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

WORKING PAPER

ANI/WG/2 — WP/22
26/05/15

Second NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/2)
Puntarenas, Costa Rica, 1 to 4 June 2015

Agenda Item 4 **Follow-up on the NAM/CAR Regional Performance Based Air Navigation Implementation Plan (NAM/CAR RPBANIP)**
4.1 Progress reports of the Task Forces and the ANI/WG

Follow-up on the implementation of the NAM/CAR Regional Performance Based Air Navigation Plan (RPBANIP) in the Eastern Caribbean: Progress report of the Fifth Eastern Caribbean Network Technical Group Meeting (E/CAR/NTG/5) and Third Eastern Caribbean Radar Data Sharing Group Meeting (E/CAR/RD/3)

(Presented by the E/CAR/NTG-E/CAR/RD Rapporteur)

EXECUTIVE SUMMARY

This Working Paper presents the last report of the E/CAR/NTG/5 and the E/CAR/RD/3 Meetings with updated information.

Action:	Suggested Action are presented in Section 3
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection
References:	• Fifth Eastern Caribbean Network Technical Group (E/CAR/NTG/5) and Third Eastern Caribbean Radar Data Sharing Ad hoc Group (E/CAR/RD/3) Meetings.

1. Introduction

1.1 The Fifth Meeting of the Eastern Caribbean Network Technical Group (E/CAR/NTG/5) and the Third Eastern Caribbean Radar Data Sharing Group Meeting (E/CAR/RD/3) were carried out in Guadeloupe, French Antilles, France, from 22 to 24 October 2014. The Meeting was attended by ten (10) States/Territories, one International Organizations, and five (5) industry representatives totalling thirty five (35) delegates. The E/CAR/AFS Network service provider, Telecommunications Services of Trinidad and Tobago (TSTT) and one (1) industry representative participated via web teleconference.

1.2 The following agenda was adopted:

Agenda Item 1: **Review of valid conclusions from E/CAR/CATG/01 and ECAR/DCA/25 Meetings related the work of the NTG and RDS**
Agenda Item 2: **E/CAR AFS Network**
Agenda Item 3: **Overview of Radar Data Sharing Activities**
Agenda Item 4: **Radar Data Display Request for Information (RFI) Process**
Agenda Item 5: **Other Business**

2. Discussion

2.1 **Appendix A** provides the details on the agreements for Agenda Item 1 and 2 regarding the ECAR AFS Network performance

2.2 Under Agenda Item 3 on Radar Data Sharing Activities the meeting was briefed on the infrastructure needed for radar data exchange and the offer made by France for their monoradar data (Dakota radar data) to E/CAR States/Territories. 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. These members committed to the acquisition of the necessary monitor, local environmental conditions and wiring infrastructure for interconnectivity with the E/CAR AFS equipment.

2.3 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) and Montserrat (May 18, 2015). Dominica is scheduled for May 2015. Barbados, St. Kitts, Nevis and Trinidad are scheduled for June 2015. Anguilla will be scheduled after the routers are replaced (June 2015).

2.4 Trinidad and Tobago noted that the existing Letter of Agreement between Trinidad and Tobago and France on the availability of the French radar data in which data is limited only to the use by Trinidad and Tobago. France indicated that a formal letter will be submitted to Trinidad and Tobago allowing the French radar data to be used by any E/CAR State/Territory as being broadcast in the E/CAR AFS Network for use with the donated IRMA computers.

2.5 Under Agenda Item 4 on radar data sharing Request for Information (RFI) Process the following phases with associated milestones would be included in the update to the Radar Data implementation Plan:

- **Phase 1** - donation of surplus used computer CPUs by France that are already programmed to receive the data per the systems installed in Saint Lucia, which are intended to test the system on a relatively short-term basis
- **Phase 2** - State acquisition of permanent display systems for either medium-term continuation of situational awareness (as decided by the States), or in the case of Antigua and Barbuda, in conjunction with the intended implementation of its own radar control service.
- RFI E/CAR Radar Display process completion: 24 October 2014
- Radar Data sharing
    - ✓ Integration of Barbados Radar: Jan - March 2015
    - ✓ Integration of Antigua Radar: June - Dec. 2015
    - ✓ Integration of Sint Maarten Radar: Apr - Oct 2015

