rapporteur			
WP/03	2.1	Results of the last ANI/WG Meetings and its Impact on the Eastern Caribbean States	13/07/20	Secretariat			
WP/04	3.1	Performance Evaluation Overview of the E/CAR AFS Network under the ECCAA	08/07/20	ECCAA			
WP/05	3.1	General Feedback of the French West Indies	04/07/20	France			
WP/06	3.1	Technical Letter of Agreement	08/07/20	United States			
WP/07	3.2	Development of the New Regional Telecommunications Network Project	08/07/20	MEVA/TMG Coordinator			
WP/08	4.1	Modernization of the FWI ATM System	04/07/20	France			

		WORKING PAPERS		
Number	Agenda Item	Title	Date	Prepared and Presented by
WP/09	5.1	The work of the ICAO Council's Aviation Recovery Task Force (CART)	13/07/20	Secretariat
WP/10	4.3	E/CAR Surveillance Data Coverage Status (Radar Data Display and E/CAR needs)	06/07/20	Rapporteur
WP/11	7	New Version of the Global Air Navigation Plan (GANP)	13/07/20	Secretariat
WP/12	6	E/CAR/NTG future meeting and update to its Terms of Reference and RD Ad hoc Group's Tasks	13/07/20	Rapporteur
		Information Papers		
Number	Agenda Item	Title	Date	Prepared and Presented by
IP/01		List of Working, Information Papers and Presentations	15/07/20	Secretariat
IP/02	4.1	Status of FAA's Operational Evaluation of Space-Based ADS-B in the Caribbean	09/07/20	United States
		Presentations		
Number	Agenda Item	Title	Presented by	
Number			Trinidad and Tobago/TSTT	
1	3.1	Network Performance analysis and general aspects	Trinidad a	nd Tobago/TSTT

Number	Agenda Item	PRESENTATIONS Title	Presented by
1	3.1	Network Performance analysis and general aspects	Trinidad and Tobago/TSTT
2	5.2	COVID-19 Response and Recovery Implementation Centre	Secretariat
3	4	INDRA Overview	INDRA
4	4	Aerospace Management Solutions (AMS)	THALES
5	4	Leonardo RoM Proposal for ECAR Surveillance Data Display Phase II	LEONARDO
6	4	Space-Based ADS-B	AIREON
7	4	AIREON Overview	AIREON

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- 4. Shenneth Phillips

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- 5. Tracia Smith
- 6. Richard Prempeh
- 7. Gail Clarke

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- 8. Richard Cox
- 9. Trevor Davis
- 10. Eloise Denise Silston

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- 11. Michel Humbert
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- 22. Andrea Best

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Agenda Item 1 Review and Approval of the Agenda, Working Method and Schedule of the Meetings

1.1 Under WP/01, the E/CAR/NTG Rapporteur invited the Meeting to approve the provisional agenda and schedule and referred to IP/01 with the list of associated documentation. The Meeting approved the agenda as presented in the historical section of this report and did not make changes to the schedule.

Agenda Item 2 Review of Valid Conclusions from E/CAR/NTG/8, E/CAR/RD/6, and ANI/WG/5 Meetings Related to the Work of the NTG and RD

2.1 Follow-up on previous E/CAR/NTG-RD's Conclusions and Decisions

- 2.1.1 Under WP/02, the conclusions and decisions formulated by the E/CAR/NTG/8 and E/CAR/RD/6 Meetings were examined.
- 2.1.2 The status and follow-up comments for each conclusion/decision are based on information and discussion at the meeting. The status for each conclusion/decision is designated as valid, completed or superseded. The follow-up to the E/CAR/NTG and E/CAR/RD valid conclusions/decisions is presented in **Appendix A** to the report.
- 2.1.3 After reviewing the valid Decisions and Conclusions of previous E/CAR meetings, the Meeting agreed to make the following Conclusion:

DRAFT CO	NCLUSION						
E/CAR/NT	G/9 – E/CAR/RD/7 - 01	REGIONAL	AVIATIO	N CAP	ACITY	AND	INFRASTRUCTURE
		INTEGRATIO	N				
What: That,					•	t ed impa itical / G	
in orde	r to promote the aviation	n developmer	nt of the	Eastern		r-region	
Caribbe	an States it is necessary to	integrate the	regional a	aviation	□ Eco	•	
	y and infrastructure, the	E/CAR State	s and Te	ritories	☐ Environmental		
update:					☐ Operational/Technical		l/Technical
a)	the CNS capacity of their a	air aviation sys	stem; and				
b) or create their air navigation plan according to the new requirements of the Global Air Navigation Plan (GANP) by 15 December 2020.							
Why: It is important to integrate national and regional requirements within the development of new projects in the region.							
When:	15 December 2020		Status:	⊠ Valid	/ □ Sup	erseded	I / □ Completed
Who:	States	ner:	E/CAR Sta	ates and	Territor	ies	
		•					

- 2.1.4 According with the assessment of Conclusion E/CAR/NTG/9-E/CAR/RD/7, in previous meeting the need to take action due to the increase of cyberattacks in the air navigation system was identified.
- 2.1.5 The ICAO NACC Regional Office informed that, jointly with the industry, is developing a *Cybersecurity Manual Policy*. This document will provide recommendations in order that States can

perform a self-assessment on their cybersecurity systems and conclude what implementation status they have.

