



Agenda Item 3: Activities for the development of the air navigation systems/services
3.3 Communications, Navigation and Surveillance (CNS)

FOLLOW-UP ON THE DEVELOPMENT OF THE COMMUNICATION SYSTEMS

(Presented by the Secretariat)

SUMMARY

This working paper presents an analysis and proposals of the follow-up plan for the improvement and implementation of the Communications, systems and the radiofrequency spectrum protection in the Central Caribbean, based on the results of the review of the CNS conclusions of the C/CAR WG, C/CAR DCA, NACC/DCA, as well as the GREPECAS mechanism.

References:

- Report of C/CAR WG/5 Meeting, (Mexico City, Mexico, 9 – 13 February 2005).
- Report of the NACC/DCA/2 Meeting, (Tegucigalpa, Honduras, 11 – 14 October 2005).
- Report of the GREPECAS/13 Meeting, (Santiago, Chile, 14 – 18 November 2005).

1. Introduction

1.1 The Fifth Central Caribbean Working Group Meeting (C/CAR WG/5), held in Mexico City, Mexico, 21 – 24 February 2005, with respect to the communications agenda items of their work programme, carried out the follow-up of those tasks in accordance with the CNS guidelines agreed by the First Meeting of Directors of Civil Aviation of North America, Central America and the Caribbean, (NACC/DCA/1), held in Grand Cayman, October 2002, as well by the GREPECAS conclusions. Subsequent to the celebration of the C/CAR WG/5 Meeting the NACC DCA/2 Meeting, Tegucigalpa, Honduras, 11 - 14 October 2005; and the GREPECA/13 Meeting, Santiago, Chile 14 - 18 November 2005; were held, in which appropriate guidelines to the work of the Central Caribbean Working Group were issued.

1.2 Regarding the General and Communication matters, the C/CAR WG/5 Meeting, adopted the following Draft Conclusions:

C/CAR WG/5 MEETING	
<u>No.</u>	<u>DRAFT CONCLUSIONS ON GENERAL AND COMMUNICATIONS ISSUES</u>
5/6	<i>Compliance With GREPECAS Conclusion 12/33 for the preparation and support to ICAO position at the ITU WRC-2007</i>
5/8	<i>Actions to avoid and resolve the interference problems in the CNS Systems</i>
5/10	<i>Information request to the airspace users on the VHF Communication Coverage status in the CAR Region</i>
5/11	<i>Proposal for amendment to FASID Table CNS 2A with regard to Haiti</i>
5/12	<i>Initial action to update the CAR Region Plan to implement VHF, HF and satellite data links</i>
5/15	<i>Analysis on the feasibility of the MEVA II Network to support radar data circuits</i>
	<u>DECISIONS ON GENERAL AND COMMUNICATION MATTERS</u>
5/9	<i>Solution to the deficiency presented by the ATS speech circuit Belize APP – Merida ACC</i>
5/13	<i>Work of the C/CAR Working Group on planning of initial action to update the CAR Regional data link plan</i>

1.3 The NACC/DCA/2 Meeting formulated the following conclusions related to the purpose of this working paper:

<u>NACC/DCA/2 MEETING</u>	
<u>No.</u>	<u>CONCLUSION ON GENERAL MATTERS</u>
2/13	<i>Support of States in the NAM/CAR Regions to ICAO's position for the ITU WRC-2007</i>

1.4 Likewise, the GREPECAS/13 Meeting adopted the following conclusions related with the issues dealt in this paper.

GREPECAS/13 MEETING	
<u>No.</u>	<u>CONCLUSIONS ON GENERAL AND COMMUNICATIONS MATTERS</u>
13/70	<i>Establishment of agreements to achieve the MEVA II – REDDIG Interconnection/Interoperation</i>
13/71	<i>Update and implementation of the VHF, HF and Satellite Voice Communication of the AMS and AMSS Plan</i>
13/72	<i>Regional strategy for updating evolutionary implementation of the air-ground data links plan</i>
13/75	<i>Request for information on plans to implement ATN ground-ground applications</i>
13/78	<i>Strategy and target dates for the deployment of ATN in the CAR/SAM Regions</i>
13/79	<i>Development of national plans to prioritize AMHS and AIDC implementation and contribute to ATM Automation</i>
13/81	<i>ICAO guidelines for the use of the public internet in support of aeronautical applications</i>
13/89	<i>Support of States in the CAR/SAM Regions to the ICAO position for the ITU WRC-2007</i>

2. Discussion

General Matters

2.1 According to Conclusion 5/8, pa. a) of the C/CAR WG/5, the ICAO Regional office established coordination with the FAA/United States and this State carried out investigations searching for the source of the interference being received in the frequency 124.000 MHz of the area control service of the ACC Kingston reported by the Member of Jamaica during that Meeting, but no source was found justifying the reported interference, which was informed to Jamaica and requesting more details of the interference to be able to continue the investigation. The Meeting could review if the mentioned interference continues affecting or not the ACC Kingston communications and recommend pertinent actions.

