

**INTERNATIONAL CIVIL AVIATION ORGANIZATION
NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN OFFICE**

SEVENTH MEVA NETWORK MEETING
(Grand Cayman, Cayman Islands, 15 – 17 May 2000)

Agenda Item 2: Review of the Conclusions and Recommendations of CAR/SAM/3 RAN Meeting related with MEVA Network.

Agenda Item 4: Review of the Network Service obligations and the implementation and operation status of MEVA Network.

**REVIEW OF THE RESULTS OF THE CAR/SAM/3 RAN MEETING RELATED WITH
MEVA NETWORK**

(Presented by Secretariat)

Summary

This Working Paper presents a review of the main results of the CAR/SAM/3 RAN Meeting, aimed at the application of modern digital communications techniques in order to upgrade the conventional AFS and facilitate the introduction of the ATN, and considers these techniques for the MEVA Network development, the AFTN Plan, the ATS speech circuits Plan and the initial plan for the ATN.

1. Introduction

1.2 The CAR/SAM/3 RAN Meeting, held in Buenos Aires, 5 – 15 October 1999 agreed some Conclusions and Recommendations for applying modern digital communications techniques to upgrade the conventional AFS and the need of further studies to develop technical criteria and the necessary guidelines for inter-networking some existing and emerging regional and domestic digital networks; this also includes the interconnection of VSAT networks which operate in the adjacent CAR/SAM Regions.

1.3 The following issues, all related with the MEVA Network, were discussed by the CAR/SAM/3 RAN Meeting:

- a) the need to apply modern digital communications techniques to upgrade the current AFS and to facilitate the introduction of the aeronautical telecommunication network (ATN) in an evolutionary manner, see **Attachment A**;
- b) the plan for the aeronautical fixed telecommunication network (AFTN). The AFTN Plan related with MEVA users is presented in **Attachment B**;
- c) the plan for ATS speech circuits, see **Attachment C**;
- d) the initial planning for the ATN; see **Attachment D**.

1.4 Other matters agreed in the CAR/SAM/3 RAN Meeting are also related with the MEVA Network, for instance, the communication support for sharing radar data and for VHF air/ground radio communication and other issues.

2. Discussion

2.1 Regarding the need to apply modern digital communications to facilitate the ATN, and taking into consideration that the current *Document of Agreement of MEVA Network* will expire in July 2002; it is recommended that the MEVA/7 Meeting consider the possibility of reviewing the current *Request for Proposal (RFP) of the MEVA Network*, to be used in the next MEVA Contract.

2.2 With respect to the AFTN Plan related with the C/CAR and MEVA Network, the CAR/SAM/3 RAN Meeting established a new requirement for an AFTN circuit, which must be implemented between Aruba and the United States. In addition, there are other requirements for AFTN circuits that have not been implemented through the MEVA Network.

2.3 Concerning the ATS Circuit Plan, the CAR/SAM/3 RAN Meeting established the requirement to implement an ATS speech circuit between CENAMER ACC / Grand Cayman APP. It is recommended that this meeting review the status of implementation of the ATS circuits, and make the necessary amendments.

3. Suggested Action

3.1 The meeting is invited to:

- a) agree on the necessary actions in order to review the current *Request for Proposal (RFP) of the MEVA Network*, and use it for the next MEVA Contract, in order to upgrade the AFS and facilitate the introduction of the ATN in an evolutionary manner;
- b) review the AFTN Plan and agree on the necessary actions to implement all the AFTN requirements and make the necessary amendments to the Table CNS 1A of the CAR/SAM FASID ANP; and
- c) review the ATS Speech Circuit Plan in order to complete the implementation of the ATS MEVA circuits, as well as to propose any necessary amendments to the Table CNS 1C of the CAR/SAM FASID ANP.