2.1.6 According with the action plan for cybersecurity assessment in the E/CAR States, training will be provided aiming to support the E/CAR States. In that sense, States agreed to formulate the following Conclusion:

DRAFT CONCLUSION					
E/CAR/NTG/9 – E/CAR/RD/7 - 2 INCREASE T	HE RELIABILITY OF THE E/CAR NETWORK				
What:	Expected impact:				
That, due to the increased number of cyberattack systems like the E/CAR Network, and in ord reliability of the E/CAR network and its nodes, States/ Territories:	er to increase the Economic				
 a) join the activities and action plan led Regional Office for cybersecurity a E/CAR States; and 	•				
,	b) designate a point of contact to coordinate the different State activities for this action Plan by 30 September 2020.				
Why: It is important to increase reliability of the E/CAR Network					
When: 30 September 2020	Status: ⊠ Valid / □ Superseded / □ Completed				
Who: ⊠ States ⊠ ICAO □ Other:	E/CAR States and Territories				

2.2 Follow-up on the ANI/WG/5 Meeting

2.2.1 Under WP/03, a summary on the conclusions and recommendations provided by the ANI/WG/5 Meeting and its Task Forces was presented to support the air navigation services, taking into account the compliance with the ICAO Annexes and their amendments, to ensure that the information complies with the established requirements, and to promote the implementation of new capacities to support the States and to obtain regional benefits. These conclusions of the last ANIWG meeting are:

Number	Title
ANI/WG/5/1	MET IMPLEMENTATION PROJECT
ANI/WG/5/2	SUPPORT PBN IMPLEMENTATION INITIATIVES IN THE NAM/CAR REGIONS
ANI/WG/5/5	APPROVAL OF THE CAR REGIONAL SAR PLAN AND THE ANI/WG SAR TASK FORCE (SAR/TF)
ANI/WG/5/6	PROCESS OF IMPLEMENTING THE ADS-B
ANI/WG/5/8	ENDORSEMENT OF THE CAR REGION ATM CONTINGENCY PLAN
ANI/WG/5/9	PROJECT EVALUATION COMMISSION (RLA/09/801 PEC)
ANI/WG/5/12	XML TESTS ON THE AMHS SYSTEMS PLATFORM

2.2.2 Under the Automatic Dependent Surveillance – Broadcast OUT Implementation Meeting for the NAM/CAR Regions (ADS-B/OUT/M), the following decision and conclusion were taken:

Number	Title
ADS-B/OUT/M/01	NAM/CAR ADS-B IMPLEMENTATION PLANNING
ADS-B/OUT/M/02	ESTABLISH A CRITERIA TO DEVELOPMEN AND ADS-B STATISTICAL ANALYSIS
ADS-B/OUT/M/03	REGIONAL NAM/CAR OPERATIONAL CONCEPT OF ADS-B IMPLEMENTATION

2.2.3 Under ANI/WG Task Force Rapporteurs Meeting, the following decision and conclusion were taken:

Number	Title
ANI/WG/TF/01	SUPPORT TO THE REGIONAL AIR NAVIGATION PLANNING AND IMPLEMENTATION PROCESS
ANI/WG/TF/02	UPDATE OF THE ELECTRONIC AIR NAVIGATION PLAN OF THE CAR/SAM REGIONS
ANI/WG/TF/03	BASIC BUILDING BLOCKS (BBB) FRAMEWORK VERIFICATION

- 2.2.4 The following implementation requires special attention from the Eastern Caribbean States:
 - 1. Improve meteorological information
 - 2. Support performance-based navigation (PBN) implementation
 - 3. Support Search and Rescue operation
 - 4. Improve use of data surveillance information in all flight phases
 - 5. Establish or update contingency plans
 - 6. Develop future Air Navigation Services (ANS) projects in accordance with national and regional needs under the new Global Air Navigation Plan (GANP) version.

2.2.5 States must take into account their local needs and interoperability with adjacent States to meet regional requirements and already established goals, and update their Air Navigation Plan taking into account their development for at least the next 10 years. In this regard, the following Draft Conclusion was formulated:

DRAFT CONCLUSION				
E/CAR/NTG/9 – E/CAR/RD/7 - 3 REVIEW OF THE DIGITAL REGIONAL AIR NAVIGATION PLAN (E-ANP) CAR/SAM TO ENSURE UPDATED INFORMATION ON INFRASTRUCTURE				
What: That, in order to review and update the electronic A Volumes I and II, Eastern Caribbean State coordination with the ICAO NACC Regional Of ANP CAR/SAM Volume I and Volume II to information on CNS infrastructure and serve these documents by 30 December 2020.	rs/ Territories, in ☐ Economic fice, review the e- ☐ Environmental ☐ Operational/Technical			
Why: It is important to update and stablish a mechanism to ensure that all information is available and valid in these documents.				
When: 30 December 2020	Status: ⊠ Valid / □ Superseded / □ Completed			
Who: States ICAO Other:	E/CAR States and Territories			