2.2 The members of the group should also inform the Meeting if other interference problems have been detected.

2.3 Likewise, in accordance with Conclusion 13/89 of the GREPECAS, the Meeting should follow-up the States/Territories/International Organizations actions aimed at preparing and supporting ICAO's position for the Radiocommunications World Conference – 2007 ITU (WRC – 2007), in the following aspects:

- a) *“provide support to the ICAO's position for the WRC-2007”*. The ICAO Secretary General, through the State letter Ref.: E 3/5-05/85, dated 12 August 2005, transmitted the ICAO's position for the ITU WRC-2007.
- b) *“designate a focal point or a contact person with ICAO and with the national authority of radio-frequency spectrum management for the coordination of matters related with the WRC-2007”*: To this date, no information has been received in this NACC Regional Office from the States indicating the person or focal point; the designation and notification is essential to ICAO.
- c) *“participate in an active manner in the preparatory work for the WRC-2007 in the CITEL meetings of the Organization of American States (OAS)”*. In the ICAO NACC Regional Office only the information on Mexico's participation in the CITEL Meetings is available.
- d) *“participate in other ICAO meetings and other activities on ICAO's position”*.
- e) *“that representatives from the civil aviation administrations be included in the national delegations participating in the WRC-2007”*.

2.4 Also, the Meeting could review the assignment of frequencies detected without any international coordination. The States/Territories/International Organizations are reminded to coordinate all the aeronautical assignment of frequencies through the ICAO Regional Office.

Communications

A) Ground-ground communication development

Development and interconnection of regional/subregional digital network

2.5 According to information available from the Secretariat, not all the MEVA Network members have finalized their respective contracts with the MEVA II Service Provider; they are encouraged to conclude their contracts, as soon as possible, in order to proceed with this network's implementation. Also, the MEVA Technical Management Group (TMG) has foreseen the completion of the MEVA II Transition Plan development.

2.6 On the other hand, as a follow-up to Conclusion 13/70 of GREPECAS, the NACC and SAM Regional Offices convened to the MEVA II - REDDIG Coordination Meeting to be held in Lima, from 20 to 22 March 2006, with the intention of reaching agreements for the MEVA II – REDDIG interconnection/interoperability.

Implementation of the ATN ground portion

2.7 The GREPECAS/13 Meeting approved the initial works to review the ATN plan carried out by the CNS Committee. As part of this work, GREPECAS approved Conclusion 13/75 - *Request for information on Plans to Implement ATN ground-ground applications*, through which a request was made to the States/Territories/International Organizations to provide detailed information on the requirements and plans to implement the ATN ground-ground applications, such as AMHS and AIDC based in the Table contained in Appendix AZ of its Report. This table is presented in **Appendix A** to this paper.

2.8 The Meeting also should consider that Conclusion 13/78 of GREPECAS encouraged the States/Territories/International Organizations to initiate activities for the ATN deployment and its applications according to the target dates and strategy presented in Appendix BA of its Report. The mentioned Appendix is shown in **Appendix B** to this paper. Additionally, GREPECAS/13, through its Conclusion 13/78, issued initial guidelines for the development of AMHS and AIDC implementation national plans.

2.9 The Secretariat considers convenient that this Central Caribbean Working Group meeting begins the execution of the work corresponding to the Group's area guided by the GREPECAS, referred in the previous paragraphs.

Regional use of public Internet for aeronautical applications

2.10 Through its Conclusion 13/81, GREPECAS recommended that the CAR/SAM States/Territories/International Organizations which consider using the public Internet in support of the aeronautical applications, to take into account and apply the “*Guidelines for the Use of the Public Internet for Aeronautical Applications*”, contained in the ICAO Manual, Ref.: Doc 9855. The Secretariat considers that this C/CAR WG/6 Meeting should take note of this conclusion and direct measures to apply these guidelines in the Administration of this Group Members.

B) Development of air-ground communications

Review of the status of the VHF and HF voice communications implementation

2.11 The C/CAR WG/5 initiated the review of the VHF and HF voice communications implementation plan of the aeronautical mobile service. As part of the work the mentioned Meeting took note of COCESNA's action plan to improve the CENAMER FIR Northwest portion coverage, the United States and Mexico to improve and mitigate the VHF coverage in the central part of the Gulf of Mexico. Also, the Meeting formulated the Draft conclusion 5/10 - *Information request to the Airspace users on the VHF Communication Coverage Status in the CAR Region*; based in which the ICAO Regional Office requested to IATA and IFALPA on the VHF voice communications coverage voids that they have detected in the Region; nevertheless, no response has been received nor the reports on the deficiencies of VHF/AMS coverage.

2.12 The members of the Group are expected to provide information to the Meeting on their respective Administration's plans to improve and complete the VHF/AMS communications coverage. Moreover, based in the status of the coverage, the meeting could establish actions related to the work of the VHF Coverage Task Force.

2.13 In addition to the above, the Central Caribbean Working Group, should follow-up to Conclusion 13/71 – *Update and implementation of the VHF, HF and Satellite voice communication of the AMS and AMSS Plan*. This conclusion encourages States/Territories/International Organizations to promote the plans currently in execution, in order to improve or mitigate the VHF/AMS and HF/AMS coverage, defining earlier implementation of target dates, as well as to examine and determine actions to complete the implementation of the required voice by satellite communications and if relevant, propose updates to the Regional Plan (Table CNS 2A of the FASID) informing the ICAO Regional Office the progress of these actions to be finalized before May 30, 2006. The part of Table CNS 2A of the FASID corresponding to the CAR Region is presented in **Appendix C** to this working paper.

Implementation of the air-ground data links

2.14 As a result of the analysis on the implementation of the air-ground data links, the C/CAR WG/5 Meeting formulated Draft Conclusion 5/12 - *Initial action to update the CAR Region Plan to implement VHF, HF and satellite data links*, among other aspects, encouraging States/Territories/International Organizations to participate in the initial actions programme contained in Appendix F of the Agenda Item 3 of its Report. This programme has been reproduced in the **Appendix D** to this paper.