RESULTS OF THE CAR/SAM/3 RAN MEETING RELATED WITH APPLICATION OF MODERN DIGITAL COMMUNICATION TECHNIQUES TO UPGRADE THE AFS AND TO FACILITATE THE INTRODUCCION OF THE ATN

Reference: Report on Agenda Item 9, CAR/SAM/3 RAN Meeting, paragraphs 9.2

9.2 Application of modern digital communications techniques to upgrade the conventional AFS and to facilitate the introduction of the ATN

9.2.1 The meeting received information on several digital networks implemented by the CAR/SAM States. Some of those networks use very small aperture terminal (VSAT) technology to meet specific domestic voice/data communications requirements. It was also noted that currently States in the CAR/SAM Regions are making efforts to establish multilateral institutional arrangements, similar to those that allowed the implementation and operation of digital networks, such as MEVA serving mainly States in the C-CAR sub_region, E-CAR serving mainly the States/Territories of the Eastern-Caribbean, the implementation of CAMSAT in the Central America and REDDIG in South America. In this regard, the meeting recognized the benefits that have been obtained through the utilization of the ICAO technical cooperation mechanism. It was also recognized that the coordinated implementation of digital networks would facilitate the introduction of the ATN.

9.2.2 The meeting was also provided with information on three other VSAT networks which could be employed for providing inter-regional AFS circuits, namely the ASECNA's VSAT network, TELESAT of Brazil and CAFSAT, being implemented by Cape Verde, Morocco, Senegal and Spain.

9.2.3 The meeting felt that the multitude of digital networks providing coverage over a given geographical area pose a potential problem to the aeronautical users especially in terms of a user of a network interconnectivity and interoperability. It was recognized that this problem is more severe in voice communications due to the excessive delay caused by multiple satellite hops and aggravated by the use of different digital voice compression techniques. The meeting concluded that this matter should be referred to GREPECAS for further study with the objective of developing technical criteria and guidelines necessary for inter-networking of various available and emerging digital networks. It was also noted that the same concern exists for the interconnection of VSAT networks operating in adjacent regions and that GREPECAS should consider it in its study and present its views to ALLPIRG. The meeting also strongly recommended that the study be conducted expeditiously.

9.2.4 Based on the above, the meeting developed the following recommendation:

Recommendation 9/1 – Implementation of digital networks to improve the current AFS and to facilitate the introduction of the ATN

That:

- a) in order to meet, in a reliable and cost-effective manner, current and future AFS requirements for voice/data communications and to facilitate the introduction of

ATN, States in CAR/SAM Regions make an effort to proceed with the process of implementing modern digital communication networks in a coordinated manner;

ATTACHMENT A

- b) in order to facilitate the above, GREPECAS develop, as a matter of urgency and before the forthcoming GREPECAS meeting, criteria and guidelines necessary for establishing, as far as feasible, inter-networking between various available and emerging digital networks, while meeting aeronautical operational requirements; and
- c) ICAO provide, as necessary, appropriate technical cooperation mechanism(s) for a) and b) above.

Note. – The essence of this recommendation is to be incorporated in the Basic ANP as shown in Appendix 9-A

RESULTS OF THE CAR/SAM/3 RAN MEETING RELATED WITH THE AFTN PLAN

Reference: Report on Agenda Item 9, CAR/SAM/3 RAN Meeting, paragraphs 9.3 and Table CNS 1A – AFTN Plan, FASID.

9.3 AFTN Plan

Application of bit-oriented data link control procedures

9.3.3 The meeting agreed with the recommendations developed by GREPECAS to apply bit-oriented data link control to ensure data integrity and to increase modulation rates for communications between AFTN COM Centres. It was noted that GREPECAS had also developed, based on ICAO SARPs, an X.25 Interface Control Document (X.25 ICD) which had been distributed to the CAR/SAM States. In this regard, the meeting developed the following recommendation:

Recommendation 9/3 – Application of X.25 protocol for communications between AFTN COM Centres

That, in order to ensure data integrity and to improve data transmission rate, States in the CAR/SAM Regions expedite the implementation of X.25 protocol for communication between AFTN COM Centres based on provisions contained in Annex 10, Volume III and the appropriate Regional Interface Control Document (ICD).

Note. – The essence of this recommendation is to be incorporated in the Basic ANP as shown in Appendix 9-A

Operational characteristics for the Main AFTN/COM Centres

9.3.4 In the light of the CAR/SAM/2 RAN Meeting recommendations and proposals made by GREPECAS, the meeting examined the operational characteristics for the Main AFTN/COM Centres. In so doing, the meeting updated the same, based on the current provisions contained in Annex 10 and the various hardware options that are currently available, and developed the following recommendation:

Recommendation 9/4 – Operational characteristics for Main AFTN COM Centres

That States responsible for the operation of Main AFTN COM Centres ensure that those facilities satisfy operational characteristics presented in Appendix 9-A, Part IV, paragraph 2.2.4.