Agenda Item 3 E/CAR Aeronautical Fixed Services (AFS) Network Performance and Operation

3.1 Network Performance and general aspects

- 3.1.1 Under WP/04, ECCAA reported that the network performed well and was stable during the review period with acceptable availability figures for both voice and data circuits.
- 3.1.2 Under WP/05, France noted that the E/CAR/AFS network is globally compliant with operational requirements, but some improvements may be needed, both in technical and procedural aspects. French West-Indies (FWI) appreciates Trinidad and Tobago Civil Aviation Authority (TTCAA)/Telecommunications Services of Trinidad and Tobago (TSTT) on-site visits during the periodic maintenance of the E/CAR router (check system and align configuration). The maintenance planning is sent on time.
- 3.1.3 The E/CAR network is globally operating correctly in FWI, and improvements are proposed to:
 - complete maintenance procedure for the E/CAR Network and associated tools (that could be integrated to an E/CAR Limited Obstacle Area, LOA).
 - organize the management of configurations (access to online version traceability).
- 3.1.4 Under WP/06, Trinidad and Tobago and United States proposed a Technical Letter of Agreement (TL) for handling network failures and troubleshooting. This TL should establish the division of responsibilities, Points of Contact, and troubleshooting procedures required between the Federal Administration (FAA) and Trinidad and TTCAA. This document should also identify whom, when, and under what conditions allowable actions can be taken. It was agreed that a fault reporting process was necessary in order to maintain proper communications when a failure occurs. The document identifies Points of Contact as well as escalation processes. Once revised and approved, this will be a living document.
- 3.1.5 Under P/01, the service provider, TSTT, presented the E/CAR AFS Network features, managed service capabilities, network performance analysis and upgrade and recommendations. The key noted challenges were:
 - The impact of hurricane Irma in 2017 on the Dominica Canefeld network equipment;
 - End of life of the Cisco 2900 series components in December 2017;
 - High frequency of voice port reset to many E/CAR States;
 - Requirement for analogue voice service failover at sites in event of hardware failure; and
 - Unsuitable environmental conditions at some sites.
- 3.1.6 TSTT discussed the upgrade and noted that delays in deployment had resulted from the COVID-19 pandemic. Estimated deployment is now November 2020-February 2021 but the situation

remains fluid. New circuits with increased bandwidth have been implemented in order to accommodate the transition plan. The network will be transitioned in its entirety and not sequentially by site, since the old and new networks cannot operate partially. Key deliverables in the upgrade are:

- The implementation of automatic failover of the routers as per the request of States via Independent stack of devices;
- An A/B Switching System with dual powered chassis;
- Local network services delivered by cards within the A/B chassis;
- Matching of ports with device stack;
- Easy to change source of local services; and
- Secured IP services

3.2 E/CAR Network Integration to the MEVA IV Telecommunications Network

- 3.2.1 Under WP/07, the MEVA TMG Coordinator presented the development of the new regional telecommunications network project that will replace the current MEVA III network and to be denoted CANSNET Network. The new telecommunications network is expected to be operational by the end of the contract of the current network in March 2022. The MEVA III Network provides ground-to-ground Air traffic service (ATS) voice and data telecommunications between Air Traffic Control (ATC) centres throughout the geographical subregion of the Central Caribbean (C/CAR). This subregion covers an area bounded to the North by United States, to the South by Colombia and Venezuela, to the west by Mexico and Central America, and goes as far east as Sint Maarten.
- 3.2.2 The new network will be capable of supporting additional CAR/SAM users, who may not be initial signatory members of the ICAO Agreement for the new network, whenever required by ICAO. The core network infrastructure will support a private IP-based network for both voice and data. Legacy services requiring connectivity will use a protocol converter. The new Network must be able to establish gateway connectivity to neighboring networks in the region. Area network connectivity may consist of fiber, Very Small Aperture Terminal (VSAT) and copper terrestrial networks. The physical interconnection between networks shall be accomplished at an authorized designated demarcation or at the Civil Aviation Authority (CAA) communications facility.
- 3.2.3 The existing interconnections through the MEVA Network between the C/CAR and the Eastern Caribbean will not be affected by the new CANSNET Network. Those interconnections have been included in the Request for Information (RFI) document as requirements and will continue unaffected.

