



International Civil Aviation Organization

NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN OFFICE

**Nineteenth Meeting of Directors of Civil Aviation of the Eastern Caribbean
(19th E/CAR DCA)**

Christ Church, Barbados, 6 to 9 December 2004

19th E/CAR DCA-WP/04

24/11/04

Agenda Item 3: Air Navigation Developments
3.1 Special E/CAR CNS Meeting Report

EXECUTIVE SUMMARY OF THE SPECIAL EASTERN CARIBBEAN CNS MEETING

(Presented by the Chairman and the Secretariat of the S-E/CAR CNS Meeting)

SUMMARY

This working paper presents a summary on the discussions held and the Draft Conclusions/Decisions formulated by the Special E/CAR CNS Meeting.

References:

- *Summary of Discussions of the 18th E/CAR DCA Meeting (Port of Spain, Trinidad and Tobago, 9 - 11 December 2003).*
- *Report of the S-E/CAR CNS Meeting (Port of Spain, Trinidad and Tobago, (20 – 22 October 2004).*

1. Introduction

1.1 Based on the Conclusion 18/14 of the 18th E/CAR DCA Meeting, the Special Eastern Caribbean Communications, Navigation and Surveillance (S-E/CAR CNS) Meeting was held in Port of Spain, Trinidad and Tobago, 20 to 22 October 2004, with the participation of 23 delegates from six States/Territories of the E/CAR Region and four international organizations. The S-E/CAR CNS Meeting adopted a Summary of Discussions containing the key matters dealt with during its review, as well as the Draft Conclusions/Decisions presented in the **Appendix** of this paper for approval and/or consideration by the E/CAR States/Territories Directors of Civil Aviation.

2. CNS General matters

Review of the outstanding CNS Conclusions/Decisions of the previous E/CAR WG and E/CAR DCA Meetings

2.1 The S-E/CAR CNS reviewed the status of the conclusions issued by its previous E/CAR WG and E/CAR DCA meetings. The results of the review are included in the Appendixes of the WP/02 of this Meeting.

Review of deficiencies in the CNS systems

2.2 The S-E/CAR CNS Meeting examined the lists of CNS deficiencies classified with priority “U”, “A” and “B”, updating their status and sent them to 19th E/CAR DCA Meeting. **Attachment 1** to this paper indicates the results of the review made by the Meeting with regard to the information contained in the Appendix of WP/03 presented in the mentioned Meeting.

3. Communication Developments

A) *Status and interoperability issues of the E/CAR AFS Digital Network*

3.1 The S-E/CAR CNS Meeting was informed that, in order to effectively correct the deficiencies of the E/CAR AFS network and to ensure that it meets the present and near future ATS requirements, Cable &

Wireless, as a new service provider with the necessary resources to manage the network, has been engaged and will provide the platform that can transport the various facilities protocol across the network.

E/CAR AFS Network on Frame Relay platform

3.2 Frame Relay was chosen as the network's transport protocol because of its ability to handle other older protocols such as X.25, Ethernet, etc. Also, the new service provider has an established modern Frame Relay Management System handling other international traffic. The E/CAR AFS Digital Network will provide an update on the Frame Relay platform at the end of December 2005. As a result, the Meeting agreed **Draft Conclusion 1**, which text is shown in the Appendix.

E/CAR AFS Network protocol

3.3 The S-E/CAR CNS Meeting noted that the new E/CAR AFS Network with Frame Relay transport protocol has the ability to accommodate other protocols such as ISDN for voice, X.25 for data, TCP/IP, Ethernet, so that data integrity is maintained across the network. There will be a main hub in Barbados and a backup in Trinidad; each hub connecting to all the islands and a T1 connecting the two hubs. Network management shall be conducted in Barbados.

Network interconnectivity/interoperability

3.4 In this regard, the S-E/CAR CNS Meeting considered that it is necessary to fully meet the AFS requirements established in the ICAO FASID ANP CAR/SAM between Piarco ACC and SAM region. In this regard, Trinidad and Tobago informed that it is expected to implement a REDDIG VSAT node at Piarco, which would provide the inter-connectivity/interoperability required between E/CAR AFS network with REDDIG.

3.5 The S-E/CAR CNS Meeting recommended that Trinidad and Tobago and United States study the need and the feasibility to implement another E/CAR Digital Network interconnection/interoperability point with other neighbouring networks. Based on this comments, the Meeting agreed to the **Draft Conclusion 2** that is included in the Appendix of this paper.

B) Development of ground-to-ground communications

AFTN COM requirements implementation

3.6 The S-E/CAR CNS Meeting was informed that with the new AFTN Switch at Piarco installed on October 5, 2004, there are plans to increase the circuit speed to 2400 bps and its expanded capacity and ability to handle asynchronous, X.25 and TCP/IP protocol, the provision of multiple AFTN terminals at airports is now feasible. The choice of transmission protocol is TCP/IP facilitating the establishment of Local Area Networks at the airport where terminals can be placed in the Control Towers, Approach Control offices, AIS offices and MET offices.

3.7 The Meeting reviewed and updated the Table CNS 1B – AFTN Plan FASID ANP CAR/SAM for the Eastern Caribbean that is shown in the **Attachment 2**. The Meeting summarized AFTN circuits and AFTN COM centres in the Eastern Caribbean where deficiencies have been detected. It is expected that by upgrading the E/CAR AFS Digital Network and by implementing a REDDIG node in Piarco, these deficiencies will be resolved.

Review and updating of the E/CAR AFTN Plan and its topology

3.8 Based on the Chart CNS 1 of the FASID (Rationalized AFTN Plan for CAR/SAM Regions) the S-E/CAR CNS Meeting noted that the AFTN traffic in the Eastern Caribbean is dependent on a main AFTN centre (Piarco) and a main international AFTN circuit (AFTN circuit San Juan/Piarco), so a failure in the mentioned AFTN main centre and AFTN international circuit could affect all E/CAR States/Territories. On the other hand, the Meeting considered that upgrading the E/CAR AFS Digital Network through the implementation of the Frame Relay would help improve the AFTN plan and its topology.