2.15 Moreover, the C/CAR WG/5 Meeting adopted Decision 5/13 - *Work of the C/CAR Working Group on planning of initial action to update the CAR Regional Data Link Plan*. Based on this Decision, the Meeting should follow-up and support the programme contained in Appendix D to this paper, extending and proposing target dates to each activity.

2.16 The GREPECAS/13 Meeting in its Conclusion 13/72 - *Regional Strategy for updating evolutionary implementation of the Air-Ground Data Links Plan*, guided the States/Territories/International Organizations to carry out its activities aimed at the air-ground data links deployment based in the regional Strategy for updating and executing the air-ground data links plan, developed by the activities Plan and the Implementation programme presented in Appendices AW and AX respectively of its Report; and that based on the regional Strategy mentioned, review and propose updates to the corresponding part of the implementation of air-ground data links of the CAR/SAM Regions contained in Table CNS 2A of the FASID; likewise, to inform on the results of these actions to

the ICAO Regional Office **before 30 may 2006**. The respective Appendices AW and AX of the GREPECAS/13 Meeting Report are shown in **Appendix E** and **Appendix F** to this working paper.

2.17 Considering the expressed in the above paragraphs, this Central Caribbean Working Group Meeting should proceed with the review of the corresponding data link communications part of Table CNS 2A of the FASID.

3. **Suggested actions**

3.1 The Meeting is invited to:

- a) take note of the contents of this working paper;
- b) review the issues related to the radiofrequencies spectrum protection (interference and support to ICAO's position to the ITU WCR-2007), taking into consideration paragraphs 2.1 to 2.4 to this paper;
- c) follow-up the ground-ground communications systems development, specially on the plans for implementing the ATN ground portion, as well as the AMHS and AIDC applications, considering paragraphs 2.5 to 2.9;
- d) direct actions to apply the ICAO guidelines in the use of the public Internet for aeronautical applications; bearing in mind the expressed in paragraph 2.10 to this paper;
- e) follow-up the actions to improve and complete the implementation and coverage of the VHF and HF voice communications of the aeronautical mobile service, considering the paragraphs 2.11 to 2.13 to this working paper;
- f) continue the analysis to execute and update the communications plan through air-ground data links, based on information and considerations expressed in paragraphs 2.14 to 2.17 to this paper;
- g) as a result of the analysis indicated in e) and f), proposal of amendment to Table CNS 2A of the FASID; and
- h) review other issues that the meeting considers pertinent.

APPENDIX A

Table CNS-1Bb – ATN GROUND-GROUND APPLICATION PLAN

EXPLANATION OF THE TABLE

Column

1	Administration – the name of the State, Territory or International Organization responsible for management of an ATN ground-ground application facility and Location.
2	Facility Type – Facility Type of ATN ground-ground application managed by Administration indicated in column 1. AMHS – ATS Message Handling System. AIDC – ATS Inter-facility Data Communication.
3	Name of the Administration and Location of the correspondent ATN ground-ground application facility connected with facility indicated in columns 1 and 2.
4	Standard used in the facility indicated in columns 2.
5	Date of implementation of the facility. TBD – To be determined.
6	Remarks.

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APPENDIX/APÉNDICE A

(Appendix AZ to the Report on Agenda Item 3 of GREPECAS/13)

(Apéndice AZ de la Cuestión 3 del Informe GREPECAS/13)

Table CNS 1Bb – ATN GROUND-GROUND APPLICATIONS PLAN / Tabla CNS1 Bb – PLAN DE APLICACIONES TIERRA-TIERRA
ATN

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APPENDIX B
(Appendix BA to the Report on Agenda Item 3 of GREPECAS/13)

CAR/SAM Regional Strategy for the deployment of the ATN and its applications	
<u>Short term (2005 – 2011)</u>	
1.	States/Territories/International Organizations complete the updating of the aeronautical digital communication networks by providing intra and inter-regional interconnection and interoperability.
2.	The ATN ground-to-ground portion will initially support the implementation of the ATS message handling system (AMHS) to replace the AFTN.
3.	States/Territories/International Organizations carry out the strategic deployment of a limited number of ATN routers of the ATN backbone to support other ground-ground and air-ground applications.
4.	During the transition phase some AFTN circuits and systems may remain in operation. A reasonable timeframe must be established for its replacement with AMHS.
5.	The referred ATN routers must provide AFTN/AMHS gateway during the transition phase.
6.	States/Territories/International Organizations carry out the gradual updating of the AFTN centres by AMHS servers. In order that necessary interfaces in the AFTN centres be implemented to connect AMHS circuits and the new AMHS servers be implemented with the capacity of connecting AFTN circuits.
7.	The implementation of the AIDC within control centres of adjacent States/Territories/International Organizations begins.
8.	States/Territories/International Organizations must work in close cooperation to support themselves on a multinational basis to implement the ATN and its applications to ensure the system interoperability.
9.	States/Territories/International Organizations must undertake the training of operational and technical personnel in order to provide the necessary knowledge to introduce the ATN and its ground-ground applications (AMHS and AIDC).
10.	Based on the relevant deployment of the ATN ground-to-ground infrastructures and ground applications, States/Territories/International Organizations must gradually introduce ATN air-ground applications.
11.	Implementation will be in full agreement with SARPs, ICAO PANS and GREPECAS guide.
<u>Medium term (2011 – 2015)</u>	
12.	Here the implementation of AMHS must be completed and the implementation of the AIDC continues.
13.	States/Territories/International Organizations must extend the deployment of air-ground applications.
14.	The use of the ATN with techniques defined in the SARPs continues and the planning to update the ATN terrestrial portion commence to satisfy the new ATM global system requirements.
<u>Long term (As of 2015)</u>	
15.	Planning and implementation of the ATN and its applications will be carried out in accordance with the ATN evolution and the development of associated techniques and in conformity with the ATM global system requirements and the new SARPs, ICAO PANS and GREPECAS guidelines.