Note. – The essence of this recommendation is to be incorporated in the Basic ANP as shown in Appendix 9-A

9.3.5 It should be noted that, although the above-mentioned operational characteristics are recommended for Main AFTN COM Centres, they can equally be used for planning, upgrading, implementation or operation of any other type of AFTN automatic switching facility.

AFTN traffic statistics

9.3.6 The meeting noted that the CAR/SAM States had obtained AFTN traffic statistics for a one-year period between 1995 and 1996. The collected data permitted GREPECAS to recommend the upgrading of the modulation rates of several AFTN circuits, which were, at that time, overloaded and thus caused long message transit times. The meeting recognized that there is a continuing need to closely monitor AFTN traffic and to take the necessary measure(s) to limit the occupancy factor of all AFTN circuits to 0.4 and developed the following recommendation:

ATTACHMENT B

Recommendation 9/5 – Monitoring of AFTN traffic

That States use the guidance material presented as Appendix 9-A, Part IV, Section 2.2.5 to:

- b) monitor AFTN traffic;
- c) maintain occupancy factor of AFTN circuits below 0.4; and
- d) prepare monthly AFTN traffic statistics.

Note. – The essence of this recommendation is to be incorporated in the Basic ANP as shown in Appendix 9-A

Operational availability of AFTN circuits

9.3.7 Information provided to the meeting indicated that several States have been evaluating the operational availability of AFTN circuits for more than two years. Based on the results, a monthly average operational availability of 98 per cent measured between the ends of the circuits, including the segment of the “last mile” could, in general, be reached in the CAR/SAM Regions. It was agreed that the availability figure of 98 per cent should therefore be recommended as a figure of merit for the performance of the AFTN circuits, and States should be requested to make all efforts to achieve and maintain it. Furthermore, it was agreed that States should arrange alternate means of routing the traffic when a specific circuit is out of service. Considering the above, the meeting developed the following conclusion:

Conclusion 9/6 – Operational availability of AFTN circuits

That States in the CAR/SAM Regions:

- e) be urged to take the necessary measures to ensure that end-to-end monthly operational availability of AFTN circuits does not fall below 98 per cent and, therefore, reliability and efficiency requirements for the provision of communication services to AIS, ATS, MET and SAR are met; and
- f) provide alternative measures to route AFTN traffic during circuit outages.

Note. – The essence of this conclusion is to be incorporated in the Basic ANP as shown in Appendix 9-A

CAR/SAM AFTN message routing

9.3.8 It was agreed that in order to maintain an efficient and effective AFTN message exchange, the routing of messages in the CAR/SAM Regions should be ruled by the principles established in the ICAO *Manual on the Planning and Engineering of the Aeronautical Fixed Telecommunication Network* (Doc 8259). It was noted that the Regional Offices produce and publish respective AFTN Routing Directories (List No. 6) which are updated, as necessary, and in coordination with the States concerned, incorporate the latest amendments to routing definitions.

Table CNS 1A - AFTN PLAN

EXPLANATION OF THE TABLE

Column

1	The AFTN Centres/Stations of individual State are listed alphabetically. Each circuit appears twice in the Table. The category of these facilities are as follows: M — Main AFTN COM Centre, automatic AFTN switching facility. T — Tributary AFTN COM Centre S — AFTN Station
2	Category of circuit: M — - Main trunk circuit connecting Main AFTN communication centres. T — - Tributary circuit connecting Main AFTN communication centre and Tributary AFTN Communications Centre. AFTN stations to relay or retransmit AFTN traffic. S — -AFTN circuit connecting an AFTN Station to an AFTN Communication Centre which is used to transmit and receive AFTN traffic to and from a Main or Tributary AFTN communication centre directly connected to it and does not relay AFTN traffic except for the purpose of serving national station(s).
3 and 7	Type of circuit provided: LTT/a — Landline teletypewriter, analogue (eg. cable, microwave) LTT/d — - Landline teletypewriter, digital (eg. cable, microwave) LDD/a — - Landline data circuit, analogue (eg. cable, microwave) LDD/d — Landline data circuit, digital (eg. cable, microwave) SAT/a/d — - 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 — - International Telegraph Alphabet No. 2 (5-unit Baudot code). IA-5 — - International Alphabet No. 5 (ICAO 7-unit code). CBI — - Code and Byte Independency (ATN compliant).
11	Target date of implementation TBD — - To be determined
12	Remarks <i>Note (1). — - Due to loading factors considerations, 150 bits/sps is are required as minimum.</i> MEVA — Central Caribbean MEVA Satellite Digital Network E/CAR — - Eastern Caribbean Digital Network REDDIG — SAM Digital Network