AMHS Implementation

3.9 The S-E/CAR CNS Meeting proposed the appropriate actions to study the improvement of the AFTN Plan and its topology evolving towards the implementation of the ATS message handling systems (AMHS) of the ATN. Furthermore, Eastern Caribbean aeronautical administrations should consider conducting studies to replace their AFTN switching centres with AMHS or implement directly AMHS servers. The AFTN system should be interconnected through AMHS gateway.

3.10 The Meeting was also informed by the United States on the FAA's efforts to modernize its telecommunication infrastructure (FTI) programme, taking into account all the current and future requirements to support ATS efficiently and in a cost effective manner by the gradual migration from X.25 protocol to TCP/IP protocol. Therefore, the Meeting formulated the **Draft Conclusion 3** that is included in the Appendix.

Updating of the Voice and Data circuits between San Juan and Piarco

3.11 The S-E/CAR CNS Meeting was informed that discussions are in progress between the FAA and IACL/Cable & Wireless regarding the means of connectivity for voice and data circuits with San Juan. Currently, the AFTN uses FAA certified X.25 and the voice is on an ISDN service.

3.12 Based on the global developments, as well as the studies being carried out by ICAO, the Meeting noted that the long-term strategy could involve all voice and data services into a converged network architecture based on TCP/IP protocol and based on the fact that the new AFTN switching has the capability to accommodate the TCP/IP protocol, the S-E/CAR CNS Meeting recommended updating the modernization strategy plan of voice and data circuit between Port of Spain, Trinidad and Tobago and San Juan, Puerto Rico by the migration from X.25 to TCP/IP protocol. Based on this, the Meeting formulated the **Draft Conclusion 4** that is shown in the Appendix.

ATS speech circuits implementation

3.13 The S-E/CAR CNS Meeting noted that some ATS speech circuits connecting Piarco ACC with TMA Units, within Piarco FIR have some deficiencies, but it is expected that by upgrading the E/CAR AFS network this will be resolved. Also the deficiencies in the circuits between Piarco ACC with SAM ACCs of Georgetown, Maiquetia, Paramaribo and Rochambeau will be resolved by implementing a REDDIG node at Piarco ACC. The S-E/CAR CNS Meeting also proposed to add to the Table CNS 1C, the following new ATS requirements for speech communication circuits:

PROPOSED NEW ATS REQUIREMENTS FOR SPEECH COMMUNICATIONS		
Terminal I	Terminal II	Type
Adams APP, Barbados	E.T. Joshua APP, St. Vincent Point Salines APP, Grenada	A A
Fort de France APP, Martinique	E.T. Joshua APP, St. Vincent	A
Point Salines APP, Grenada	E.T. Joshua APP, St. Vincent	A
Piarco ACC, Trinidad and Tobago	Dakar ACC, Senegal	A

3.14 The Meeting noted that in order to include the aforementioned proposal in the FASID Table CNS 1C – *ATS speech circuit plan* and according to the procedure established by ICAO, it is necessary that an Amendment be circulated and approved. Based on this, the meeting formulated **Draft Conclusion 5**, which is included in the Appendix. The updated Table CNS1C is shown in the **Attachment 3**.

Radar Data transmission

3.15 The S-E/CAR CNS Meeting recalled that the first implementation of the E/CAR Radar Data Sharing will take place between Martinique and St. Lucia APP providing radar imagery. The new E/CAR AFS network shall provide a direct circuit between Martinique and the two airports in St. Lucia, each one in separate circuits. The network routers on either end of the circuits shall be equipped with an Ethernet Card that interfaces with the Local Area Networks used by the radar data processing equipment and shall provide the transport of the radar data using the prescribed protocol across the Frame Relay Network.

3.16 The Meeting was informed that the hub of the Radar Data sub-network is planned to be installed in Martinique and circuits will go out to St. Maarten, Antigua, Barbados, Trinidad, St. Lucia and to any other island that may wish to join the network. Also, direct circuits between any two islands are possible, bearing in mind that the Service Provider is only responsible for the safe transport of the Radar Data between the two points across the Frame Relay Network and it will not be involved in the maintenance of the radar data processing equipment in the airports.

C) Development of air-ground communication by voice and data links in Piarco FIR***Improvement of the VHF and HF air-to-ground coverage***

3.17 The S-E/CAR CNS Meeting reviewed the information available of the VHF air – ground en-route and APP communication coverage status. In this regard, the Meeting was informed that France has been executing a project for improving the French Antilles VHF coverage; it is expected that after the project is completed the coverage should not contain any hole and the normal and redundant VHF coverage would be optimised. IACL also informed that a new station was implemented in a high site of Tobago in order to take care of the blind spots and new equipment and antenna were installed at the relay stations in Antigua, Barbados and Saint Lucia, in order to improve the VHF en-route coverage.

3.18 Regarding the HF air – ground communication in the oceanic area of the Piarco FIR, Trinidad & Tobago Civil Aviation Authority (TTCAA) informed the Meeting that the new HF communication equipment for the Piarco ACC will be commissioned in January 2005.

Implementation of air-to-ground data link

3.19 The S-E/CAR CNS Meeting recalled that Conclusion 12/42 of the GREPECAS recommended to States, Territories, International Organizations and all users to continue with the implementation of the applications feasible to be used with the Aircraft Communications Addressing and Reporting System (ACARS) data link and FANS-1A aircraft during the transition towards the implementation of the ATN bit oriented data links. Conclusion 12/43 of the GREPECAS recommended to continue implementing air-ground data communications with VDL Mode 2 as a support infrastructure of the air-ground sub-network to enable the ATN applications evolutionary implementation according to the operational requirements.

3.20 The Meeting also recalled that the 28th E/CAR Working Group Meeting through its Decision 28/11 urged Eastern Caribbean States/Territories to develop an action plan to implement Data Link-Automatic Terminal Information Service (D-ATIS) and Pre-Departure Clearance (PDC) services in their international airports.

