



Agenda Item 3

CNS Developments

- 3.2 Development of voice and data air-ground communication**
- 3.3 Development of ground-ground communications**

**FOLLOW-UP TO THE IMPLEMENTATION OF
AIR-GROUND AND GROUND-GROUND COMMUNICATIONS**

(Presented by the Secretariat)

SUMMARY
This working paper presents an analysis and proposals for the follow-up to the development and implementation of air-ground and ground-ground communications, including ATN and its applications.
<i>Related Strategic Objectives</i>
<i>This paper is related to Strategic Objectives A and D.</i>
References:
• Reports of the GREPECAS/13 and 14 Meetings • Global Air Navigation Plan. Doc 9750 AN/968 • Report of the First ACP Meeting (ACP/1), Montreal, 10 – 18 May 2007

1. Introduction

Air-ground communications background

1.1 The GREPECAS/13 Meeting, held in Santiago, Chile, from 14 to 18 November 2005, drafted Conclusion 13/71 – *Update and implementation of the VHF, HF and Satellite Voice Communication of the AMS and AMSS Plan*, which, among other aspects, urged Aeronautical Administrations to encourage the implementation of improvement plans and to mitigate the VHF, HF/SMA coverage and implement satellite voice communications.

1.2 Regarding air-ground data communications, GREPECAS/13 drafted Conclusion 13/72 – *Regional Strategy for updating evolutionary implementation of the air-ground data links plan*, through which it adopted the regional Strategy to update and implement the air-ground data links plan, which is formed by the Plan of Activities and the Implementation Programme, both included in **Appendices A and B** to this working paper. Likewise, this conclusion urges Administrations to review and propose updates to the data links plan contained in Table CNS 2A of the FASID.

1.3 In 2006, ICAO approved Amendment 2 to the Global Air Navigation Plan for CNS/ATM Systems, which resulted in the new Global Air Navigation Plan (Doc 9750 – AN/963), which established the Global Plan Initiative (GPI) 17 - *Implementation of data link applications*, which is included in **Appendix C** to this working paper. In this regard, the GREPECAS/14 Meeting noted that the regional strategy adopted in Conclusion 13/72 is harmonized with GPI-17.

Background of ground-ground communications and ATN

1.4 Regarding the review of the ATN Regional Implementation Plan, the GREPECAS/13 Meeting, formulated Conclusion 13/74 – *Proposal of Amendment to ATN Regional Plan*, which proposes amendments to the Table CNS 1B of the FASID by replacing the table format by the format of Table CNS1Ba – *ATN routers CAR/SAM Regional Plan*, table CNS 1Bb – *Ground-ground applications CAR/SAM Regional Plan*, as well as Table CNS 1Bc – *Air-ground applications CAR/SAM Regional Plan*.

1.5 Likewise, the GREPECAS formulated Conclusion 13/75 – *Request for information on plans to implement ATN ground-ground applications*, through which it requested information from Aeronautical Administrations on the requirements and plans to implement ground-ground ATN applications, such as AMHS and AIDC.

1.6 Additionally, GREPECAS formulated Conclusion 13/78 – *Strategy and target dates for the deployment of ATN in the CAR/SAM Regions*, which guides the mentioned strategy contained in **Appendix D** to this paper. Also, the Meeting formulated Conclusion 13/79 – *Development of National Plans to prioritize the AMHS and AIDC implementation and contribute to ATM Automation* which urges Aeronautical Administrations to develop these plans.

1.7 The GREPECAS/14 Meeting drafted Conclusion 14/53 – *Updating of the AMS and AMSS Regional Plan* which requests ICAO to forward a proposal for amendment to the *CAR/SAM Aeronautical Mobile Service (AMS) and the Aeronautical Mobile Satellite Service (AMSS)* contained in Table CNS 2A of the CAR/SAM Air Navigation Plan, Doc 8733, Volume II (FASID). Table CNS 2A of the FASID was updated by GREPECAS/14 and is presented in **Appendix E** to this paper. The Table contains information available at the moment from the CAR Region. This includes VHF, HF, satellite and Mode S data implementation requirements for ATC units.

2. SARPs development status and ICAO guidance material on ATN

2.1 The First Meeting of the Aeronautical Communications Panel closed on 18 May 2007. The Meeting completed the Communications Operating Concept and Requirements (COCR) for future air-ground communication systems and a document containing a common set of performance requirements, including evaluation scenarios. This material is essential for the further technology investigations the panel is continuing to pursue, with a completion of this work by end 2007. The meeting also agreed to the new manual for the Aeronautical Mobile Satellite (R) Service, which is scheduled to be approved by ICAO by November 2007, when the new AMS(R)S SARPs become applicable.