Agenda Item 4 Surveillance Sharing Activities

4.1 Modernization of the FWI ATM system

- 4.1.1 Under WP/08, France presented its modernization of the FWI Air Traffic Manegement (ATM) system and its consequences. France plans the modernization of the overseas ATM systems. These heterogeneous systems (IRMA and SIGMA) will be replaced by a single system. The new system will be realized by the Canadian company ADACEL. Guadeloupe will be in operation in 2021 and Martinique in 2022. New features are:
 - electronic flight strips.
 - automatic coordination: between Martinique and Guadeloupe and opportunity to do Air Traffic Services Inter-facility Data Communication (AIDC) with other Air navigation services provider (ANSP).
- 4.1.2 A second Multi-Radar Tracking (MRT) DACOTA is installed in Guadeloupe. It will be in operation in 2021. From 2021, data of the FWI radars and data of the Guadeloupe MRT, DACOTA, in format UDP/IP, will be available. From 2022, IRMA will not be used anymore by FWI. Any assistance on IRMA would not be possible. Radar data format will be UDP/IP. MAC LLC radar data format will be discontinued and FWI MRTs, DACOTA, will use UDP/IP format.
- 4.1.3 All IRMA installed in the E/CAR islands use the MAC LLC format. From 2022, these IRMA will not be able to display DACOTA and French radar data. Automatic coordination, AIDC, with Barbados and Trinidad and Tobago systems could be used from 2022.

4.2 E/CAR Surveillance data coverage status (Radar Data Display and E/CAR Needs)

- 4.2.1 Under WP/10, the E/CAR/NTG Rapporteur presented an update on E/CAR Surveillance sharing project. The RD group identified that some States' requirements for the next three (3) years is to have situational awareness with the implementation of full radar service five (5) to ten (10) years in the future. Functionalities, for example, billing, flight data processing system (for flight strips, flight management), will be requested in a replacement flight plan (RFP) as optional for that particular State. In order to move forward with the activities of the RD group for Phase II, the RFP would focus on situational awareness.
- 4.2.2 The following States have shared their involvement in ongoing airport development projects:
 - Antigua
 - Dominica
 - Grenada
 - Saint Lucia

- 4.2.3 The following States have advised their continued interest in Phase II of the project:
 - Saint Kitts and Nevis
 - St. Vincent and the Grenadines
- 4.2.4 Anguilla and Montserrat will advise after consultation with their regulatory body ASSI.
- 4.2.5 Antigua and Barbuda advised that in August 2019, the ECCAA received a request from the Ministry of Public Utilities, Civil Aviation, Transportation, and Energy to review a proposal for GECI Espanola S.A for the provision of an ATM system and surveillance sensor to be used by V.C. Bird international airport Air Traffic Services (ATS). A team from ECCAA CNS Unit and V.C. Bird ATS evaluated GECI's proposal and a report was submitted to the Ministry for consideration. In December 2019, the Ministry advised that proposals from other suppliers might be under consideration for the ATM system.
- 4.2.6 Saint Lucia is about to embark on a World Bank project for its airport under the banner "Caribbean Regional Air Transport Connectivity Project" (CATCOP). CATCOP is a World Bank funded project aimed at promoting resiliency of airport infrastructure to combat the potential effects of climate change and modernization of air navigational services and equipment to meet the technical and efficiency capacities that the future of aviation demands. It is a project involving four (4) States: Dominica, Grenada, Haiti and Saint Lucia. Each country's project scope is distinct and separate but there are many commonalities.
- 4.2.7 It is anticipated that the Automatic dependent surveillance broadcast (ADS-B) component will be a collective project by Dominica, Grenada and Saint Lucia with the same Technical Guidance and Specialists, because of the commonalities and potential cost savings. The CATCOP project was officially approved by the Board of the World Bank on 28 May 28 2020. Currently SLASPA is awaiting Parliamentary approval by Saint Lucia of the Project. Once this occurs, the Project Implementation Unit will be sourced and employed and work will commence in earnest.
- 4.2.8 Grenada shared that Grenada Airports Authority (GAA) is involved in an airport development project with the World Bank and China Harbour Engineering Company (CHEC) with an expected completion date of June 2021. The project includes Airport Development_and CNS Projects.
- 4.2.9 CATCOP is considering the participation of two (2) additional countries (Grenada and Saint Vincent). St. Vincent has confirmed their interest in Phase II, but only to the level of situational awareness at this time.
- 4.2.10 Saint Kitts and Nevis shared that may enter into an airport development project in the next years. In the near term, it is interested in implementing situational awareness. The intent is to obtain specific price information then submit to their government for procurement.
- 4.2.11 According with the needs reflected in WP/10, the industry represented by INDRA, Thales and Leonardo, provided options for infrastructure, systems and services that could meet the needs expressed by the States.