APPENDIX/APÉNDICE C

Table CNS 2A c Tabla CNS 2A
AERONAUTICAL MOBILE SERVICE AND AMSS
SERVICIO MÓVIL AERONÁUTICO Y SMAS

EXPLANATION OF THE TABLE*Column*

- 1 The name of the State and the locations within the same where the service is provided.
- 2 The required services or functions are provided. Suitable abbreviations for these services or functions are listed below.

ACC-L	Area control service for flights up to FL 250.
ACC-SR-I	Area radar control service up to FL 250.
ACC-SR-U	Area radar control service up to FL 450.
ACC-U	Area control service up to FL 450.
AFIS	Aerodrome flight information service.
APP-L	Approach control services below FL 120.
APP-I	Approach control service below FL 250.
APP-PAR	Precision approach radar service up to FL 40.
APP-SR-I	Surveillance radar approach control service up to FL 250.
APP-SR-L	Surveillance radar approach control service up to FL 120.
APP-SR-U	Surveillance radar approach control service up to FL 450.
APP-U	Approach control service below FL 450.
ATIS	Automatic terminal information service.
D-ATIS	Data link-automatic terminal information service.
CLRD	Clearance delivery.
FIS	Flight information service.
VHF-ER	VHF C Extended range.
GP	Facility providing VHF or HF en-route general purpose system (GPS) communication. These facilities provide air-ground radiotelephony for all categories of messages listed in Annex 10, Volume II, 5.1.8. This system of communication is normally indirect, i.e. exchanged through the intermediary of a third person who is usually a communicator at an aeronautical station.
SMC	Surface movement control up to limits of aerodrome.
TWR	Aerodrome control service.
VOLMET	VOLMET broadcast.
- 3 Number of voice VHF channels for the corresponding services indicated in column 2. The number of implemented channels is shown in parentheses.
- 4 Number of VHF channels for data communication for the corresponding services indicated in column 2. The implementation date (month/year) is shown in parentheses.
- 5 HF network designators for the corresponding services indicated in column 2. The number of implemented frequencies is shown in parentheses.
- 6 Requirement for HF data link (x) for the corresponding services indicated in column 2. The implementation date (month/year) of the service is shown in parentheses.
- 7 Requirement for satellite voice communications (x) for the corresponding services indicated in column 2. The implementation date (month/year) of the service is shown in parentheses.
- 8 Requirement for satellite data communications (x) for the corresponding services indicated in column 2. The implementation date (month/year) of the service is shown in parentheses.
- 9 Requirement for Mode S data communications (x) for the corresponding services indicated in column 2. The implementation date (month/year) of the service is shown in parentheses.
- 10 Remarks.

Note. C The implementation year for the data links and satellite voice communication are indicated by two digits.

EXPLICACIÓN DE LA TABLA

Columna

- 1 El nombre del Estado y de las localidades dentro del mismo donde se proporciona el servicio.
- 2 Se proporcionan los servicios o funciones que se requieren. Se enumeran a continuación las abreviaturas correspondientes a estos servicios o funciones.

ACC-L	Servicio de control de área hasta el FL 250
ACC-SR-I	Servicio de control de área radar hasta el FL 250
ACC-SR-U	Servicio de control de área radar hasta el FL 450
ACC-U	Servicio de control de área hasta el FL 450
AFIS	Servicio de información de vuelo de aeródromo
APP-L	Servicio de control de aproximación por debajo del FL 120
APP-I	Servicio de control de aproximación por debajo del FL 250
APP-PAR	Servicio radar para la aproximación de precisión hasta el FL 40
APP-SR-I	Servicio de aproximación de control con radar de vigilancia hasta el FL 250
APP-SR-L	Servicio de aproximación de control con radar de vigilancia hasta el FL 120
APP-SR-U	Servicio de aproximación de control con radar de vigilancia hasta el FL 450
APP-U	Servicio de control de aproximación por debajo del FL 450
ATIS	Servicio automático de información terminal
D-ATIS	Servicio automático de información terminal por enlace de datos
CLRD	Servicio de entrega de autorización de tránsito
FIS	Servicio de información de vuelo
VHF-ER	VHF CAlcance ampliado
GP	Instalación que proporciona comunicaciones VHF o HF en ruta para fines generales (GPS). Estas instalaciones suministran transmisión radiotelefónica aeroterrestre en todas las categorías de mensajes citadas en el Anexo 10, Vol II, 5.1.8. En este sistema las comunicaciones son normalmente indirectas, es decir, que son intercambiadas por intermedio de un tercero que habitualmente es un operador de comunicaciones de una estación aeronáutica.
SMC	Control del movimiento en la superficie hasta los límites del aeródromo.
TWR	Servicio de control de aeródromo.
VOLMET	Radiodifusiones VOLMET.
- 3 Número de canales VHF para comunicaciones orales para los correspondientes servicios indicados en la Columna 2. El número de canales implantados se indica entre paréntesis.
- 4 Número de canales VHF para comunicaciones en datos para los correspondientes servicios indicados en la Columna 2. La fecha de implantación (mes/año) se indica entre paréntesis.
- 5 Designadores de red HF para comunicaciones orales para los correspondientes servicios indicados en la Columna 2. El número de frecuencias implantados se indica entre paréntesis.
- 6 Requisito para enlace de datos HF (x) para los correspondientes servicios indicados en la Columna 2. La fecha de implantación (mes/año) del servicio se indica entre paréntesis.
- 7 Requisito para comunicaciones orales por satélite (x) para los correspondientes servicios indicados en la Columna 2. La fecha de implantación (mes/año) del servicio se indica entre paréntesis.
- 8 Requisito para comunicaciones de datos por satélite (x) para los correspondientes servicios indicados en la Columna 2. La fecha de implantación (mes/año) del servicio se indica entre paréntesis.
- 9 Requisito para comunicaciones de datos en Modo S (x) para los correspondientes servicios indicados en la Columna 2. La fecha de implantación (mes/año) del servicio se indica entre paréntesis.
- 10 Observaciones.