2.2 Also, the Meeting recommended ICAO to amend the ATN SARPs which will introduce in the ATN modern communication protocols using the Internet Protocol Suite (IPS) as developed by the Internet Engineering Task Force. IPS will be introduced in both the ground-ground as well as the air-ground elements of the ATN. Work on detailed technical specifications for the ATN/IPS is ongoing and will be completed by the end of 2008 at which time the amended ATN SARPs are expected to become applicable.

2.3 The ACP/1 Meeting also addressed the feasibility of using Voice over IP (VoIP) in ground-ground voice communications. Particular attention was given to address issues surrounding the potential use of mobile phones on-board aircraft using pico-cell systems.

2.4 The ACP is considering as the goal for the use of ATN, version 6 of the IPS (IPv6), taking into account that it provides several advantages: increase of Internet protocol address space, improvement of the service quality parameters, improvement of end-to-end safety, a more robust system management and other advantages.

2.5 Following the approval of Part I of Doc 9880 (CM and CPDLC) in December 2006, Part IIA (AIDC) has been approved in April 2007. The relevant sections of Doc 9705 have been replaced with the material in Doc 9880. Part IIB (ATSMHS) and Part III (ULCS) are expected to follow shortly.

2.6 Additionally, the ACP/1 Meeting prepared proposals for amendment to Annex 10, Volume III, Part I, Chapter 1 (Definitions) and Chapter 3 (Aeronautical Telecommunication Network). Also, it developed the *Manual on Detailed Technical Specifications for the ATN/IPS*, proposing its distribution to States. The Air Navigation Commission will review the report of the ACP/1 on 7 June 2007, therefore, it is expected that after this review, later this month, a State Letter will be sent. The Report of the ACP/1 Meeting is published in the following website <http://www.icao.int/anb/panels/acp/>.

2.7 As a result of the responses received and of the follow-up made by the ICAO NACC Regional Office to GREPECAS Conclusion 13/75, **Appendix F** to this paper presents an update of Table CNS 1Bb of the FASID, which contains information on ground-ground application implementation plans in the CAR Region.

2.8 The GREPECAS/14 Meeting noted that the goal is to use the AMHS Implementation Plan proposed using the Internet Protocol Version 6 (IPv6) as the network protocol. However, considering the recent analysis made by the Third Meeting of the ATN Task Force of the CNS Committee held in Miami, United States from 21 to 23 March 2007, a Preliminary IP Implementation Approach has been developed for the CAR/SAM Regions.

2.9 The proposed approach is to initially implement IP version 4 (IPv4) within the regions to expedite the implementation of AMHS service in the CAR/SAM regions in the initial stage and IP version 6 (IPv6) for inter-regional connectivity. A transition phase is proposed using a dual stack transition mechanism where both IPv4 and IPv6 are implemented in AMHS systems. This will lead to an eventual all-IPv6 network where all Routers and Hosts are only IPv6 based and IPv4 is disabled.

2.10 According to the guidance given by GREPECAS Decision 13/77, the GREPECAS/14 Meeting prepared a Table format proposal for the ATN air-ground applications regional plan, which is presented in Appendix AD to the GREPECAS/14 Report.

2.11 Taking into account the information provided to the GREPECAS/14 Meeting, the AMHS implementation outlook in the CAR Region is shown in **Appendix G** to this paper.

3. Discussion

3.1 Considering the guidance provided by the ICAO Council, the Meeting should follow-up the voice communications and air-ground and ground-ground data, in accordance with the strategic objectives of the Organization, the strategy defined for these systems in the Global Air Navigation Plan, the SARPs and ICAO guidelines, as well as the regional guidance of GREPECAS, following-up the implementation labour of other sub-regional Groups. Therefore, this paper proposes the review and follow-up of the subsequent aspects.

Regional Plan for the implementation of air-ground data links

3.2 Based on Appendixes A and B (Activities Plan and Regional Programme for the implementation of the air – ground data links) to this paper and on Table CNS 2A of the FASID, recently reviewed by GREPECAS and presented in Appendix E to this paper, the Meeting is proposed to review and update the relevant parts of the Plan.

Deployment of the ATN in the CAR Region

3.3 In accordance to world strategies and the regional strategy drafted by GREPECAS (Con. 13/78) shown in Appendixes C and D respectively of this paper, and as a follow-up to GREPECAS Conclusion 13/79, the Meeting could recommend actions to implement ATN data link applications.

Initiatives for the implementation of ATN ground-ground applications

3.4 Based on the information available until GREPECAS/14 meeting, which is included in Appendix G to this paper, the Meeting could update the information on the implementation initiatives for ground-ground applications in the CAR Region.

AMHS implementation National Plans

3.5 The Meeting is proposed to review and update the relevant parts of the Table that contains the AMHS Implementation Plans in the CAR Region, which are presented in Appendix G to this paper.