- 4.2.12 The industry also requested an extension to provide a more timely solution to the requirements expressed by the States. This time extension would be coordinated by the E/CAR Rapporteur and States Members that are part of the Project through the ICAO NACC Regional Office.
- 4.2.13 Under P/02, United States presented a status update of the Federal Aviation Administration's (FAA) planned Operational Evaluation of Space-Based ADS-B (SBA) trials in the Caribbean. The paper provided an overview of the SBA trials, data analysis summary, and identified installation and coverage issues. In the near term, the FAA will be conducting an Operational Assessment of SBA that will allow it to assess system performance in an operational environment. The assessment will allow the FAA to gain sufficient data to better forecast the long-term applications of SBA across a broader range of operational environments.
- 4.2.14 The FAA, in collaboration with Aireon, has identified the following next steps as potential mechanisms to improve airspace performance:
 - Identify poor performing aircraft for remediation
 - Aireon to modify system in July 2020 to utilize more receiver beams on the satellite payload
- 4.2.15 The FAA will continue to compare data sets to identify noticeable improvements from receiver enhancements and operator avionics/installation corrections. Additionally, the FAA will compare aircraft performance captured by SBA in Miami oceanic airspace with data in Oakland oceanic airspace. This comparison may be helpful to identify potential trends in avionics/installation issues, equipage trends, and overall SBA system performance. The FAA will use the operational evaluation to evaluate SBA performance in mitigating impacts of GDT radar outages; augmenting existing terrestrial ADS-B coverage; and enabling potential route structure optimization.

Agenda Item 5 Aviation Restart and Recovery from COVID-19 pandemic

- 5.1 Under WP/09, the Secretariat provided information about the Council Aviation Recovery Task Force (CART) of ICAO, which is aimed at providing practical, aligned guidance to governments and industry operators in order to restart the international air transport sector and recover from the impacts of COVID-19 on a coordinated global basis.
- 5.2 Information about CART is under the following link:

 https://www.icao.int/covid/cart/Pages/default.aspx
- 5.3 The CART work on its recovery Report and the accompanying 'Take-Off' guidance for international aviation has kept health, safety and security of travellers a paramount concern.
- From the onset of the coronavirus disease (COVID-19) crisis, the aviation system has faced ever-growing challenges. ICAO through the CART has resolved to partner with its Member States, international and regional organizations, and industry, to address these challenges and to provide global guidance for a safe, secure and sustainable restart and recovery of the aviation sector.
- 5.5 Globally and regionally-harmonized, mutually-accepted measures are essential. Such measures should be compatible with safety and security requirements; proportionate to the improvement of public health; and flexible where possible to allow a viable economic recovery.
- 5.6 The CART *Take-off* guidance includes a section on Public Health Risk Mitigation Measures (https://www.icao.int/covid/cart/Pages/CART-Take-off.aspx), in addition to four operational modules relating to:
 - 1. Airports guidelines
 - 2. Aircraft guidelines
 - 3. Crew guidelines
 - 4. Cargo guidelines
- 5.7 The ICAO NACC Regional Office developed a strategy: COVID-19 RESTART AND RECOVERY OF AVIATION IN THE NAM/CAR REGIONS, aiming to support NAM/CAR States in their recovery process, taking into account operation, measures, procedures or any support that States need to implement recovery procedures to ensure safety and healthy operations (https://www.icao.int/NACC/Pages/NACCCOVID19.aspx).
- The Secretariat also informed on the ICAO COVID-19 Response and Recovery Implementation Centre (CRRIC) to assist States to monitor, document, and report their progress in the implementation of the CART recommendations. Continuous monitoring activities will assist ICAO to adjust its support activities.
- The CRRIC provides timely and accurate information on the status of implementation, identification of challenges encountered, sharing of best practices, and avoidance of duplication of efforts among all aviation stakeholders. The CRRIC has two different tools that allow States to make a self-assessment on the CART recommendation implementation.

- 5.10 The Public Health Risk Mitigation tool contains the CART *Take-off* document measures applicable to States, airport operators, airlines, and others in the air transport industry. The tool was designed to assist the States to monitor the public health measures adopted when implementing CART recommendations.
- 5.11 To access to CRRIC, States must have to designate a Point of Contact (PoC) that will be responsible to update information about CART recommendation implementation through CRRIC Gap Analysis and indicate the status of the measure implementation according with the CART *Take-Off* Guidance.
- 5.12 The Secretariat invited the E/CAR States to review the information under the CART link and to identify CART measures that apply to their operations and work areas. They were also invited to ensure that the measures to prevent the spread of COVID-19 and other actions that are applicable within their region are implemented.

Agenda Item 6 Update of E/CAR/NTG and E/CAR/RD Terms of Reference and Work Programme

- Under WP/12, the Rapporteur provided an update to the E/CAR/NTG Terms of Reference and work programme and Surveillance Sharing Ad hoc Group tasks. The Meeting noted that the E/CAR/NTG meetings have proven to be very productive and effective and the joint execution of the meeting with the Surveillance Sharing Ad hoc Group has demonstrated an efficient and effective implementation.
- Depending on the evolution and termination of the current COVID-19 outbreak, the NTG and RD Groups shall review the duration of the meetings to match them with the one of the E/CAR/CATG for 2021. Meanwhile, the E/CAR/NTG and CNS Committee Rapporteur will continue to hold periodic teleconferences hosted by the E/CAR AFS Network provider, TSTT with the support of the ICAO NACC Regional Office.
- An updated work programme for the E/CAR/NTG is presented in **Appendix B** to this part of the report, aligned with the Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) and Aviation System Block Upgrade (ASBU) methodology.