Nota. C El año de implementación para los enlaces de datos y comunicaciones orales por satélite se indican en dos dígitos.

TABLE CNS 2A – TABLA CNS 2A
(Part of the CAR Region/Parte parcial de la Región CAR)
 -C3-

CNS

Country and location Pays et emplacement País y localidad	Service or function Service ou fonction Servicio o función	VHF voice Voix VHF Voz VHF	VHF data Données VHF Datos VHF	HF voice Voix HF Voz HF	HF data Données HF Datos HF	Satellite voice Voix satellite Voz por satélite	Satellite data Données satellite Datos por satélite	Mode S Modo S	Remarks Remarques Observaciones
1	2	3	4	5	6	7	8	9	10
BAHAMAS									
MYBS ALICE TOWN/ South Bimini, Bimini I.	TWR	1							
MYSM COCKBURN TOWN/ San Salvador I.	TWR	1							
MYGF FREEPORT/Intl., Grand Bahama I.	APP-U APP-L TWR SMC	1 1 1 1							
MYEG GEORGETOWN/ Georgetown, Exuma Intl.	APP-L TWR	1 1							
MYEM GOVERNOR=S HARBOUR/ Governor=s Harbour, Eleuthera I.	APP-L TWR	1 1							
MYNA NASSAU	ACC-U GP ACC-L	3 1 1							
MYNN NASSAU/Intl., New Providence I.	APP-I TWR SMC APP-SR-I	1 1 1 1							
MYEH NORTH ELEUTHERA/ New Providence I.	TWR	1 1							
MYLS STELLA MARIS/Long Island I.	TWR	1							
MYAT TREASURE CAY/ Treasure Cay, Abaco I.	TWR APP-L	1 1							
MYGW WEST END/West End, Grand Bahama I.	TWR	1							
CAYMAN ISLANDS (United Kingdom)									
MWCB CAYMAN BRAC/ Gerrard Smith Intl.	TWR SMC	1 (1) 1							
MWCR GEORGETOWN/ Owen Roberts Intl.	APP-I TWR SMC ATIS	1 -1 1 1 (1)							

Country and location Pays et emplacement País y localidad	Service or function Service ou fonction Servicio o función	VHF voice Voix VHF Voz VHF	VHF data Données VHF Datos VHF	HF voice Voix HF Voz HF	HF data Données HF Datos HF	Satellite voice Voix satellite Voz por satélite	Satellite data Données satellite Datos por satélite	Mode S Modo S	Remarks Remarques Observaciones
1	2	3	4	5	6	7	8	9	10
CUBA									
MUCM CAMAGUEY/ Ignacio Agramonte	APP-SR-L TWR	1 1 (1)							
MUCL CAYO LARGO DEL SUR/Ilo Acuña	APP-L TWR	1 (1) 1 (1)							
MUCA CIEGO DE AVILA/ Máximo Gómez	APP-L TWR	1 1 (1)							
MUHA HABANA	ACC-SR-U ACC-SR-I GP-U	5 (4)-ER 3 (1)-ER 2 (1)	2 (06/06)	CAR-A (6)	X (06/06)				
MUHA HABANA/José Martí	APP-SR-L APP-SR-I TWR SMC ATIS	1 1 (1) 1 (1) 1 (1) 1 (1)							
MUHG HOLGUIN/Frank País	APP-SR-L TWR	1 1 (1)							
MUCU SANTIAGO DE CUBA/ Antonio Maceo	APP-SR-I TWR SMC	1 (1) 1 (1) 1							
MUVR VARADERO/Juan Gualberto Gomez	APP-SR-L TWR SMC	1 1 (1) 1							
DOMINICAN REPUBLIC									
MDBH BARAHONA/ Maria Montes Intl.	TWR	1 (1)							
MDHE HERRERA/ Herrera Intl.	TWR	1 (1)							
MDLR LA ROMANA/ La Romana Intl.	APP-L TWR	1 (1) 1 (1)							
MDPP PUERTO PLATA/ Gregorio Luperon	APP-SR-I TWR SMC	1 (1) 1 (1) 1 (1)							
MDPC PUNTA CANA/Punta Cana Intl.	APP-L TWR	1 1 (1)							
MDST SANTIAGO/Cibao Santiago Intl.	APP-L TWR	1 1 (1)							
MDCS SANTO DOMINGO	ACC-U ACC-SR-U GP	4 1 (1) 1	1 (06/08)						
MDSD SANTO DOMINGO/ De las Américas Intl.	APP-SR-I TWR	2 (1) 1 (1)							