Action Plan for the follow-up and implementation of air-ground and ground-ground communications

3.6 Based on the background and analysis expressed in the previous paragraphs, it is proposed that the Meeting reviews and recommends to States/Territories/International Organizations the execution of the Action Plan for the implementation of voice communications and ground-ground and air-ground data presented in **Appendix H** to this working paper.

4. Suggested action

4.1 The Meeting is invited to:

- a) take note of the information contained in this working paper;
- b) review and update the Regional Plan for the implementation of air-ground data links, taking into account the considerations expressed in paragraph 3.2 and Appendixes A, B and E to this paper;
- c) recommend actions to implement the ATN ground-ground applications, considering the information contained in paragraph 3.3 as well as in Appendixes C and D to this paper;
- d) update the information on the initiatives for the execution of ATN ground-ground applications, taking into account the considerations expressed in paragraph 3.4 and in Appendix G to this paper;
- e) based on the contents of paragraph 3.5, update the relevant information on AMHS implementation National Plans;
- f) based on the proposal contained in paragraph 3.6 and on the draft proposal presented in Appendix H to this paper, to review and recommend an action plan for the follow-up and implementation of air-ground and ground-ground communications; and
- g) consider and recommend any other actions deemed appropriate.

APPENDIX A

CAR/SAM REGIONAL ACTIVITIES PLAN FOR A PLANNING AND IMPLEMENTATION OF AIR – GROUND DATA LINKS
--

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.

APPENDIX B

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 HFDL 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.

APPENDIX C

(GPI-17) IMPLEMENTATION OF DATA LINK APPLICATIONS

Scope: Increase the use of data link applications.

Related ATM objectives: Application of data link; Functional integration of ground systems; with airborne systems; ATS inter-facility data communication (AIDC)

Description of strategy

1.78 The implementation of less complex data link services (e.g. pre-departure clearance, oceanic clearance, D-ATIS, automatic position reporting, etc) can bring immediate efficiency benefits to the provision of ATS. Transition to the use of data link communications for more complex safety related uses that take advantage of a wide variety of Controller Pilot Datalink Communication (CPDLC) messages, including ATC clearances is already being successfully implemented.

1.79 Use of CPDLC and implementation of other data link applications can bring significant advantages in terms of workload and safety over voice communication for both pilots and controllers. In particular, they can provide efficient linkages between ground and airborne systems, improved handling and transfer of data, reduced channel congestion, reduced communication errors, interoperable communication media and reduced workload. The reduction of workload per flight translates into capacity increases and enhances safety.

1.80 Communication data link and data link surveillance technologies and applications must be selected and harmonized for seamless and interoperable global operations. ADS-C, ADS-B and CPDLC are in service in various regions of the world but lack global harmonization. Current regional initiatives, including utilizing unique message subsets and CPDLC procedures, hinder efficient development and acceptance for global aircraft operations. Existing and emerging technologies should be implemented in a harmonized global manner in the near term to support long-term goals. Harmonization will define global equipage requirements and therefore minimize user investment.

1.81 FANS-1/A and ATN applications support similar functionality, but with different avionics requirements. Many internationally operated aircraft are equipped with FANS-1/A avionics initially to take advantage of data link services offered in certain oceanic and remote regions. FANS-1/A equipage on international business aviation aircraft is underway and is expected to increase.

APPENDIX D

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 E

Table CNS 2A / Tableau CNS 2A / Tabla CNS 2A

AERONAUTICAL MOBILE SERVICE AND AMSS
SERVICE MOBILE AÉRONAUTIQUE ET SMAS
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.

EXPLICATION DU TABLEAU

Colonne

- 1 Nom de l'État et des emplacements de cet État où le service est assuré.
- 2 Services ou fonctions requis assurés. Les abréviations utilisées ont les significations suivantes:
- | | |
|----------|--|
| ACC-L | Contrôle régional jusqu'au FL 250 |
| ACC-SR-I | Contrôle radar régional jusqu'au FL 250 |
| ACC-SR-U | Contrôle radar régional jusqu'au FL 450 |
| ACC-U | Contrôle régional jusqu'au FL 450 |
| AFIS | Service d'information de vol d'aérodrome |
| APP-L | Contrôle d'approche au-dessous du FL 120 |
| APP-I | Contrôle d'approche au-dessous du FL 250 |