3.21 For the above, the Meeting considered that E/CAR States and Territories need to have more information on the requirements and advantages of the implementation of the data links. The Meeting agreed to the **Draft Conclusion 6** that is included in the Appendix.

4. *Navigation Developments*

GNSS Implementation

4.1 In order to continue implementing the GNSS in the Eastern Caribbean, the S-E/CAR CNS Meeting recommended actions to review and update the Eastern Caribbean GNSS implementation plan as part of the CNS/ATM implementation plan and the related national plan. Therefore, **Draft Conclusion 7** was formulated and included in the Appendix.

5. *Surveillance Developments*

A) Surveillance System Developments

5.1 The S-E/CAR CNS Meeting noted that the Eastern Caribbean States and Territories are carrying out a remarkable development in surveillance systems by the implementation of new secondary surveillance radar (SSR) Mode A/C using monopulse technique and by implementing the radar data sharing. In addition, Trinidad and Tobago informed on its plan of implementation of ADS-B initially in the oceanic airspace of the Piarco FIR. Taking into account this development, the S-E/CAR CNS Meeting reviewed and updated the Table CNS 4A – *Surveillance Plan* of the FASID as shown in the **Attachment 4** of this paper. Therefore, the Meeting agreed the **Draft Conclusion 8**, which text is shown in the Appendix.

B) Radar data sharing among E/CAR States/Territories

E/CAR common seamless radar image

5.2 The S-E/CAR CNS Meeting was informed by the Radar Sharing Task Force (RSTF) on the progress of the common seamless radar image project. The major topics of discussion were the following:

- Current status of the project:
 - Martinique and Guadeloupe integration in DACOTA System.
 - Commencement Barbados radar assessment.
- An envisaged schedule for integration of the diverse data coming from the radar antennae of the region (Antigua, Barbados, and/or Saint Maarten, Trinidad and Tobago).
- The standard for raw radar data transmission: ASTERIX CAT 1 & 2 format to be sent using LAP/B protocol.
- A formal agreement request letter concerning the acceptance by the States/Territories of remoting their radar data antenna to Martinique. The mentioned Draft Letter is shown in **Attachment 5** of this part of the report.
- Information to the Meeting by OECS of the status of the Antigua and Barbuda radar antenna.

Radar image remoting to Saint Lucia

5.3 The Meeting was informed on the progress of the project to remoting in Saint Lucia the Martinique radar image:

- The main LOA was signed in November 2003 between OECS and France.
- The equipment installation specifications have been assessed during a technical visit to Saint Lucia's facilities.
- The local radar network schematic was approved.
- The Meeting was informed of the project planning, especially the forecasted completion date in early 2006.

Radar training matters

5.4 The Meeting was reminded of the technical and ATC training required by the regional radar projects. The Meeting agreed that the training should be completed just before the equipment/ procedures come into force. The details of the technical training program for the Radar image implementation in Saint Lucia were discussed and the completion date was agreed to be November 2005.

Radar data transmission through the E/CAR AFS Digital Network

5.5 IACL informed that the mentioned network used for Saint Lucia radar image remoting tests was assured to be compliant with the Frame Relay Network intended to be managed by Cable and Wireless, as new network provider. Fruitful exchanges between RSTF technical experts and IACL/Cable & Wireless representatives allowed for a much clearer understanding of technical radar data transmission between Martinique and the E/CAR radar station operators.

Immediate radar image remoting to Piarco ACC

5.6 RSTF informed that the need to provide surveillance of the major part of Piarco UTA/CTA caused the Meeting to agree on the positive impact that an immediate remoting to Piarco ACC of the current DACOTA system and Barbados radar images would have. France provided the specifications of the DACOTA system output. Two sets of bilateral discussions between Piarco and the radar data operators should start as soon as possible. This perspective is today independent of the common seamless E/CAR radar image although Trinidad and Tobago re-affirmed its full interest for the common radar image planned in the Eastern Caribbean.

5.7 **Draft Conclusions 9, 12, 13 and 15** and the **Draft Decisions 10, 11 and 14** proposed by the RSTF/3 Meeting and reviewed by the S-E/CAR CNS Meeting are shown in the Appendix.

6. Development of the Technical Infrastructure and Interoperability for ATS/ATM Automated Systems

6.1 Based on the Decision 28/10 of E/CAR WG and Conclusion 12/31 of GREPECAS, the S-E/CAR CNS Meeting considered that the following preliminary guidance on the technical infrastructure shown in the **Attachment 6** of this part of the report should be available and necessary during each phase of implementation. Based, on that, the Meeting formulated **Draft Conclusion 16**, which is included in the Appendix.

7. Other Business

Status of the E/CAR Regional CNS Committee

7.1 IACL, as Rapporteur of the aforementioned Committee informed that, three attempts were made during October 2003, January 2004 and May 2004, for States and Territories to submit updates and/ or amendments to their respective National Plan and Timetable, in order to update the E/CAR CNS/ATM Plan. This was a pre-requisite for the convening of a meeting to review the E/CAR CNS/ATM Plan. Nevertheless, due to the general lack of response, the meeting did not take place. Based on this, the meeting formulated **Draft Conclusion 17**, which text is shown in the Appendix.

8. Suggested Action by the Meeting

8.1 The 19th E/CAR DCA Meeting is invited to:

- a) note the information contained in this paper;
- b) review and adopt the conclusions of the S-E/CAR CNS Meeting shown in Appendix to this paper; and
- c) agree upon other actions as required.