- ✓ Evaluation of integrating United States radars: Jan - Aug 2015
    - o Other radar integration (Venezuela): March 2015 - Dec 2015
- ✓ Installation of French donated CPUs: Dec - April 2015
- ✓ Configuration of switches for donated CPU installation: Nov - Dec 2014 (Maintenance visits)
- ✓ E/CAR radar display acquisition
    - o ECAR Radar Display Tender- preparation of RFP: June - Oct 2015
    - o ECAR RD Tender- process: Jan - March 2016
    - o ECAR RD Selection: April 2016
    - o ECAR RD Implementation: July - Dec 2016
- ✓ Preparation for ADS-B trials: Oct 2015 - Nov 2016

2.6 France reminded the meeting that the IRMA equipment that was donated by the French Civil Aviation to Saint Lucia is now the property of Saint Lucia and stated that the maintenance is the responsibility of Saint Lucia and that Saint Lucia has the responsibility to replace any hardware that may fail. In this regard Saint Lucia is to advise if they wish to be part of the E/CAR/RD procurement project.

2.7 For the E/CAR Radar Data Display RFI Process, four (4) vendors responded providing a hard copy and soft copies of their proposal in addition to presenting their proposals at the meeting:

- ADACEL
- COMSOFT
- INDRA
- SELEX

2.8 In preparation of the Request for Proposal (RFP) process a paper will be presented at the E/CAR/RD/4 meeting (June 13-14, 2015) on the options for procurement. Some options discussed during follow up teleconferences are:

- Full ICAO TCB procurement
    - o States pay to ICAO before award of contract;
    - o ICAO to develop tender documents, evaluate proposals and carry out contract negotiations;
    - o ICAO to manage the project as “turn-key”.
- E/CAR to develop tender documents, use of ICAO for receipt of proposals, E/CAR to conduct evaluation and contract negotiations and manage project. States to sign individual contracts with payments.
- Variations of the above.

2.9 The draft tender documents will comprise of a technical part and an administrative part. The draft technical specifications would be presented at E/CAR/RD/4 meeting. It is proposed to maintain a scalable solution from a single display to more automated functions (tracker, FDP, etc). A paper is also expected at the E/CAR/RD/4 meeting with rough estimates based on the presentations given at the E/CAR/RD/3 meeting.

2.10 ICAO presented the Position for the International Telecommunication Union (ITU) World Radiocommunication Conference (2015) (WRC-15) and emphasized that even though the E/CAR AFS Network is a ground-based closed network, whose affectation to its service due to the spectrum may be very low; most of its end user connections and services are spectrum-based, such as Air-Ground Vey High Frequency (VHF) communications, radar and communication services with adjacent networks. The E/CAR AFS Network is interconnected with the MEVA Network (C-band Very Small Aperture Terminal (VSAT) Network) through San Juan, Puerto Rico. The E/CAR area is connected to the South America Regional Network, the REDDIG Network (C-band VSAT Network).

2.11 ICAO presented an overview of the ADS-B implementation and the considerations for the support of the Radar Data Sharing Ad hoc Group in the achievement of the regional ADS-B implementation target and commented on the several activities and mechanisms for the streamlining ADS-B implementation.

2.12 Barbados informed on the costs associated with Wide Area Multilateration (WAM) that need to be factored into cost analysis when comparing it to a SSR solution, suggesting to make agreements between States for allowing sensor spread to be increased by placing some sensors in neighbouring Territories as a means of overcoming this coverage limitation. Barbados also informed of their MLAT project activities with MLAT for the airport (5 sensors) and tentatively Wide Area Multilateration (WMLAT) (7 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 completion date of September 2015.

2.13 The Meeting was briefed on the Aviation System Block Upgrade (ASBUs) implementation methodology and the ongoing efforts by ICAO and States for air navigation implementation under this strategy. ASBUs are organized in five-year increment working programmes starting in 2013 and continuing through 2028 and beyond. The ASBU methodology serves as a comprehensive framework encompassing a set of modules, which are organized in flexible and scalable blocks and can be implemented in a State or region depending on the operational needs and preparation level.