TABLECNS 1A - AFTN PLAN

State/Station	Cat.	CURRENT				PLANNED					Remarks
		Type	Signalling Speed	Protocol	Code	Type	Signalling Speed	Protocol	Code	Target date implementation	
1	2	3	4	5	6	7	8	9	10	11	12
ARUBA											
Aruba-S											
Curacao	S	LTT/a	75	None	ITA-2	SAT/d	2400	X25	IA-5	TBD	MEVA
United States						SAT/d	2400	X25	IA-5	TBD	MEVA
BAHAMAS											
Nassau-S											
United States	S	LTT/a	75	83B3	ITA-2	SAT/d	2400	X25	IA-5	11/99	MEVA
CAYMAN ISLANDS											
Cayman-S											
Kingston	S	LTT/a	75	None	ITA-2	SAT	2400	X25	IA-5	TBD	
CUBA											
Habana-T											
United States	T	LTT/a	75	None	ITA-2	SAT/d	9600	X25	IA-5	12/99	MEVA
DOMINICAN REPUBLIC											
Santo Domingo-T											
United States	T	SAT/d	9600	X25	IA-5					I	MEVA
HAITI											
Port-au-Prince-T											
United States	T	SAT/d	2400	X25	IA-5					I	MEVA

TABLECNS 1A - AFTN PLAN

State/Station	Cat.	CURRENT				PLANNED					Remarks
		Type	Signalling Speed	Protocol	Code	Type	Signalling Speed	Protocol	Code	Target date implementation	
1	2	3	4	5	6	7	8	9	10	11	12
HONDURAS											
Centro America-M											
United States	M	LTT/a	300	85A2	ITA-2	SAT/d	2400	X25	IA-5	11/99	MEVA
JAMAICA											
Kingston-T											
United States	T	SAT/a	300	COP	IA-5	SAT/d	2400	X25	IA-5	11/99	MEVA
Cayman Is.	S	LTT/a	75	None	ITA-2	SAT/d	2400	X25	IA-5	TBD	MEVA
NETHERLANDS ANTILLES											
Curacao-T											
Aruba	S	LTT/a	75	None	ITA-2	SAT/d	2400	X25	IA-5	TBD	MEVA
United States	T	LTT/a	75	None	ITA-2	SAT/d	2400	X25	IA-5	11/99	MEVA
PANAMA											
Panama-T											
Bogotá	T						2400	X25	IA-5	TBD	
United States	T	SAT/a	75	None	ITA-2	SAT/d	2400	X25	IA-5	11/99	MEVA
UNITED STATES											
United States-M											
Aruba	S					SAT/d	2400	X25	IA-5	TBD	MEVA
Centro America	M	LTT/a	300	85A2	ITA-2	SAT/d	2400	X25	IA-5	11/99	MEVA
Curacao	T	LTT/a	75	None	ITA-2	SAT/d	2400	X25	IA-5	11/99	MEVA
Grand Turk	T	LLT/d	2400	X25	IA-5						
La Habana	T	LTT/a	75	None	ITA-2	SAT/d	9600	X25	IA-5	11/99	MEVA
Kingston	T	SAT/a	300	COP	IA-5	SAT/d	2400	X25	IA-5	11/99	MEVA
Nassau	S	LTT/a	75	83B3	ITA-2	SAT/d	2400	X25	IA-5	11/99	
Panama	T	SAT/a	75	None	ITA-2	SAT/d	2400	X25	IA-5	11/99	MEVA