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APPENDIX**CNS DRAFT CONCLUSIONS AND DECISIONS OF THE S-E/CAR CNS MEETING**

DRAFT CONCLUSIONS	ACTION FOR	REMARKS/ FOLLOW-UP	ACTION BY DCAS
DRAFT CONCLUSION 1 UPGRADE OF THE E/CAR AFS NETWORK ON FRAME RELAY MANAGEMENT SYSTEM That, IACL, a) be urged to provide the E/CAR AFS Network on Frame Relay Management System platform before the end of December 2005; and b) following the conclusion 17/13 of the 17th E/CA DCA Meeting provide to the DCAs, as soon as possible, a report on the status of the implementation of the digital network, as well as an updated Project Plan related to this subject.	IACL		Approve

DRAFT CONCLUSIONS	ACTION FOR	REMARKS/ FOLLOW-UP	ACTION BY DCAS
DRAFT CONCLUSION 2: IMPROVING THE INTERCONNECTION AND INTEROPERABILITY OF THE E/CAR AFS DIGITAL NETWORK WITH NEIGHBOURING NETWORKS That, in order to fully meet the current AFS requirements and future new communication services providing interconnection/interoperability of the E/CAR AFS digital network with neighbouring networks: a) Trinidad and Tobago be urged to implement a REDDIG VSAT node at Piarco ACC before the end of 2004; b) Trinidad and Tobago, United States and IACL study the feasibility to implement an additional interconnection/ interoperability point of the E/CAR Digital Network with other neighbouring networks; c) as mentioned in paragraph b) above, a meeting is proposed to be held in San Juan, Puerto Rico before the end of January 2005, reporting the results to the next E/CAR WG Meeting; and d) in order to meet the study mentioned in the paragraph b) above, take into account the, 1) updated AFS requirements contained in Tables CNS1A and CNS1C of the FASID that are shown as Appendices 2A and 2B of this report; 2) infrastructure and the available logistical support in the proposed interconnection site; and 3) “Guidance material to initiate the analysis of digital network interconnection in the CAR/SAM Regions” recommended by Conclusion 10/27 of the GREPECAS shown in the Appendix 2C of this report.	Trinidad and Tobago, United States and IACL		Approve

DRAFT CONCLUSIONS	ACTION FOR	REMARKS/ FOLLOW-UP	ACTION BY DCAS
DRAFT CONCLUSION 3: START OF THE MIGRATION FROM AFTN TO AMHS IN THE EASTERN CARIBBEAN That, based on the need for the migration from the AFTN to AMHS, the States and Territories that consider implementing or upgrading their AFTN switching, include in the capabilities the use of X.25, TCP/IP protocols in the equipment.	States/ Territories		Approve
DRAFT CONCLUSION 4: STUDY THE FEASIBILITY AND UPDATE THE STRATEGY PLAN OF MODERNIZATION OF THE VOICE AND DATA CIRCUIT BETWEEN PORT OF SPAIN AND SAN JUAN That, based on the global development and the capabilities of the new AFTN switching of Piarco, Trinidad and Tobago, United States and IACL, a) study the feasibility, and update the strategy plan of modernization of the voice and data circuit between Port of Spain, Trinidad and Tobago and San Juan, Puerto Rico by the migration from X.25 protocol to TCP/IP protocol; and b) report the results of the study mentioned in the above paragraph to the 29th E/CAR Working Group Meeting.	Trinidad and Tobago, United States and IACL		Approve
DRAFT CONCLUSION 5: PROPOSAL OF AMENDMENT TO THE ATS REQUIREMENTS FOR SPEECH CIRCUITS COMMUNICATIONS IN THE TABLE CNS 1C, FASID That, based on Appendix 2B of this part of the Report, ICAO NACC Regional Office establishes the appropriate amendment in order to include in the Table CNS 1C of the FASID the ATS requirements for speech circuits communications in accordance with the table shown above.	ICAO		Approve

DRAFT CONCLUSIONS	ACTION FOR	REMARKS/ FOLLOW-UP	ACTION BY DCAS
DRAFT CONCLUSION 6: EXPLANATION OF THE REQUIREMENTS AND OPERATIONAL ADVANTAGES OF THE DATA LINKS IN THE EASTERN CARIBBEAN That the ICAO NACC Regional Office considers presenting the explanatory material on the requirements and operational advantages of the use of data link applications to the 19th E/CAR DCA meeting.	ICAO	The IP/05 presents to this Meeting the explanatory material on the data link applications. It is also proposed that in the next E/CAR WG Meeting, this issue be discussed in detail.	Approve

DRAFT CONCLUSIONS	ACTION FOR	REMARKS/ FOLLOW-UP	ACTION BY DCAS
DRAFT CONCLUSION 7: E/CAR ACTIVITIES FOR GNSS IMPLEMENTATION That, the E/CAR States/Territories/International Organizations be encouraged to continue their activities towards the GNSS implementation, taking into consideration: a) the new “<i>Regional guidelines for the transition to the global navigation satellite systems (GNSS)</i>” and the “<i>Regional strategy for the introduction and application of non visual aids to approach, landing and departure</i>” shown in Appendix 2A and Appendix 2B to this part of the report; b) the new SARPs on the GNSS containing in the ICAO Annex 6 and Annex 10, Volume I; and c) based on the “<i>CAR/SAM regional strategies and rules to define the SBAS architecture and the introduction of GBAS</i>”, that is shown in Appendix 2C, follow-up the CAR/SAM regional activities for the SBAS and GBAS trials and planning implementation.	States/Territories/International Organizations		Approve
DRAFT CONCLUSION 8: UPDATED E/CAR SURVEILLANCE PLAN That, based on the Appendix 4A of this part of the report, ICAO update the E/CAR part of the Table CNS 4 A – <i>Surveillance Plan</i> of the FASID CAR/SAM ANP.	States/ Territories/ ICAO		Approve
DRAFT CONCLUSION 9: REQUESTED INFORMATION ON E/CAR RADAR COVERAGE That, Antigua and Barbuda, Barbados, Trinidad and Tobago be committed to provide through the ICAO NACC Office radar paper coverage charts at 3000, 5000, 10000 and 20000 feet.	States/ Territories/ International Organizations		Approve