2.14 **Appendix B** contains the list of the Conclusions/Decisions. The complete report of the E/CAR/NTG/5 and the E/CAR/RD/3 meetings are available on the ICAO NACC office website at: http://www.icao.int/NACC/Pages/meetings.

2.15 Conclusion E/CAR/NTG/5/14 proposed a change in name of the radar data group to Surveillance Data Sharing Group and include the activities of other surveillance methods.

2.16 In accordance with the E/CAR/CATG rotation of meetings scheme, the next E/CAR/CATG/2 meeting will be held June 2015 and is to be hosted by the United States in 2015. As agreed in the meeting mechanism of the E/CAR/NTG and the E/CAR/CATG, for 2015 both the E/CAR/CATG and E/CAR/NTG meetings will be held consecutively, holding the next meeting of the E/CAR/NTG prior to the E/CAR/CATG/2 meeting.

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 E/CAR/NTG and E/CAR/RD groups; and

c) agree to any other actions as deemed appropriate.

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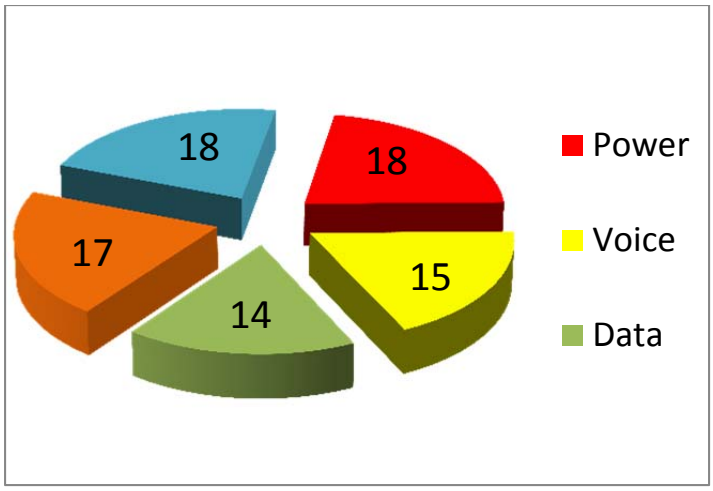
APPENDIX A
ECAR AFS Network performance

1. Under Agenda Item 1 the Meeting carried out the following activities:

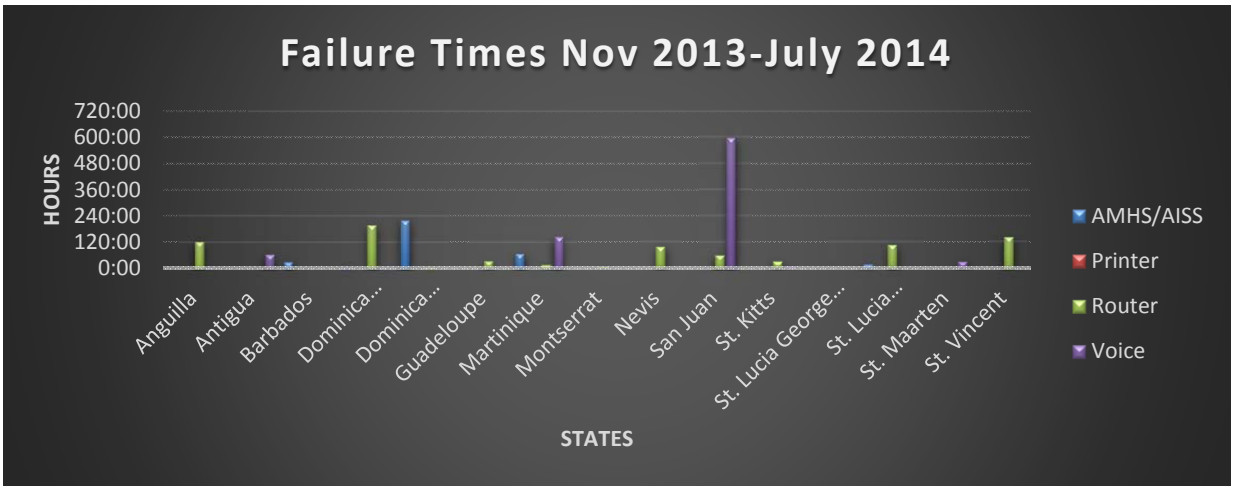
- Reviewed the Conclusions/Decisions from the previous E/CAR/NTG meeting, concluding those that were completed or superseded
- Reviewed the valid conclusions related to the E/CAR AFS Network formulated by the First Eastern Caribbean Civil Aviation Technical Group Meeting (E/CAR/CATG/1), Twenty-fifth Meeting of Directors of Civil Aviation of the Eastern Caribbean (E/CAR/DCA/25), First NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/1) and North American, Central American and Caribbean Working Group Meeting (NACC/WG) meetings.
- Recognized the technical role of the E/CAR/NTG and the Eastern Caribbean Radar Data Sharing Ad-hoc Group (E/CAR/RD) and expected contributions on the aforementioned conclusions, as for example: training needs identification, E/CAR Natural Disaster Emergency Plan telecom needs, monitoring/reporting activities etc., to be reported to the E/CAR/CATG and E/CAR/DCAs.