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CNS

Country and location Pays et emplacement País y localidad	Service or function Service ou fonction Servicio o función	VHF voice Voix VHF Voz VHF	VHF data Données VHF Datos VHF	HF voice Voix HF Voz HF	HF data Données HF Datos HF	Satellite voice Voix satellite Voz por satélite	Satellite data Données satellite Datos por satélite	Mode S Modo S	Remarks Remarques Observaciones
1	2	3	4	5	6	7	8	9	10
	SMC ATIS CLRD	1 (1) 1 (1) 1							
HAITI									
MTCH CAP HAITIEN/Intl.	APP-L TWR	1 1 (1)							
MTEG PORT-AU-PRINCE	ACC-SR-U GP	1 (1) 1	1 (06/08)						
MTPP PORT-AU-PRINCE/Intl.	APP-SR-I APP-I TWR SMC	1 1 (1) 1 (1) 1							
HONDURAS									
MHTG TEGUCIGALPA (CENAMER)	ACC-SR-U GP	7 (4) 1	3 (06/08)	CAR-A (6) SAM-1 (2)	X (06/08)	X (06/08)	X (06/08)		
JAMAICA									
MKJK KINGSTON	ACC-SR-U ACC-U GP	1 5 (2) 1	2 (06/06)		X (06/06)	X (06/06)	X (06/06)		
MKJP KINGSTON/Norman Manley Intl.	APP-SR-1 APP-I TWR SMC	1 1 (1) 1 1 (1)							
MKJS MONTEGO BAY/ Sangster Intl.	APP-SR-I APP-I TWR SMC	1 1 1 (1) 1 (1)							
MEXICO									
MMAA ACAPULCO/Gral.	APP-SR-I	1 (1)							

Country and location Pays et emplacement País y localidad	Service or function Service ou fonction Servicio o función	VHF voice Voix VHF Voz VHF	VHF data Données VHF Datos VHF	HF voice Voix HF Voz HF	HF data Données HF Datos HF	Satellite voice Voix satellite Voz por satélite	Satellite data Données satellite Datos por satélite	Mode S Modo S	Remarks Remarques Observaciones
1	2	3	4	5	6	7	8	9	10
Juan Alvarez Intl.	APP-SR-L ATIS SMC TWR GP	1 (1) 1 1 1 (1) 1							
MMBT BAHIAS DE HUATULCO/ Bahías de Huatulco	TWR	1 (1)							
MMCP CAMPECHE/Ignacio Alberto Acuña Ongay Intl.	TWR	1 (1)							
MMUN CANCUN/Cancún Intl.	APP-L APP-I SMC TWR ATIS CLRD GP	1 (1) 1 (1) 1 1 (1) 1 1 1							
MMCM CHETUMAL/ Chetumal Intl.	TWR	1 (1)							
MMCU CHIHUAHUA/Gral. Roberto Fierro Villalobos Intl.	APP-I TWR ATIS GP	1 (1) 1 (1) 1 1							
MMMC CIUDAD ACUÑA/Intl.	AFIS	1 (1)							
MMCS CIUDAD JUAREZ/ Abraham González Intl.	APP-I TWR	1 1 (1)							
MMCZ COZUMELCozumel/ Intl.	TWR	1 (1)							
MMCL CULIACAN/Fidel Bachigualato	APP-I TWR GP	1 (1) 1 (1) 1							
MMDO DURANGO/Pte. Guadalupe Victoria, Intl.	TWR	1 (1)							
MMGL GUADALAJARA/ Don Miguel Hidalgo y Costilla Intl.	APP-SR-I APP-SR-L ATIS SMC TWR CLRD GP	1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 1							
MMGM GUAYMAS/Gral. José María Yáñez Intl.	TWR	1 (1)							
MMHO HERMOSILLO/Gral. Ignacio Pesqueira Garcia Intl.	APP-I ATIS TWR SMC	1 (1) 1 (1) 1 (1) 1							