DRAFT CONCLUSIONS	ACTION FOR	REMARKS/ FOLLOW-UP	ACTION BY DCAS
DRAFT CONCLUSION 12: REQUESTED TECHNICAL INFORMATION ON RADAR STATIONS That, a) Antigua / OECS provide to STNA/ALENIA technical specifications; and b) Trinidad and Tobago, Barbados and Antigua and Barbuda provide the rapporteur with their ICD with their global radar architecture.	a) States/ Territories/ International Organizations b) Trinidad and Tobago		Approve
DRAFT CONCLUSION 13: COMPLIANCE WITH THE GREPECAS SAC-ASTERIX ASSIGNMENT PLAN That, the E/CAR States/Territories be urged to become compliant with the GREPECAS SAC-ASTERIX assignment Plan recommended by Conclusion 12/48 of GREPECAS by the end of 2005.	E/CAR WG		Approve
DRAFT CONCLUSION 15: REQUESTED LETTER OF AGREEMENT REGARDING THE PROVISION OF RADAR DATA TO THE DACOTA SYSTEM That, States and Territories listed hereunder¹, be informed through the ICAO NACC Regional Office of the need for their agreement to provide radar data to the DACOTA System in Martinique, in accordance with the Draft Letter shown in Appendix 4C of this part of the Report. ¹Antigua and Barbuda, Barbados, Netherlands Antilles, Saint Maarten, Trinidad and Tobago.	States/Territoires		Approve

DRAFT CONCLUSIONS	ACTION FOR	REMARKS/ FOLLOW-UP	ACTION BY DCAS
DRAFT CONCLUSION 16: PRELIMINARY GUIDANCE ON TECHNICAL INFRASTRUCTURE AS SUPPORT TO THE EVOLUTIONARY IMPLEMENTATION OF ATS/ATM AUTOMATED SYSTEMS That, in order to implement the technical infrastructure as a support to the evolutionary implementation of ATS/ATM automated systems, the E/CAR States/Territories should consider the preliminary guidance that is shown in Appendix of this part of the report.	States/Territories		Approve
DRAFT CONCLUSION 17: REQUEST TO SUPPORT THE E/CAR CNS ACTIVITIES BY THE E/CAR DCAS That, a) E/CAR States and Territories consider to review the organizational structure of their aviation administrations with a view to ensuring that suitably trained personnel are assigned to specific responsibility for CNS matters; and b) ICAO NACC Regional Office advises on the above-mentioned paragraph.	States/Territories		Approve

DRAFT DECISIONS

DRAFT DECISIONS	ACTION FOR	REMARKS/ FOLLOW-UP	STATUS
DRAFT DECISION 10: TRANSFER THE TASK RELATED TO FLIGHT PLAN AND POSITION REPORTS TO E/CAR ATM COMMITTEE That the task to analyse the transmission of Flight Plan data and updated position reports on airborne flights to be used for ATM	E/CAR ATM Committee		Note

DRAFT DECISIONS	ACTION FOR	REMARKS/ FOLLOW-UP	STATUS
purposes be transferred to E/CAR ATM Committee.			
DRAFT DECISION 11: TRANSFER THE TASK RELATED TO OCEANIC SURVEILLANCE TO E/CAR WORKING GROUP That the task related to oceanic surveillance be transferred to the E/CAR WG.	E/CAR WG		Approve
DRAFT DECISION 14: FOLLOW UP THE PROGRESS OF THE POSSIBLE RADAR REMOTING TO PIARCO ACC That the Radar Sharing Task Force be kept informed of the progress regarding the possible remoting of Barbados and current DACOTA images system to Piarco ACC.	Radar Data Sharing Task Force,		Approve

ATTACHMENT 1 TO THE APPENDIX**COMMENTS FORMULATED BY THE SPECIAL EASTERN CARIBBEAN ON CNS DEFICIENCIES IN
APPENDIX OF THE WP/03**

No.	Comments
CNS 3C	It is implemented IA-5. The completion date is 31 December 2004.
CNS 2C	The completion date is 31 December 2004.
CNS 4C	The completion date is 31 December 2004.
CNS 5C	The completion date is 31 December 2004.
CNS 52C	The completion date is 31 December 2004.
CNS 53C	Trinidad and Tobago informed that the APP service at Crown Point Intl. Airport is provided by Piarco. Trinidad and Tobago will sent a letter to ICAO proposing to remove this requirement for the mentioned airport contained in the Table CNS 2A of the FASID.
CNS 22C	Trinidad and Tobago informed that it expects the commissioning of the new equipment by January 2005. This is the completion date of this deficiency.

ATTACHMENT 2 TO THE APPENDIX
TABLE CNS 1A – AFTN PLAN

EXPLANATION OF THE TABLE

Column

1	The AFTN Centres/Stations of each State are listed alphabetically. Each circuit appears twice in the table. The categories of these facilities are as follows: M C Main AFTN COM Centre T C Tributary AFTN COM Centre S C AFTN Station
2	Category of circuit: M C Main trunk circuit connecting Main AFTN communication centres. T C Tributary circuit connecting Main AFTN communication centre and Tributary AFTN Communications Centre. S C AFTN circuit connecting an AFTN Station to an AFTN Communication Centre.
3 and 7	Type of circuit provided: LTT/a C Landline teletypewriter, analogue (e.g. cable, microwave) LTT/d C Landline teletypewriter, digital (e.g. cable, microwave) LDD/a C Landline data circuit, analogue (e.g. cable, microwave) LDD/d C Landline data circuit, digital (e.g. cable, microwave) SAT/a/d C Satellite link, with /a for analogue or /d for digital
4 and 8	Circuit signalling speed, current or planned in bits/s.
5 and 9	Circuit protocols, current or planned.
6 and 10	Data transfer code (syntax), current or planned: ITA-2 C International Telegraph Alphabet No. 2 (5-unit Baudot code). IA-5 C International Alphabet No. 5 (ICAO 7-unit code). CBI C Code and Byte Interdependency (ATN compliant).
11	Target date of implementation TBD C To be determined
12	Remarks

*Note. **C** Due to loading factor considerations, 150 bits/s is required as minimum.*