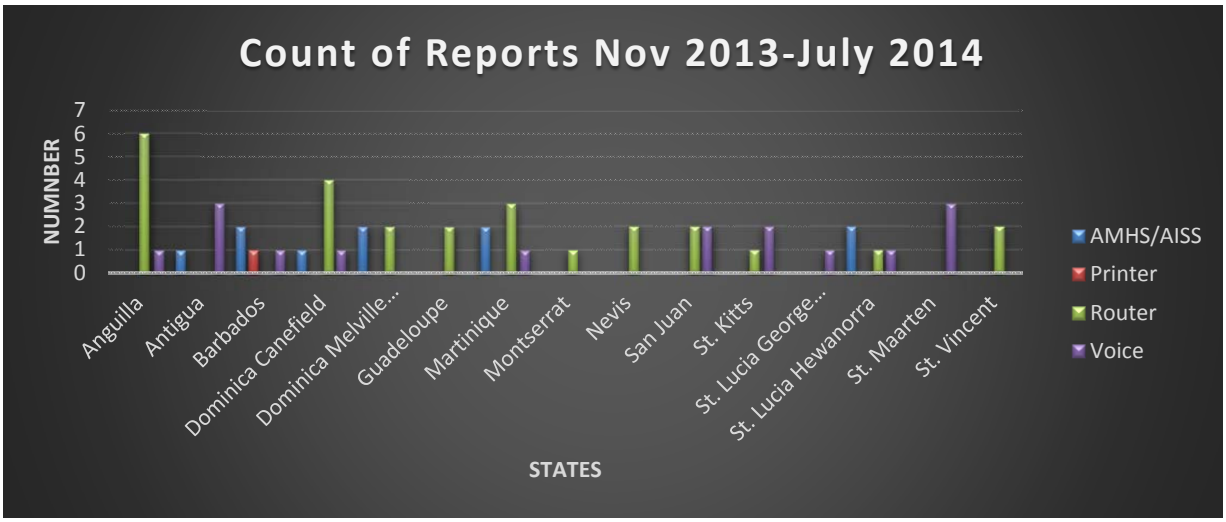
2. The following aspects were highlighted under Agenda Item 2 for the analysis of the E/CAR/AFS network performance and general aspects:

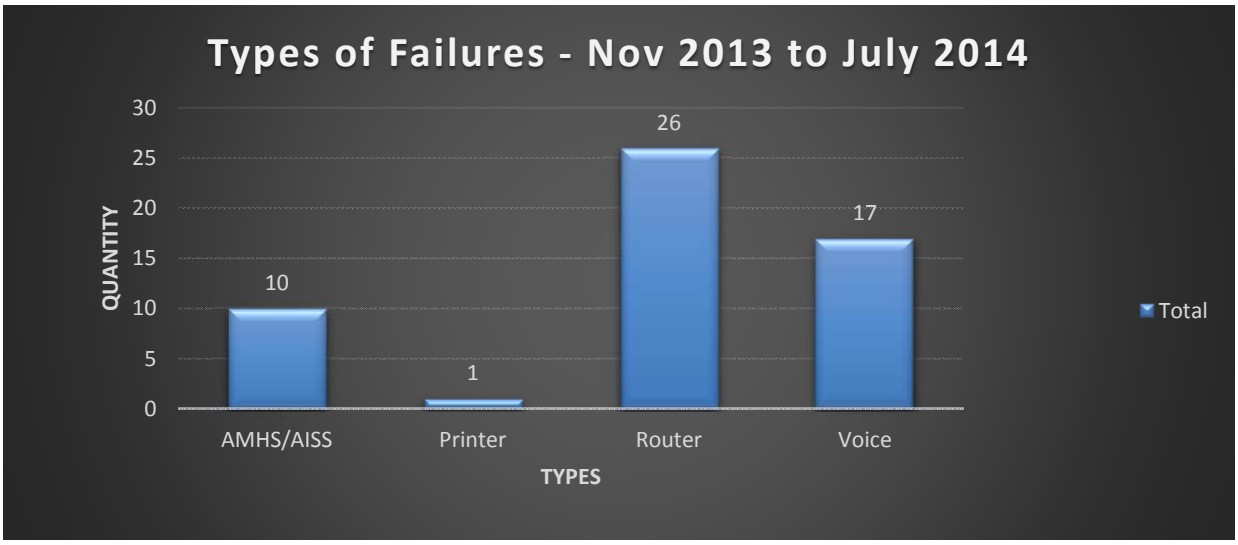
- Catastrophic failure of the E/CAR/AFS node in Anguilla on 14/10/2014 following the passage of a storm considering that one of the Cisco routers for the E/CAR/AFS Network failed in January 2013. The damage to the equipment was as a result of adverse environmental conditions and would not be covered 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 June 2015.
- 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.
- TSTT provided an overview of the E/CAR Network performance since the E/CAR/NTG/3 Meeting, (July 2013 to September 2014) showing consistently good performance and availability of the network. The failure reporting system registered that a total of eighty two (82) tickets were reported. As of September 2014, seventy two (72) have been closed. Of the eighty two (82) failures, seventeen (17) were identified as link failures. The breakout of faults is illustrated as follows:



- Trinidad and Tobago reported that most of the States have been utilizing the TopDesk reporting tool for documenting faults. The following breakout of reported faults over a nine (9) month period is illustrated as follows:







- ECCAA informed that commercial power in Dominica was improved. Proof of performance tests are regularly conducted by the airport. The UPS does not accept input from the generator, as a result, SPATIA and CADAS were transferred to a UPS supplied by the airport.
- The maintenance activity of the network was conducted by TSTT over the period 2nd November to 10th December 2014.
- Oversight visits and maintenance activities of the E/CAR/AFS network and the AMHS/AISS user end equipment were successfully conducted by Trinidad and Tobago over the months of January and February of 2015.

3. Concerning the E/CAR AFS Network Contingency Procedures France and United States developed network contingency procedures for the E/CAR AFS Network, and proposed the following network contingency procedures:

Case of full ECAR/Network failure or case of failure of one State node:

For voice communications, use of:

- Public Switched Telephone Network (PSTN) backup numbers (that are programmed on Voice Communication Switching System (VCSS) and on backup telephones/Radio System for Mobile Communication (GSM)), in accordance with Letters of Agreements
- Direct lines when existing (i.e. Saint Lucia-Martinique, Trinidad and Tobago-Martinique, Guadeloupe-Martinique, etc.).

For AFTN/AMHS:

- use of SPATIA web
- for those States that use local Flight Data Processing (FDP), manual input from SPATIA web into the local FDP. Several aeronautical messages may not be possible.

Case of partial failure of the network (one of the services provided through the network is OFF):

AMHS OFF: use of SPATIA web:

- Voice OFF: use back-up PSTN numbers or direct lines when existing;
- AFTN OFF: use of SPATIA/CADAS, local manual input into the States FDP.

4. Trinidad and Tobago presented an update of the AMHS implementation and the functionalities 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. TTCAA will continue providing AFTN connectivity to States with ATS systems that are not AMHS ready, for example: Venezuela.

5 Installation and training of the CADAS-ATS was provided to the following States over the period 4 January 2013 to 1 March 2013:

- Anguilla
- Antigua and Barbuda
- Barbados
- Dominica/Canefield
- Dominica/Melville Hall
- Grenada
- Guadeloupe
- Martinique
- Montserrat
- St. Kitts and Nevis
- Saint Lucia/George F. Charles
- Saint Lucia/Hewanorra
- Saint Vincent and the Grenadines

6 The TTCAA has completed the Technical Letter of Agreement for the Interconnection of AMHS Systems with the FAA. 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.