TABLECNS 1A - AFTN PLAN

State/Station	Cat.	CURRENT				PLANNED					Remarks
		Type	Signalling Speed	Protocol	Code	Type	Signalling Speed	Protocol	Code	Target date implementation	
1	2	3	4	5	6	7	8	9	10	11	12
Port-au-Prince	T	SAT/d	2400	X25	IA-5						MEVA
St. Maarten	S	SAT/d	2400	X25	IA-5	SAT/d	2400	X25	IA-5	11/99	MEVA
Santo Domingo	T	SAT/d	9600	X25	IA-5					I	MEVA

RESULTS OF THE CAR/SAM/3 RAN MEETING RELATED WITH THE ATS SPEECH CIRCUITS PLAN

Reference: Report on Agenda Item 9, CAR/SAM/3 RAN Meeting, paragraphs 9.4 and Table CNS 1C – ATS Speech Circuit Plan, FASID.

9.4 ATS speech circuits plan

Structure of the ATS speech circuits plan

9.4.1 In reviewing the current ATS speech circuits plan, it was noted that the same comprise direct and switched circuits. In particular, the through-switching concept is applied only in the SAM Region (switching facilities are located in Bogota, Brasilia, Ezeiza, Lima and Santiago) as in the CAR Region the MEVA VSAT network provide voice connection between users by a combination of permanently assigned multiple access (PAMA) and demand assigned multiple access (DAMA) techniques.

9.4.2 The meeting examined a proposal to consider the use of international direct dialling (IDD) available via the public switched telephone network (PSTN). In this regard, it was agreed that pending the implementation of proper ATS speech circuit, and providing that aeronautical operational requirements are met, IDD services may be used for the ATS voice communications in low air traffic areas. Accordingly, the meeting developed the following recommendation:

Recommendation 9/7 – Revised ATS speech circuits plan for the CAR/SAM Regions

That Table CNS 1C and Chart CNS 3 constitute the new ATS Speech Circuits Plan for the CAR/SAM Regions and be included in the FASID as shown in Appendix 9-B.

Note. – Pending the implementation of the airspace re-organization to be carried out by Brazil in 2003, as shown in Table CNS 1C and Chart CNS 3, Table CNS 1C and Chart CNS 3*, also attached in Appendix 9-B, reflect the current operational and technical requirements of the ATS speech circuits.*

9.4.3 The meeting reviewed a proposal to establish VSAT nodes of the Colombian digital network at COCESNA dependencies, Panama, Kingston and Netherlands Antilles. The meeting was not in position to sufficiently analyse the technical details of this matter, but it was recognized that a special informal meeting could provide the means to reach an agreement and, therefore, formulated the following conclusion:

Conclusion 9/8 – Holding of a special informal meeting

That ICAO, in coordination with Colombia, Jamaica, Netherlands Antilles, Panama and COCESNA, organize a meeting to consider the advantages of implementing in Panama, Kingston, Curaçao and COCESNA, VSAT nodes of the Colombian digital network in order to meet AFS communication requirements.

Upgrading of the current ATS voice switched networks

9.4.4 It was noted that ICAO had already taken steps to facilitate the use of modern digital techniques in ATS voice circuits and networks and, in this regard, had established the ATS Voice Switching and Signalling Study Group (AVSSSG) to assist the Secretariat with the updating of the existing SARPs material, which is mainly based on older analogue techniques. The work of ICAO in this field is aimed at establishing general requirements to ensure that the overall end-to-end system performance is acceptable for the provision of safety services. In this regard, it was recognized that amendments to current Annex 10 provisions

and new guidance material would greatly facilitate the developments of modern ATS voice circuits and networks in the CAR/SAM Regions. As a result of these considerations, the meeting developed the following recommendation:

Recommendation 9/9 – SARPs and guidance material on modern voice switching and signalling systems

That, in order to facilitate the application of modern technology in the planning and implementation of ATS voice circuits and networks, ICAO should make all efforts to expedite the process of developing and/or updating relevant SARPs and guidance material.