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Country and location Pays et emplacement País y localidad	Service or function Service ou fonction Servicio o función	VHF voice Voix VHF Voz VHF	VHF data Données VHF Datos VHF	HF voice Voix HF Voz HF	HF data Données HF Datos HF	Satellite voice Voix satellite Voz por satélite	Satellite data Données satellite Datos por satélite	Mode S Modo S	Remarks Remarques Observaciones
1	2	3	4	5	6	7	8	9	10
MMZH IXTAPA- ZIHUATANEJO/ Ixtapa-Zihuatanejo Intl.	APP-I TWR	1 (1) 1 (1)							
MMLP LA PAZ/Gral. Manuel Márquez de León Intl.	APP-I TWR	1 (1) 1 (1)							
MMLO LEON/Guanajuato	APP-L TWR	1 1 (1)							
MLLT LORETO/Loreto Intl.	TWR	1 (1)							
MMZO MANZANILLO/Playa de Oro Intl.	APP-L TWR	1 1 (1)							
MMMA MATAMOROS/Gral. Servando Canales	APP-L TWR	1 1 (1)							
MMMZ MAZATLAN/Gral. Rafael Buelna Intl.	ACC-SR-L ACC-SR-U APP-I SMC TWR ATIS GP	4 4 (5) 1 (1) 1 1 (1) 1 (1) 1	5 (06/08)		X (06/08)	X (06/08)	X (06/08)		
MMMO MERIDA/Lic. Manuel Crescencio Rejón Intl.	ACC-SR-L ACC-SR-U APP-I ATIS GP TWR	3 4 (4) 1 (1) 1 1 (1) 1 (1)	3 (06/08)	CAR-A (5)	X (06/08)	X (06/08)	X (06/08)		
MMML MEXICALI/Gral. Rodolfo Sánchez Taboada Intl.	APP-I TWR	1 1 (1)							
MMMX MEXICO/Lic. Benito Juárez Intl.	ACC-SR-L ACC-SR-U APP-SR-I APP-SR-L ATIS GP SMC TWR CLRD	5 5 (7) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1 (1)	3 (06/08)		X (06/08)	X (06/08)	X (06/08)		
MMAN MONTERREY/ Aeropuerto Del Norte Intl.	TWR	1 (1)							
MMMY MONTERREY/Gral. Mariano Escobedo Intl.	ACC-SR-L ACC-SR-U APP-SR-I APP-SR-L ATIS GP	2 2 (3) 1 (1) 1 (1) 1 (1) 1	3 (06/08)		X (06/08)	X (06/08)	X (06/08)		

Country and location Pays et emplacement País y localidad	Service or function Service ou fonction Servicio o función	VHF voice Voix VHF Voz VHF	VHF data Données VHF Datos VHF	HF voice Voix HF Voz HF	HF data Données HF Datos HF	Satellite voice Voix satellite Voz por satélite	Satellite data Données satellite Datos por satélite	Mode S Modo S	Remarks Remarques Observaciones
1	2	3	4	5	6	7	8	9	10
	SMC	1 (1)							
	TWR	1 (1)							
MMMM MORELIA/ Gral. Francisco Mujica Intl.	APP-L	1							
	TWR	1 (1)							
MMNG NOGALES/Nogales Intl.	AFIS	1							
MMNL NUEVO LAREDO/ Quetzalcoatl Intl.	APP-L	1							
	TWR	1 (1)							
MMPG PIEDRAS NEGRAS/Intl.	ATIS	1 (1)							
MMPR PUERTO VALLARTA/ Lic. Gustavo Díaz Ordaz Intl.	APP-SR-I	1 (1)							
	APP-SR-L	1 (1)							
	ATIS	1							
	SMC	1							
	TWR	1 (1)							
MMRX REYNOSA/Gral. Lucio Blanco Intl.	APP-L	1							
	TWR	1 (1)							
MMSF SAN FELIPE/ San Felipe Intl.	AFIS	1 (1)							
MMSD SAN JOSE DEL CABO/San José del Cabo Intl.	APP-I	1							
	TWR	1 (1)							
	GP	1							
MMTM TAMPICO/Gral. Francisco Javier Mina Intl.	APP-I	1 (1)							
	TWR	1 (1)							
	GP	1							
MMTP TAPACHULA/ Tapachula Intl.	TWR	1 (1)							
MMTJ TIJUANA/ Gral. Abelardo L. Rodríguez Intl.	APP-SR-I	1 (1)							
	APP-SR-L	1 (1)							
	ATIS	1 (1)							
	GP	1 (1)							
	TWR	1 (1)							
	SMC	1							
MMTO/TOLUCA/Lic. Adolfo Lopez Mateos	TWR	1 (1)							
	GP	1							
MMTC TORREON/Torreón Intl.	APP-L	1 (1)							
	TWR	1 (1)							
MMVR VERACRUZ/Gral. Heriberto Jara Intl.	APP-L	1 (1)							
	TWR	1 (1)							
MMVA VILLAHERMOSA/ C.P.A. Carlos Rovirosa	APP-L	1							
	TWR	1 (1)							
MMZC ZACATECAS/Gral. Leobardo Ruiz Intl.	APP-I	1							
	TWR	1 (1)							

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Country and location Pays et emplacement País y localidad	Service or function Service ou fonction Servicio o función	VHF voice Voix VHF Voz VHF	VHF data Données VHF Datos VHF	HF voice Voix HF Voz HF	HF data Données HF Datos HF	Satellite voice Voix satellite Voz por satélite	Satellite data Données satellite Datos por satélite	Mode S Modo S	Remarks Remarques Observaciones
1	2	3	4	5	6	7	8	9	10
NETHERLANDS ANTILLES (Netherlands)									
TNCF CURACAO	ACC-U GP	3 (2)-ER 1 (1)	2 (06/08)		X (06/08)	X (06/08)	X (06/08)		
TNCB KRALENDIJK/ Flamingo, Bonaire I.	APP-I TWR	1 1 (1)							
TNCE ORANJESTAD/ F.D. Rossevelt, St. Eustacius I.	TWR	1							
TNCM PHILIPSBURG/Prinses Juliana, St. Maarten I.	APP-I TWR SMC	1 1 1							
TNCC WILLEMSTAD/Hato, Curacao I.	APP-I TWR SMC APP-SR-I	1 1 (1) 1 1 (1)							
PUERTO RICO (United States)									
TJBQ AGUADILLA/Rafael Hernández Intl.	TWR	1 (1)							
TJFA FAJARDO/Diego Jiménez Torres	TWR	1 (1)							
TJMZ MAYAGUEZ/Mayaguez	SMC TWR	1 1							
TJPS PONCE/Mercedita	TWR SMC APP-L	1 1							
TJZS SAN JUAN	ACC-U GP-U	11	4 (06/08)	CAR-A (6) CAR-B (1) NAT-A (5)	X (06/08)	X (06/08)	X (06/08)		
TJSJ SAN JUAN, PUERTO RICO/Luis Muñoz Marín Intl.	ATIS TWR SMC APP-SR-I	1 (1) 2 (1) 1 (1) 2 (2)							
TJVQ VIEQUES/Antonio Rivera	TWR	1 (1)							
TRINIDAD AND TOBAGO									
TTZP PIARCO	ACC-SR-U ACC-U	3 4 (2)	2 (06/08)	CAR-A (3)	X (06/08)	X (06/08)	X (06/08)		