7 United States informed the Meeting that on 18 September 2013, after successfully completing the Interoperability Testing, Dominican Republic AMHS system was cutover. Currently, the FAA is working with the CAA’s of Canada, Cayman Islands, Cuba, Portugal, Sint Maarten and Trinidad and Tobago, to migrate their AFTN connections to AMHS.

8 The MEVA TMG Coordinator noted the importance of exchanging information for the interoperation of the MEVA and the E/CAR/AFS Network. It was agreed that San Juan, Puerto Rico would be the point of interconnection for both networks, since San Juan has both a MEVA node and an E/CAR AFS Network node. 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. The ANS and Radar Data Sharing Agreement have been prepared. However, the FAA has been unable to sign it without funding for its implementation.

9. 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.

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APPENDIX B

**CONCLUSIONS AND DECISIONS-
FIFTH EASTERN CARIBBEAN NETWORK TECHNICAL GROUP MEETING (E/CAR/NTG/5)
AND THIRD EASTERN CARIBBEAN RADAR DATA SHARING ADHOC GROUP MEETING
(E/CAR/RD/3)**

DECISION
E/CAR/NTG/05/01 **EVALUATION OF CONCLUSIONS AND IDENTIFICATION OF CONTRIBUTIONS FOR E/CAR/CATG AND E/CAR/DCA MEETINGS**

That, in order to provide the timely support from the E/CARNTG and the E/CAR/RD on the valid conclusions related to the E/CAR AFS Network formulated by the E/CAR/CATG/01, E/CAR/DCA/25 Meetings, ANI/WG/01 and NACC/WG meetings, that France, United States and the E/CAR/NTG Rapporteur evaluate these conclusions and identify the possible contributions from the E/CARNTG and the E/CAR/RD to be reported to the E/CAR/CATG and E/CAR/DCA 2015 Meetings.

DRAFT CONCLUSION
E/CAR/NTG/5/2 **IMMEDIATE SOLUTION TO ANGUILLA CATASTROPHIC FAILURE**

That, in order to implement the immediate actions to solve the catastrophic failure in Anguilla,

a) ASSI, ECCAA, TTCAA and Anguilla to conduct technical evaluation visits of the Anguilla's facilities housing the E/CAR AFS equipment for identifying improvements; and

b) Anguilla take the necessary actions to restore the E/CAR AFS equipment functionality

DRAFT CONCLUSION
E/CAR/NTG/5/3 IMMEDIATE RESTORATION OF ECAR AFS NETWORK NODE REDUNDANCY IN ST. KITTS

That, in order to restore the node redundancy for the replacement of the failed equipment in Saint Kitts,

a) Trinidad and Tobago to submit end by 30 October a letter to ECCAA on the risk and critical situation due to the lack of the router replacement;

b) ICAO to submit a letter to St. Kitts immediately after TTCAA´s letter; and

c) St. Kitts to report back by 30 November on the actions taken to conduct this replacement.

DECISION
E/CAR/NTG/5/4 PENDING MAINTENANCE ACTIONS BY TSTT

That, in order to carry out the pending maintenance actions related with the E/CAR AFS Equipment, TSTT:

a) Provide the Guadeloupe and Antigua backup routers during the maintenance visit scheduled for Nov-Dec 2014; and

b) During the maintenance visit resolve the backup routing table to allow automatic backup for Martinique

DRAFT CONCLUSION
E/CAR/NTG/5/5 E/CAR AFS NETWORK CONTINGENCY PROCEDURES

That, in order to make official and homogeneously apply the E/CAR AFS Network contingency procedures, E/CAR AFS Members implement by the E/CAR/DCA/26 Meeting, the network contingency procedures, incorporating them in their operational procedures.