9.4.5 It was noted that the progressive upgrading of the AFS would allow the implementation of digital voice switching/signalling systems and, in this regard, GREPECAS had initiated a study to evaluate the feasibility and implication of upgrading the current analogue voice switching networks to digital ones. It was also noted that the mentioned study will take due account of the work of the ICAO AVSSSG. In this regard, and considering the importance of the application of digital switching and signalling systems for the CAR/SAM Regions, the meeting developed the following conclusion:

Conclusion 9/10 – ATS voice networks

That GREPECAS, based on the ICAO SARPs and guidance material on analogue and digital ATS voice networks, carry out the necessary studies to evaluate the application of digital voice switching and signalling systems in upgrading facilities shown in the CAR/SAM ATS Speech Circuits Plan.

Note. – The essence of this conclusion is to be incorporated in the Basic ANP as shown in Appendix 9-A

Planning and technical principles for ATS speech switched networks

9.4.6 It was noted that the proposed new ATS voice network had already been largely implemented based on planning and technical principles recommended by the CAR/SAM/2 RAN Meeting and relevant ICAO SARPs and guidance material. However, the principles governing further development and upgrades of the network should take into account the availability of new technology and the current work of ICAO in the field of ATS voice switching and signalling systems. After examining the updated set of technical and planning principles, the meeting developed the following recommendation:

Recommendation 9/11 – Planning and technical principles to be applied for ATS voice circuits networks

That States, for the planning, implementation and operation of ATS voice circuits networks, follow the set of planning and technical principles shown in Appendix 9-A, Part IV, paragraph 2.2.9.

Note. – The essence of this recommendation is to be incorporated in the Basic ANP as shown in Appendix 9-A

Table 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:

1. 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.

2. no indication or mark if the circuit is not implemented and its implementation data is unknown.

3. if the circuit is not implemented but its implementation date is available, same is indicated in brackets.

8 Remarks/notes

TABLE CNS 1 C - ATS DIRECT SPEECH CIRCUITS PLAN							
ATS requirements for speech communications			Circuit			Status of implementation	Remarks
Terminal I	Terminal II	Type	Service	D/S	To be switched via		
1	2	3	4	5	6	7	8
ARUBA (Netherlands, Kingdom of the) Aruba APP	Curacao ACC	D	LTF	ID/IS	MEVA	I	
BAHAMAS Nassau ACC	Miami ACC	D	LTF	2D/S	MEVA	I	
CAYMAN ISLANDS (United Kingdom) Grand Cayman APP	Cenamer ACC Habana ACC Kingston ACC	A A A	LTF LTF LTF	S S S	MEVA MEVA MEVA	I I I	
COCESNA Cenamer ACC	Grand Cayman APP Guayaquil ACC Habana ACC Kingston ACC Mérida ACC Panamá ACC	A A A A D D	LTF LTF LTF LTF LTF LTF	S D S S D D	MEVA MEVA MEVA 	I I I I I I	
CUBA Habana ACC	Cenamer ACC Grand Cayman APP Kingston ACC Mérida ACC Miami ACC Port au Prince ACC	A A A D D A	LTF LTF LTF LTF LTF LTF	S S ID/IS D 2D/1S S	MEVA MEVA MEVA MEVA MEVA	I I I I I I	MEVA MEVA
DOMINICAN REPUBLIC Santo Domingo ACC	Curacao ACC Miami ACC Port_au_Prince ACC San Juan ACC	D D D D	LTF LTF LTF LTF	D D D D		I/P I I/P I	MEVA MEVA MEVA MEVA
HAITI Port_au_Prince ACC	Curacao ACC Habana ACC Kingston ACC Miami ACC Santo Domingo ACC	A A A A D	LTF LTF LTF LTF LTF	S S S S S	MEVA MEVA MEVA MEVA MEVA	I I I I I	
JAMAICA Kingston ACC	Barranquilla ACC Cenamer ACC	A A	LTF LTF	S S	BOGOTA MEVA	I I	