MEVA **C** Central Caribbean MEVA Satellite Digital Network
E/CAR **C** Eastern Caribbean Digital Network
REDDIG **C** SAM Digital Network

State/Station État/Station Estado/Estación	Category Catégorie Categoría	Current Actuel Actual				Planned Prévu Planificado				Target date implementation Date cible de mise en œuvre Fecha de implantación	Remarks Remarques Observaciones
		Type Tipo	Signalling speed Débit de signalisation Velocidad señalización	Protocol Protocole Protocolo	Code Código	Type Tipo	Signalling speed Débit de signalisation Velocidad señalización	Protocol Protocole Protocolo	Code Código		
1	2	3	4	5	6	7	8	9	10	11	12
ANGUILLA Anguilla-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
ANTIGUA AND BARBUDA Antigua-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
BARBADOS Barbados-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
DOMINICA Dominica-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
FRENCH ANTILLES (GUADELOUPE) Pointe-a-Pitre-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
FRENCH ANTILLES (MARTINIQUE) Fort-de-France-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
GRENADA Grenada-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
MONTSERRAT Montserrat-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
SAINT KITTS AND NEVIS Saint Kitts and Nevis-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
SAINT LUCIA Saint Lucia-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR

2A-A-3

State/Station État/Station Estado/Estación	Category Catégorie Categoría	Current Actuel Actual				Planned Prévu Planificado				Target date implementation Date cible de mise en œuvre Fecha de implantación	Remarks Remarques Observaciones
		Type Tipo	Signalling speed Débit de signalisation Velocidad señalización	Protocol Protocole Protocolo	Code Código	Type Tipo	Signalling speed Débit de signalisation Velocidad señalización	Protocol Protocole Protocolo	Code Código		
1	2	3	4	5	6	7	8	9	10	11	12
SAINT VINCENT AND THE GRENADINES Saint Vincent-S Port of Spain	M	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
SAINT MAARTEN Saint Maarten-S United States	M	SAT/d	2400	X25	IA-5						MEVA
TORTOLA Tortola United States	M					LTT	2400	X25	IA-5	TBD	
TRINIDAD AND TOBAGO Port of Spain-M											
Anguilla	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Antigua	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Barbados	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Caracas	M	LTT/a	300	None	IA-5	LTT/d	2400	X25	IA-5	TBD	REDDIG
Dominica	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Fort-de-France	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Georgetown	S	LTT/a	1200	None	IA-5		2400	X25	IA-5	TBD	REDDIG
Grenada	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Montserrat	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Pointe-à-Pitre	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Saint Kitts and Nevis	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Saint Lucia	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
Saint Vincent	S	LTT/d	1200	X.25	IA-5		2400			12/04	E/CAR
United States	M	LTT/d	1200	X.25	IA-5						
TURKS AND CAICOS ISLANDS Grand Turk-T United States	M	LLT/d	2400	X25	IA-5						
UNITED STATES United States-M											
Grand Turk	T	LLT/d	2400	X25	IA-5						
Port of Spain	M	LTT	1200	X.25	IA-5						
Saint Maarten	S	SAT/d	2400	X25	IA-5						MEVA
Tortola	S					LTT/d	2400	X25	IA-5	TBD	E/CAR
VIRGIN ISLANDS Tortola-S United States	M						2400	X25	IA-5	TBD	E/CAR

ATTACHMENT 3 TO THE APPENDIX
Table CNS 1C – Tableau CNS 1C – Tabla CNS 1C
ATS SPEECH CIRCUITS PLAN

EXPLANATION OF THE TABLE

Column

- 1 and 2 Circuit terminal stations are listed alphabetically by the Terminal I.
- 3 A – indicates ATS requirement for the establishment of voice communication within 15 seconds.
D – indicates requirements for instantaneous communications.
- 4 Type of service specified:

LTF – landline telephone (landline, cable, UHF, VHF, satellite).
RTF – radiotelephone.
- 5 Type of circuits; Direct (DIR) or Switched (SW).

D – indicates a direct circuit connecting Terminals I and II.
S – indicates that a direct circuit does not exist and that the connection is established via switching at the switching centre(s) indicated in column 6.
IDD – International direct dialling by public switch telephone network.
- Note 1.– Number of D and/or S circuits between Terminals I and II are indicated by numerical prefix, i.e. 2 D/S means 2 direct circuits and one switched circuit.*
- Note 2.– Pending the implementation of proper ATS voice circuits, and provided that aeronautical operational requirements are met, IDD services may be used for the ATS voice communications in low traffic areas.*
- 6 Location of switching centre(s). Alternate routing location, if available, is indicated in brackets.
- Note 3.– The following networks have been identified in the table for providing the connection between terminals:*
- CAMSAT – COCESNA Satellite Communication Network
E/CAR – Eastern Caribbean Network
MEVA – Central Caribbean MEVA Satellite Digital Network
REDDIG – SAM Digital Network
- 7 Status of Implementation. Following codes are used in this column:
- a) I – if the circuit is implemented.
- Note 4.– If the circuit is implemented but there are short-term plans to establish it in other private/public network(s), the symbol I/P shall be introduced indicating in Column 8 – Remarks, the future network environment for the circuit.*
- b) No indication or mark if the circuit is not implemented and its implementation data is unknown.
- c) If the circuit is not implemented but its implementation date is available, same is indicated in brackets.
- 8 Remarks