DECISION
E/CAR/NTG/5/6 SNMP TOOL FOR LOCAL EQUIPMENT SUPERVISION

That in order to improve local supervision of the equipment,

a) France to conduct a feasibility study into the development of the supervision tool;

b) Trinidad and Tobago will provide the applicable information (MIBs) as required for the tool development; anD

c) Report on the progress of the SNMP Tool by next ECAR/NTG Meeting

DECISION
E/CAR/NTG/5/7 ECAR AFS NETWORK MAINTENANCE ACTIONS

That, in order to conduct the appropriate maintenance actions of the E/CAR AFS Network:

a) Trinidad and Tobago:
- informs at least with a two-weeks' notice of the maintenance dates;
- Provide more detailed feedback to all failure reports in the TopDesk application; and

b) TSTT to provide:
- Breakout of faults regarding power failures
- Availability statistics

DECISION
E/CAR/NTG/5/8 COMPLETION OF E/CAR AFS NETWORK STANDARD OPERATIONS PROCEDURES (SOP):

That, in order to complete the SOP and start it application, the E/CAR/NTG Rapporteur to finalize the compilation of the E/CAR AFS network Standard Operations Procedures (SOP): MPLS maintenance procedure and service level of agreement including the inputs from United States, France, ECCAA and TSTT and present this final draft document at the follow up teleconference in February 2015.

DECISION
E/CAR/NTG/5/9 IMPLEMENTATION CONSIDERATIONS FOR RADAR DATA DISPLAYS WITH CPUS PROVIDED BY FRANCE

That, to facilitate the implementation of the Radar Data Displays based on the France provided CPUs that Antigua and Barbuda, Dominica, Barbados, Montserrat and St. Kitts and Nevis ensure the availability of the monitor and comply with the installation considerations proposed by France.

DRAFT CONCLUSION
E/CAR/NTG/5/10 AVAILABILITY OF FRENCH RADAR DATA BY E/CAR | STATES/ TERRITORIES

That, to make the French Radar data available to any E/CAR State/Territories through the E/CAR AFS Network, France submits to Trinidad and Tobago, a letter with this allowance by 30 October 2014

DECISION
E/CAR/NTG/5/11 ANTIGUA AND BARBUDA RADAR RESTORATION Activities

That Antigua and Barbuda reports no later than 30 November 2014, the activities and planning for the restoration of their radar system.

DECISION
E/CAR/NTG/5/12 SURVEILLANCE DATA SHARING IMPLEMENTATION ACTION PLAN

That, to show the latest progress and next future action on surveillance matters, France, Trinidad and Tobago, United States, and ECCAA to develop an update for the surveillance data sharing action Plan including the agreed milestones by:

a) Drafting this update for the next Radar Data Sharing teleconference of January 2015; and

b) Complete this update for its presentation for the E/CAR/DCA/26 Meeting

DECISION
E/CAR/NTG/05/13 E/CAR/NTG SUPPORT TO ICAO WRC-2015 POSITION

That, in order to support the ICAO position for WRC-2015, the ECAR/NTG members:

a) contact their National Spectrum Manager Authorities for communicating the ICAO WRC-2015 position including the support on the C-Band protection for aviation;

b) coordinate with corresponding State WRC-2015 PoC, the State support to CITEL proposals in line with ICAO WRC-2015 position; and

c) report your progress on a) and b) in advance to the last 2 CITEL meetings.

DRAFT CONCLUSION
E/CAR/NTG/5/14 **INCLUSION OF ADS-B IMPLEMENTATION ACTIVITIES AND RENAMING OF RADAR DATA SHARING GROUP**

That, in order to support the implementation of ADS-B, the Radar Data Sharing Group:

a) Include the necessary tasks in their workprogramme for assisting the ADS-B implementation (trial conduction, etc.);

b) Exchange the State ADS-B plans for regional coordination;

c) Update the group name to Surveillance Data Sharing Group; and

d) Update the Group´s terms of reference and implementation plan as needed.

DECISION
E/CAR/NTG/5/15 **UPDATE THE E/CAR/NTG AND RDS WORK PROGRAMME AND TERMS OF REFERENCE ALIGNING THEM TO THE RPBANIP AND ASBU METHODOLOGY**

That, in order to align the E/CAR/NTG and RDS activities with the ICAO ASBU methodology, the ECAR/NTG and RDS updates by the E/CAR/DCA/26 Meeting, the E/CAR/NTG and RDS work programme and terms of reference aligning them to the RPBANIP and ASBU methodology

— END —