Agenda Item 7 Other Business

- 7.1 Under WP/11, the Secretariat presented information about the new version of the Global Air Navigation Plan (GANP), which provides information and tools to support States in their Air Navigation Implementations. It is available under the following link: https://www4.icao.int/ganpportal.
- 7.2 The GANP (Doc 9750) is the ICAO's highest air navigation strategic document and the plan to drive the evolution of the global air navigation system, in line with the *Global Air Traffic Management Operational Concept* (GATMOC) (Doc 9854), and the *Manual on Air Traffic Management System Requirements* (Doc 9882). It also supports planning for local and regional implementation.
- 7.3 The GANP vision contains the ultimate objectives of the air navigation system, as well as the identification of the new challenges and opportunities that may arise from technological and aviation trends. The evolution driven by this vision will result in a highly efficient global air navigation system, able to meet the aeronautical community's needs and the society's, in general, as well as that of the Air Traffic Management (ATM) community, in particular.
- 7.4 The Secretariat explained the new version of the GANP. The GANP is an important planning tool for setting global priorities to drive the evolution of the global air navigation system and ensure that the vision of an integrated, harmonized, globally interoperable and seamless system becomes a reality. The new version updates the GANP based in a multilayer structure:
 - 1. Global Strategic
 - 2. Global Technical
 - 3. Regional
 - 4. National



- 7.5 The main purpose of the new GANP version is enhancing performance of the air navigation system through safety, operational, interoperability and low cost implementation.
- The Basic Building Blocks (BBB) framework describes the basis of any robust air navigation system. It is nothing new, but it corresponds to the identification of essential services that shallbe provided by the States for international civil aviation, in accordance with ICAO Standards and Recommended Practices (SARPs). These essential services are defined in the areas of Aerodromes and Ground Aids (AGA), ATM, Search and Rescue (SAR), Aeronautical Meteorology (MET) and Aeronautical Information Management (AIM). In addition to essential services, the BBB framework identifies the end users of these services, as well as the CNS infrastructure that are necessary to provide them.

- 7.7 It is necessary that the States know the scope and guidelines provided through the new version of the GANP and that they establish the necessary mechanisms to:
 - 1. Establish a process to update their National air navigation plan: https://www.icao.int/NACC/Pages/regional-group-ASBUb.aspx
 - 2. Integrate their navigation need, taking into account their interoperability and coordination needs.
 - 3. Establish a mechanism to development future air navigation projects.

APPENDIX A EXECUTIVE LIST OF DRAFT CONCLUSIONS

Number	Draft Conclusion	Responsible for action	Deadline
1	REGIONAL AVIATION CAPACITY AND INFRASTRUCTURE INTEGRATION		
	That, in order to promote the aviation development of the Eastern Caribbean States it is necessary to integrate the regional aviation capacity and infrastructure, the E/CAR States and Territories update:	States / ICAO	15 December 2020
	a) the CNS capacity of their air aviation system; and		
	b) or create their air navigation plan according to the new requirements of the Global Air Navigation Plan (GANP) by 15 December 2020.		
2	INCREASE THE RELIABILITY OF THE E/CAR NETWORK		
	That, due to the increased number of cyberattacks on aeronautical systems like the E/CAR Network, and in order to increase the reliability of the E/CAR network and its nodes, Eastern Caribbean States/ Territories:	States / ICAO	30 September 2020
	a) join the activities and action plan led by the ICAO NACC Regional Office for cybersecurity assessment in the CAR States; and		
	b) designate a point of contact to coordinate the different State activities for this action Plan by 30 September 2020.		

Number	Draft Conclusion	Responsible for action	Deadline
3	REVIEW OF THE DIGITAL REGIONAL AIR NAVIGATION PLAN (E-ANP) CAR/SAM TO ENSURE UPDATED INFORMATION ON INFRASTRUCTURE		
	That, in order to review and update the electronic Air Navigation Plan Volumes I and II, Eastern Caribbean States/ Territories, in coordination with the ICAO NACC Regional Office, review the e-ANP CAR/SAM Volume I and Volume II to ensure updated information on CNS infrastructure and services indicated in these documents by 30 December 2020.	States / ICAO	30 December 2020

FOLLOW UP TO CONCLUSIONS AND DECISIONS - EIGHT EASTERN CARIBBEAN NETWORK TECHNICAL GROUP MEETING (E/CAR/NTG/8) AND SIXTH EASTERN CARIBBEAN RADAR DATA SHARING ADHOC GROUP MEETING (E/CAR/RD/6)