ATS requirements for speech communications Besoins de l'ATS en communications vocales Requisitos ATS para comunicaciones orales			Circuit Circuito			Status of implementation État de mise en œuvre Estado de implantación	Remarks Remarques Observaciones
Terminal I Tête de ligne I	Terminal II Tête de ligne II	Type Tipo	Service Servicio	D/S	To be switched via/ Commutation via/ A ser conmutado vía		
1	2	3	4	5	6	7	8
ANGUILLA (United Kingdom)							
Anguilla TWR	Juliana APP	A	LTF	D		I	
ANTIGUA AND BARBUDA							
V.C. Bird APP	Blackburne TWR	A	LTF	S	E/CAR	I	
	Golden Rock TWR	A	LTF	S	E/CAR	I	
	Juliana APP	A	LTF	S	E/CAR	I	
	Piarco ACC	A	LTF	S	E/CAR	I	
	Pointe-a-Pitre APP	D	LTF	D		I	
	San Juan ACC	A	LTF	S	E/CAR	I	
BARBADOS							
Adams APP	E.T. Joshua APP	A	LTF	S	E/CAR	I	
	Fort-de-France APP	D	LTF	D		I	
	Piarco ACC	D	LTF	D		I	
	Saint Lucia APP	A	LTF	S	E/CAR	I	
	Point Salines APP	A	LTF	S	E/CAR	P	
DOMINICA (Non-Contracting State)							
Canefield TWR	Pointe-a-Pitre APP	A	LTF	D		I	
Melville Hall TWR	Pointe-a-Pitre APP	A	LTF	D		I	
FRENCH ANTILLES (France)							
Fort-de-France APP	Adams APP	D	LTF	D		I	E/CAR
	E.T. Joshua APP	A	LTF	S		P	E/CAR
	George Charles TWR	D	LTF	D		I	E/CAR
	Piarco ACC	D	LTF	D		I	E/CAR
	Pointe-a-Pitre APP	D	LTF	D		I	E/CAR
	Saint Lucia APP	D	LTF	D		I	E/CAR
Pointe-à-Pitre APP	Canefield TWR	A	LTF	D		I	E/CAR
	Fort-de-France APP	D	LTF	D		I	
	Melville Hall TWR	A	LTF	D		I	E/CAR
	Piarco ACC	D	LTF	D		I	E/CAR
	San Juan ACC	D	LTF	D		I	E/CAR
	V.C. Bird APP	D	LTF	D		I	E/CAR
Saint Barthelemy AFIS	Juliana APP	A	LTF	D		I	E/CAR
Saint Martin Grand Case AFIS	Juliana APP	A	LTF	D		I	E/CAR
GRENADA							
Point Salines APP	Adams APP	A	LTF	S	E/CAR	P	
	E.T. Joshua APP	A	LTF	S	E/CAR	P	
	Piarco ACC	A	LTF	D		I	E/CAR
MONTSERRAT							

ATS requirements for speech communications Besoins de l'ATS en communications vocales Requisitos ATS para comunicaciones orales			Circuit Circuito			Status of implementation État de mise en œuvre Estado de implantación	Remarks Remarques Observaciones
Terminal I Tête de ligne I	Terminal II Tête de ligne II	Type Tipo	Service Servicio	D/S	To be switched via/ Commutation via/ A ser conmutado vía		
1	2	3	4	5	6	7	8
(United Kingdom)							
Gerald's TWR	V.C. Bird APP	A	LTF	D		I	
NETHERLANDS ANTILLES (Netherlands)							
Juliana APP	Anguilla TWR	A	LTF	D		I	
	Golden Rock TWR	A	LTF	D		I	
	St. Barthelemy AFIS	A	LTF	D		I	
	San Juan ACC	A	LTF	D		I	
	Saint Martin Grand case AFIS	A	LTF	D		I	
	V.C. Bird APP	A	LTF	D		I	
PUERTO RICO (United States)							
San Juan ACC	Beef Island TWR	A	LTF	D		I	
	Curacaon ACC	A	LTF	S	MEVA	I	
	Golden Rock TWR	A	LTF	D		I	
	Juliana APP	D	LTF	D		I	
	Maiquetia ACC	A	LTF	D		I	
	Miami ACC	D	LTF	D	MEVA	I	
	New York ACC	D	LTF	D		I	
	Piarco ACC	A	LTF	D		I/P	E/CAR
	Pointe-a-Pitre APP	D	LTF	D		I	MEVA
	Santo Domingo ACC	D	LTF	D		I	
	V.C. Bird APP	A	LTF	D			
SAINT KITTS AND NEVIS (Non-Contracting State)							
R.L. Brshaw TWR	Juliana APP	A	LTF	D		I	
	San Juan ACC	A	LTF	D		I	
	V.C. Bird APP	A	LTF	D		I	
SAINT LUCIA							
George Charles TWR	Fort-de-France APP	D	LTF	D		I	E/CAR
Saint Lucia APP	E.T. Joshua APP	A	LTF	D		I	E/CAR
	Fort-de-France APP	D	LTF	D		I	E/CAR
	Grantley Adams APP	A	LTF	D		I	E/CAR
	Piarco ACC	D	LTF	D		I	E/CAR
SAINT VINCENT AND THE GRENADINES							
E.T. Joshua APP	Adams APP	A	LTF	D		I	E/CAR
	Fort-de-France APP	A	LTF	S		P	E/CAR
	Piarco ACC	A	LTF	D		I	E/CAR
	Point Salines APP	A	LTF	S		P	E/CAR
	Saint Lucia APP	A	LTF	D		I	E/CAR
TRINIDAD AND TOBAGO							
Piarco ACC	Dakar ACC	A	LTF	D		P	
	E.T. Joshua APP	A	LTF	D		I	E/CAR
	Fort-de-France APP	D	LTF	D		I	E/CAR
	Georgetown ACC	A	LTF	D		I/P	REDDIG
	Adams APP	D	LTF	D		I	E/CAR