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TABLE CNS 1 C - ATS DIRECT SPEECH CIRCUITS PLAN							
ATS requirements for speech communications			Circuit			Status of implementation	Remarks
Terminal I	Terminal II	Type	Service	D/S	To be switched via		
1	2	3	4	5	6	7	8
	Curacao ACC	A	LTF	S	MEVA	I	MEVA
	Grand Cayman APP	A	LTF	S	MEVA	I	
	Habana ACC	A	LTF	ID/IS	MEVA	I	
	Panamá ACC	A	LTF	S	MEVA	I	
	Port-au-Prince ACC	A	LTF	S	MEVA	I	
MEXICO Mérida ACC	Cenamer ACC	D	LTF	D		I	
	Habana ACC	D	LTF	D		I	
						I	
NETHERLANDS ANTILLES (Netherlands) Curacao ACC	Aruba APP	D	LTF	ID/IS	MEVA	I	MEVA
	Barranquilla ACC	A	LTF	S	BOGOTA	I	
	Kingston ACC	A	LTF	S	MEVA	I	
	Maiquetía ACC	A	LTF	D		I	
	Port_au_Prince ACC	A	LTF	S	MEVA	I	
	San Juan ACC	A	LTF	S	MEVA	I	
	Santo Domingo ACC	D	LTF	S	MEVA	I/P	
							MEVA
PANAMÁ Panamá ACC	Cenamer ACC	D	LTF	D		I	
	Kingston ACC	A	LTF	S	MEVA		
PUERTO RICO (United States) San Juan ACC	Curacao ACC	A	LTF	S	MEVA	I	MEVA
	Juliana APP	D	LTF	D		I	
	Miami ACC	D	LTF	D	MEVA	I	
	Santo Domingo ACC	D	LTF	D		I	
UNITED STATES Miami ACC	Habana ACC	D	LTF	2D/1S	MEVA	I	MEVA MEVA
	Nassau ACC	D	LTF	2D/1S	MEVA	I	
	Port_au_Prince ACC	A	LTF	S	MEVA	I	
	San Juan ACC	D	LTF	S	MEVA	I	
	Santo Domingo ACC	D	LTF	S	MEVA	I	

RESULTS OF THE CAR/SAM/3 RAN MEETING RELATED WITH THE ATN PLAN

Reference: Report on Agenda Item 9, CAR/SAM/3 RAN Meeting, paragraphs 9.4.

9.6 ATN

9.6.1 It was noted that the implementation of the ATN involved the establishment of end systems (ESs) on the ground and on board aircraft, ground or air-ground data communications subnetworks, and intermediate systems (ISs) which are also called routers. Broad system level requirements for the ATN have been incorporated in Annex 10, Volume III, and corresponding detailed technical provisions are contained in the *Manual of Technical Provision for the Aeronautical Telecommunication Network (ATN)* (Doc 9705). The meeting was informed that associated guidance material is to be published by ICAO in the form of a manual entitled “Comprehensible ATN Manual”.

9.6.2 It was recognized that the ATN would be implemented in the CAR/SAM Regions in an evolutionary and cost-effective manner, and it was agreed that the first phase of implementation should entail only ground-ground applications, specifically the aeronautical message handling system (AMHS) and ATS inter_facility data communications (AIDC).

9.6.3 Accordingly, the meeting agreed that the evolutionary introduction of the ATN in the CAR/SAM Regions should be considered in three phases as follows:

Phase I – Considering present and future requirements, improve current AFS infrastructure by implementing modern digital communication circuits and networks. This would also facilitate the interconnection of future ATN routers in the region.

Phase II – Implement AMHS and AIDC in specific ATN routing domains. AFTN would still be in wide use in this phase and thus needs to be interfaced with AMHS through ATN/AFTN gateways.

Phase III – Deploy the full regional ATN employing ground and air-ground subnetworks, ground_ground and air-ground applications agreed upon in support of air traffic management in the region(s).

9.6.4 It was noted that Phase I of the above- mentioned process had already commenced, and in relation with the transition from the AFTN to the ATN, it was recognized that both systems will co-exist during a rather long transition period. The use of the AFTN/AMHS gateway has been considered to facilitate the transition in an evolutionary, smooth and cost-effective manner.

9.6.5 It was also noted that backbone ATN routers could be interconnected by dedicated data circuit or by means of suitable digital networks that are either implemented or will be implemented in the CAR/SAM Regions.

9.6.6 After reviewing the material developed by the GREPECAS relating to the planning for the ground portion of the ATN, the meeting developed the following recommendation:

Recommendation 9/13 – Initial plan for the ground portion of the ATN in the CAR/SAM Regions

That Table CNS 1B and Chart CNS 2 constitute the initial plan for the ground portion of the ATN in the CAR/SAM Regions and be included in the FASID as shown in Appendix 9-B.