Conclusion/Decision	Description	Follow-up	Status
CONCLUSION	That,		Valid
E/CAR/NTG/8 – E/CAR/RD/6/01	Bearing in mind that it is necessary for States to provide		
UPDATE SURVEILLANCE	information on the technical characteristics of their		
INFRASTRUCTURE OF EASTERN	surveillance infra-structure, the States agreed to:		
CARIBBEAN	1) Integrate all the technical information and		
	capacity of your surveillance systems (Provider,		
	Model, Protocols, etc.), according to Table A of		
	Appendix A.		
	2) Promote with this information the activities of		
	radar data sharing among the States that its		
	technical capacity allows it.		
	3) Integrate into your development plans the		
	necessary requirements for new projects to		
	come, integrate these capabilities.		
CONCLUSION	That,		Completed
E/CAR/NTG/8 – E/CAR/RD/6/2	The Eastern Caribbean States require the support of the		
SUPPORT EASTERN CARIBBEAN	States for the development of aviation projects that		
STATES IN THE DEVELOPMENT OF	support air traffic control activities. Developing the		
THEIR IMPLEMENTATION PLANS	second phase of the radar presentation project is a		
	necessity, since this will promote the operational safety		
	of the region and improve situational awareness. States were agreed that:		
	a) It is necessary that ICAO support the Second		
	phase of the radar data implementation project.		
	phase of the radar data implementation project.		
	b) Trinidad and Tobago support this project in all		
	possible ways, since it promotes safety in the		

Conclusion/Decision	Description	Follow-up	Status
	PIARCO region. In that sense, ICAO will provide an approach between the different Eastern Caribbean states, before March 2019.		
CONCLUSION E/CAR/NTG/8 – E/CAR/RD/6/3 RADAR DATA DISPLAY PROJECT PHASE II	That, The NTG Rapporteur in coordination with ECCAA, France, Trinidad and Tobago and the United States revise the operational requirements and contact ICAO TCB for an estimate of the project based on the defined user requirements by 31 January 2019.		Superseded
DECISION E/CAR/NTG/7-RD/5/3 CYBER SECURITY VULNERABILITY ASSESSMENT	That, Due to the increased number of cyber-attacks on systems, in order to increase the reliability of the nodes and the network, ECCAA, Barbados, Trinidad and Tobago, United States and France conduct a cyber-security vulnerability assessment on the E/CAR AFS Network by the E/CAR/NTG/8 Meeting.	ECCAA, Barbados, Trinidad and Tobago, United States and France	Valid
CONCLUSION E/CAR/NTG/7-RD/5/4 REVISION OF LETTERS OF AGREEMENT	That, In order to formalize the radar data sharing activities and foster the regional E/CAR ATFM initiative, France and Barbados review their existing LOAs to include the authorization to Trinidad and Tobago to exchange the Multi Radar Tracker (MRT), including any surveillance type feeds with Eastern Caribbean and Caribbean States under the intent of the E/CAR/RD project; and the FAA as part of the ATFM initiative.	The Trinidad and Tobago Civil Aviation Authority and the Service de la Navigation Aerienne Antilles Guyane reviewed and updated the Letter of Agreement regarding remoting and use of radar data from Martinique and Guadeloupe ATS Units to the Piarco ATS Unit for ATFM.	Valid – BGI/T&T LOA to be amended

Conclusion/Decision	Description	Follow-up	Status
CONCLUSION E/CAR/NTG/7-RD/5/5 REACTIVATION OF TRINIDAD AND TOBAGO - VENEZUELA RADAR EXCHANGE	That, in order to continue the Trinidad and Tobago - Venezuela Radar Exchange activities, that the ICAO NACC Office in coordination with the SAM Office to contact Venezuela for the reestablishment of the coordination activities with Venezuela for this purposes by 30 December 2016	T&T wishes to defer this matter to a future date.	Deferred
CONCLUSION	That, in order to share surveillance data in benefit of		Deferred
E/CAR/NTG/7-RD/5/6 TRINIDAD AND TOBAGO - GUYANA RADAR EXCHANGE	improving the accuracy and precision of the surveillance data, Trinidad and Tobago to: a) Coordinate a meeting with Guyana for this purposes by 30 December 2016; and b) Inform the ECAR/NTG/8 Meeting of this progress.	a future date.	
CONCLUSION E/CAR/NTG/7-RD/5/7 ANTIGUA RADAR DATA	That, in order to ensure the appropriate planning and coordination for testing and integrating the radar data from the Antigua Radar into the E/CAR MRT data, that ECCAA/ Antigua to provide by 30 December 2016 the details planning (timelines and actions), technical		Valid
	information (radar data format, circuit speed, etc.) from the radar in Antigua.		
DECISION E/CAR/NTG/7-RD/5/8 INTEGRATION OF BARBADOS SURVEILLANCE DATA INTO THE PIARCO MRT AND EXCHANGE OF PIARCO MRT WITH BARBADOS	That, in order to plan and timely coordinate the integration of the Barbados surveillance data into the MRT System, Trinidad and Tobago and Barbados work together to coordinate by 30 December 2016: a) the integration of the Piarco MRT at Barbados during the next planned visit of the ATM vendor (Leonardo). b) the integration of the Barbados surveillance	BGI ADS_B already available at the Piarco MRT. Leonardo has some minor outstanding work to transfer the BGI radar data	(a) Completed (b) Completed