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ATS requirements for speech communications Besoins de l'ATS en communications vocales Requisitos ATS para comunicaciones orales			Circuit Circuito			Status of implementation État de mise en œuvre Estado de implantación	Remarks Remarques Observaciones
Terminal I Tête de ligne I	Terminal II Tête de ligne II	Type Tipo	Service Servicio	D/S	To be switched via/ Commutation via/ A ser conmutado vía		
1	2	3	4	5	6	7	8
TURKS AND CAICOS ISLANDS (United Kingdom)	Maiquetía ACC	A	LTF	D		I/P	REDDIG
	New York ACC	A	LTF	D		I	
	Paramaribo ACC	A	LTF	D		P	REDDIG
	Pointe-a-Pitre APP	D	LTF	D		I	E/CAR
	Pointe Salines APP	A	LTF	D		I	E/CAR
	Rochambeau ACC	A	LTF	IDD/D		I/P	REDDIG
	Saint Lucia APP	D	LTF	D		I	E/CAR
	San Juan ACC	A	LTF	D		I	E/CAR
	Santa María ACC	A	LTF	D		I	E/CAR
	V.C. Bird APP	A	LTF	D		I	E/CAR
UNITED STATES							
Providenciales TWR	Miami ACC	A	LTF	D		I	
New York ACC	Piarco ACC	A	LTF	D		I	
VIRGIN ISLANDS (United Kingdom)							
Beef Island TWR	San Juan ACC	A	LTF	D		I	

ATTACHMENT 4 TO THE APPENDIX
Table CNS 4A - SURVEILLANCE SYSTEMS (Updated)

State(Territory)/Location Estado(Territorio)/Ubicación	ATS Unite Served Unidad ATS Servida	PSR			SSR				ADS		Remarks Observaciones
		Funtion Función	Coverage Cobertura (NM)	Status Impl. Estado	Funtion Función	Modes Modos (A,C& S)	Coverage Cobertura (NM)	Status Impl. Estado	Type Tipo	Status Impl. Estado	
1	3	4	5	6	7	8	9	10	11	12	13
ANGUILA (UK)								NP			
ANTIGUA & BARBUDA Airport (4 NM North)	V.C. Bird APP				T	A/C	180	I*			* MSSR
BARBADOS Airport	Adams APP				T	A/C	250	I*			*MSSR
DOMINICA				NP				NP			
FRENCH ANTILLES Fort-de-France Point-à-Pitre	Fort-de-France APP Point-à-Pitre APP				T T	A/C A/C	250 250	I* I*			*MSSR *MSSR
GRENADA	Point Salines APP							N/P			
MONSTERRAT (United Kingdom)								N/P			
NETHERLANDS ANTILLES (Netherlands) Willemstad Saint Maarten	Curaçao ACC Curaçao APP Juliana APP	E/T T	120 60	I I	E/T T	A/C A/C	256 256	I* I*			*MSSR *MSSR
PUERTO RICO (United States) Pico del Este San Juan	San Juan ACC San Juan APP	E/T		I	E T	A/C A/C		I I			
SAINT KITTS AND NEVIS								NP			

4A-A-2

State(Territory)/Location Estado(Territorio)/Ubicación	ATS Unite Served Unidad ATS Servida	PSR			SSR				ADS		Remarks Observaciones
		Funtion Función	Coverage Cobertura (NM)	Status Impl. Estado	Funtion Función	Modes Modos (A,C& S)	Coverage Cobertura (NM)	Status Impl. Estado	Type Tipo	Status Impl. Estado	
1	3	4	5	6	7	8	9	10	11	12	13
SAINT LUCIA	Saint Lucia APP							NP*			* Radar data sharing with Martinique planned/ Proyecta compartir datos radar con Martinica.
SAINT VINCENT & THE GRENADINES	E.T.Joshua APP							NP			
TRINIDAD & TOBAGO Piarco (18 NM Northwest)	Piarco ACC				E/T	A/C	250	I*	B	P	*MSSR
TURKS & CAICOS IS. (United Kingdom) Grand Turks	Miami ACC				E	A/C		I			

ATTACHMENT 5 TO THE APPENDIX

Draft Letter to be sent to E/CAR States regarding request for States' agreement to provide radar data to the DACOTA System.

TEXT

The primary purpose of the Radar Data Sharing process, in addition to the enhancement of aviation safety, is to provide States and Territories of the Eastern Caribbean with a seamless radar image of Air Traffic Control.

The process involves transmitting the radar data from the islands of Trinidad, Barbados, Guadeloupe, Antigua and Saint Maarten to Martinique.

From the Martinique hub, a seamless image would then be retransmitted to any of the E/CAR States and Territories for the provision of Air Traffic Control in their areas of responsibility.

Conclusion 1/13 of the 1st Radar Sharing Task Force Meeting (June 1999, Martinique) recognized the need for radar operators in the Eastern Caribbean Region to provide their radar data to the French DACOTA Surveillance Data Processing and Distribution System.

The DACOTA System has now been tested, commissioned and is operational between the French Territories of Martinique and Guadeloupe. Martinique is currently using the output of DACOTA in the provision of Air Traffic Control, and a project for the remoting of radar data to Saint Lucia has begun. Tests have been conducted for connecting the Barbados radar to the system.

The agreement of the States of the Eastern Caribbean Region to formalize the provision of their radar data to the DACOTA system will be required in order to define the final architecture of the E/CAR radar system.

Accordingly, your State is encouraged to indicate its agreement to provide radar data to the DACOTA system in Martinique, to be used in the regional radar data sharing project.

ATTACHMENT 6 TO THE APPENDIX

PRELIMINARY GUIDANCE ON TECHNICAL INFRASTRUCTURE AS SUPPORT OF THE EVOLUTIONARY IMPLEMENTATION OF ATS/ATM AUTOMATED SYSTEMS		
Phase	Function	Technical Infrastructure available/ necessary
Phase I	Flight data processing (FDPS, FLP, RPL)	- AFTN
Phase II	ATS radar data processing system (RDPS); Mono-radar; Multi-radar/multitracking; Radar data sharing.	- AFTN - Communication circuit through the Frame Relay digital networks.
Phase III	Automated digital communication (Automated traffic hand off, AIDC, CPDLC and other.	- AFTN + Regional Interphase Control Document (ICD). - Communication circuit through the Frame Relay digital networks. - AMHS. - ATN Sub-networks ground-to-ground and air-to-ground, using some applications.
Phase IV	Implementation of CDM aspects.	- ATN Sub-networks ground-to-ground and air-to-ground.

- END -