Country and location Pays et emplacement País y localidad	Service or function Service ou fonction Servicio o función	VHF voice Voix VHF Voz VHF	VHF data Données VHF Datos VHF	HF voice Voix HF Voz HF	HF data Données HF Datos HF	Satellite voice Voix satellite Voz por satélite	Satellite data Données satellite Datos por satélite	Mode S Modo S	Remarks Remarques Observaciones
1	2	3	4	5	6	7	8	9	10
TTPP PORT OF SPAIN/ Piarco Intl., Trinidad I. TTCP SCARBOROUGH/ Crown Point, Tobago I. TURKS AND CAICOS ISLANDS (United Kingdom) MBGT GRAND TURK/ Grand Turk Intl. MBPV PROVIDENCIALES/ Intl. MBSC SOUTH CAICOS/Intl. UNITED STATES KZWW NEW YORK	GP	1 (1)		CAR-B (1) SAM-2 (2)					
	APP-I	1							
	APP-SR-I	2 (1)							
	TWR	1 (1)							
	SMC	1 (1)							
	ATIS	1 (1)							
	APP-I	1 (1)							
	TWR	1 (1)							
	SMC	1 (1)							
	APP-L	1							
	TWR	1 (1)							
	APP-L	1 (1)							
	TWR	1 (1)							
	APP-L	1							
	TWR	1 (1)							
	GP-U	1-ER	1 (06/08)	CAR-A CAR-B	X (06/08)	X (06/08)	X (06/08)		
	CLRD	1	1 (06/01)						

APPENDIX D
(Appendix F to Agenda Item 3 of the C/CAR WG/5 Meeting)

Table 1 – Initial Programme of activities for the detailed planning and implementation of the air-ground data link to satisfy ATM requirements	
No.	Activity
1.	Participate in seminars and workshops on data link
2.	Establish and participate in a trial programme on systems and applications of data link currently available.
3.	Study and evaluate the arrangements done by other States for the implementation of the data link.
4.	Establish a Sub-regional programme of implementation developed of the air-ground data link coordinated with the users of the airspace to satisfy the ATM requirements.

APPENDIX E
(Appendix AW to the Report on Agenda Item 3 of GREPECAS/13)

CAR/SAM REGIONAL ACTIVITIES PLAN FOR A PLANNING AND IMPLEMENTATION OF AIR – GROUND DATA LINKS
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1. Participate in seminars and workshops on air – ground data links.
 2. Review and update the Regional Plan of air – ground data links (Table CNS 2A) to achieve benefit of data communications improving safety, efficiency and capacity through the reduction of voice communications and implementing as an evolutionary way the automatic process to meet the operational requirement and coordinated and harmonized with the global ATM system.
 3. Evaluate the capacity and the need to modernize the control centres and the aircraft fleet operating in the respective FIR and airspace in order to implement the air – ground data links in accordance with the operational requirements, the SARPs and the ICAO guidance, incorporating the implementation planning of the mentioned capacity.
 4. Establish and participate in a programme of trials and demonstrations on systems and applications of air – ground data links.
 5. Examine and evaluate the arrangements made by other States/international Organizations for the implementation of data links, establishing cooperation mechanisms on a multinational basis.
 6. In accordance with the global Road Map, establish a CAR/SAM regional programme for the evolutionary implementation of air – ground data links ensuring the regional and inter-regional interoperability to satisfy the global ATM system requirements in a coordinated, harmonized and seamless way.
 7. Undertake and monitor research and development of communication technology and follow the development of SARPs and ICAO guidance for future evolution of data link services.
 8. These activities should be developed for execution of the implementation program that is shown in Appendix AX.
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APPENDIX F
(Appendix AX to the Agenda Item 3 of the Report of GREPECAS/13)

CAR/SAM REGIONAL PROGRAM FOR THE IMPLEMENTATION OF THE AIR – GROUND DATA LINKS *		
TERM	GOALS IN THE IMPLEMENTATION OF INFRASTRUCTURE	SERVICES
Near Term (2005–2009)	To implement ACARS, FANS, VDL-Mode 2 and HFDDL based on SARPs and ICAO guidance.	Make maximum use of: - pre-departure dispatch; - oceanic dispatch; - D-ATIS; - other flight and routine information messages; and - automatic position reporting on the part of the operating aircrafts.
Medium Term (2009–2014)		- more complex safety related information can be exchanged, including ATC clearances.
Long Term (after 2014)	Implement Data links as the future evolution and based on the new SARPs and ICAO guidance.	- The use will include down linking of aircraft flight parameters for use by the ATM system; and - uplink of traffic data for improved situational awareness in the cockpit.

Note:

* This regional Program is in accordance with the global Road Map for the implementation of air – ground data links.

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