Conclusion/Decision	Description	Follow-up	Status
	(radar/ADS-B/MLAT) into the Piarco MRT.		
CONCLUSION E/CAR/NTG/7-RD/5/9 ADS-B OUT IMPLEMENTATION IN THE E/CAR REGION	 That, in order to prepare the E/CAR Region and take advantage of the operational benefits of ADS-B out: a) France, Barbados and Trinidad and Tobago to provide the E/CAR/NTG and ICAO their theoretical surveillance coverages (by flight levels 100, 150, 200 and 250) from their planned ADS-B Stations by 30 December 2016; b) E/CAR States and Territories inform the NTG and ICAO by 30 December 2016 of new plans for ADS-B implementation activities; c) E/CAR/NTG Rapporteur coordinate with the ANI/WG ADS-B TF Rapporteur for aligning the different E/CAR ADS-B activities with the regional ADS-B plan and implementation by February 2017; and d) E/CAR/NTG-RD Rapporteur to update the surveillance plan and inform the E/CAR/NTG/8 Meeting of these progress. 	(a) Barbados to report. The T&T project under discussion. (b) To be discussed under Agenda Item 4 (c) Closed (d) Valid	Valid
CONCLUSION E/CAR/NTG/7-RD/5/10 SURVEILLANCE DATA REQUIREMENTS FOR DOMINICA AND ST. VINCENT	That, ECCAA inform the E/CAR/NTG Rapporteur of the surveillance data requirements for Dominica and St. Vincent by November 30, 2016.		Valid
CONCLUSION E/CAR/NTG/7-RD/5/11 SURVEILLANCE DATA REQUIREMENTS FOR ANGUILLA	That, a) E/CAR/NTG Rapporteur send a letter to Anguilla and Montserrat requesting information on whether they wish to be part of Phase II and to confirm if their requirement will be situational	a) Email sent to Air Safety Support International (ASSI). b) ICAO to report	Valid

Conclusion/Decision	Description	Follow-up	Status
AND MONTSERRAT	awareness; and		
	b) ICAO to write to ASSI regarding their commitment		
	to part of Phase II and the agreed procurement		
	process.		
DECISION	That, in order to update the activities and agreements	To be discussed under Agenda	Valid
E/CAR/NTG/7-RD/5/12	for Phase II of the Radar Data Sharing, the E/CAR/NTG	Item 4.	
DEFINITION OF RADAR DATA	Rapporteur, by 30 December 2016, in coordination with		
DISPLAY PHASE II PROCESS	the RFP ad-hoc Group inform of the Planning to be		
	implemented for the E/CAR Radar Data Display Phase II		
	Process.		
CONCLUSION	That, in order to seek the possible for funds and	Superseded	Superseded
E/CAR/NTG/7-RD/5/13	resources for the Radar Data Sharing Phase II Project or		
PROJECT PROPOSAL FOR ECAR	the regional Surveillance improvements with ADS-B		
REGION UNDER ICAO NACC NCLB	States, the E/CAR/NTG Rapporteur work with the NTG		
	Members for formulating a Project Proposal by		
	February 2017.		

E/CAR/NTG WORK PROGRAMME

No.	Activities	Objectives	Responsible	Deliverables
1	To assist the E/CAR AFS Network Members in coordination for the solutions to problems presented in this operation, and in the implementation of services and parts.	Keep E/CAR AFS Network SLA levels	NTG	E/CAR AFS Network assistance
2	To study and implement technical/operational measures that may be agreed upon to improve the operation and implementation of E/CAR AFS Network services, and that do not impact significant cost, investments and objectives of the Network.	Satisfactory operation and service levels	NTG	Implementation of Network improvements
3	Keep E/CAR AFS Network Members aware of the status of the E/CAR AFS Network performance and conditions of operation.	E/CAR AFS NETWORK Network awareness	NTG	 Reliable E/CAR AFS Network website Network Performance revision
4	Maintain valid and up-to-date E/CAR AFS Network Contingency Procedures, taking into consideration the contingency plans of each E/CAR AFS Network Member and of the Service Provider and in keeping with the CAR Region General Contingency Plan.	Readiness for contingencies	NTG	E/CAR AFS NETWORK Contingency Procedures
5	To assist the E/CAR AFS Network Members, in finishing the data and voice circuits implementation, according to the requirements shown in the ANP CAR/SAM (ASBU BO modules and Regional/National Priorities).	Fulfill Air Navigation requirements	Taskforces- Adhoc Groups	Data and voice circuit implementation
6	To study and propose solutions for AFS connectivity of the E/CAR AFS Network with other regional and domestic CAR/SAM networks.	Fulfil Air Navigation requirements	Taskforces- Adhoc Groups	Data and voice circuit implementation
7	Keep and validate with the E/CAR	Ensure proper	NTG	Maintenance

No.	Activities	Objectives	Responsible	Deliverables
	AFS Network Service Provider a	E/CAR AFS		Procedural
	procedural handbook on	Network		Handbook/Manual
	management, operation and	maintenance		
	maintenance of the E/CAR AFS	and operation		
	Network telecommunication			
	circuits.			