APP-PAR	Radar d=approche de précision jusqu=au FL 40
APP-SR-I	Contrôle d=approche au radar de surveillance jusqu=au FL 250
APP-SR-L	Contrôle d=approche au radar de surveillance jusqu=au FL 120
APP-SR-U	Contrôle d=approche au radar de surveillance jusqu=au FL 450
APP-U	Contrôle d=approche au-dessous du FL 450
ATIS	Service automatique d=information de région terminale
D-ATIS	Service automatique d=information de région terminale par liaison de données
CLRD	Délivrance des autorisations
FIS	Service d=information de vol
VHF-ER	VHF à portée étendue
GP	Installation de communications VHF ou HF en route d=emploi général (GP). Permet des communications radiotéléphoniques air-sol pour toutes les catégories de messages énumérées dans l=Annexe 10, Volume II, 5.1.8. Système normalement indirect, c=est-à-dire dans lequel les communications se font par l=intermédiaire d=un tiers, généralement un opérateur de télécommunications situé dans une station aéronautique.
SMC	Contrôle des mouvements à la surface jusqu=aux limites de l=aérodrome
TWR	Contrôle d=aérodrome
VOLMET	Émissions VOLMET
3	Nombre de canaux vocaux VHF pour les services indiqués dans la colonne 2. Le nombre des canaux mis en œuvre est indiqué entre parenthèses.
4	Nombre de canaux VHF pour les communications de données des services indiqués dans la colonne 2. La date de mise en œuvre (mois/année) est indiquée entre parenthèses.
5	Identification du réseau HF pour les services indiqués dans la colonne 2. Le nombre de fréquences utilisées est indiqué entre parenthèses.
6	Besoin d=une liaison de données HF (X) pour les services indiqués dans la colonne 2. La date de mise œuvre (mois/année) est indiquée entre parenthèses.
7	Besoin de communications vocales par satellite (X) pour les services indiqués dans la colonne 2. La date de mise en œuvre (mois/année) est indiquée entre parenthèses.
8	Besoin de communications de données par satellite (X) pour les services indiqués dans la colonne 2. La date de mise en œuvre (mois/année) est indiquée entre parenthèses.
9	Besoin de communications de données mode S (X) pour les services indiqués dans la colonne 2. La date de mise en œuvre (mois/année) est indiquée entre parenthèses.
10	Remarques

Note. C L=année de mise en œuvre des liaisons de données et des communications vocales par satellite est indiquée par deux chiffres.

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.

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
ANGUILLA (United Kingdom)									
TQPF THE VALLEY/Wall Blake, Anguilla I.	TWR	(1) 1							
ANTIGUA AND BARBUDA									
TAPA SAINT JOHNS/ V.C. Bird Antigua I.	APP TWR SMC APP-SR-I <u>D-ATIS</u>	1 (1) 1 (1) 1 (1) 1 <u>1</u>							
ARUBA (Netherlands)									
TNCA ORANJESTAD/ Reina Beatriz, Aruba I.	APP-SR-L APP-L TWR SMC <u>D-ATIS</u>	1 (1) 1 (1) 1 (1) 1 (1) 1 (1)							
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 <u>D-ATIS</u>	1 1 1 1 <u>1</u>							
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							

CAR/SAM FASID

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
MYGW WEST END/West End, Grand Bahama I.	TWR	1							
BARBADOS									
TBPB BRIDGETOWN/ Grantley Adams Intl.	APP-U APP-I TWR SMC APP-SR-U <u>D-ATIS</u>	1 5 1 1 1 <u>1</u>							
BELIZE									
MZBZ BELIZE/Intl.	APP-I APP-I TWR SMC <u>D-ATIS</u>	1 1 1 1 <u>1</u>							
CAYMAN ISLANDS (United Kingdom)									
MWCB CAYMAN BRAC/ Gerrard Smith Intl.	TWR SMC	1 (1) 1							
MWCR GEORGETOWN/ Owen Roberts Intl.	APP-I TWR SMC <u>D-ATIS</u>	1 -1 1 1 (1)							
COSTA RICA									
MROC ALAJUELA/ Juan Santamaria Intl.	APP-SR-I TWR SMC <u>D-ATIS</u> GP	2 (1) 1 (1) 1 (1) 1 (1) 1 (1)							
MRLB LIBERIA/Tomás Guardia Intl.	APP-I TWR SMC	1 (1) 1 (1) 1 (1)							
MRLM LIMON/Limón Intl.	AFIS	1 (1)							
MRPV PAVAS/Tobías Bolaños Intl.	TWR SMC	1 (1) 1 (1)							
CUBA									
MUCM CAMAGUEY/ Ignacio Agramonte	APP-SR-L TWR	1 1 (1)							
MUCL CAYO LARGO DEL SUR/Viño 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	5 (4)-ER	2 (06/08)	CAR-A (6)	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
MUHA HABANA/José Martí	ACC-SR-I GP-U	3 (1)-ER 2 (1)							
	APP-SR-L APP-SR-I TWR SMC <u>D-ATIS</u>	1 1 (1) 1 (1) 1 (1) 1 (1)							<u>2008</u>
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 <u>D-ATIS</u>	1 1 (1) 1 <u>1</u>							<u>2008</u>
DOMINICA									
TDPB MELVILLE HALL/ Dominica	TWR	1 (1)							
TDPR ROSEAU/Canefield	TWR	1 (1)							
DOMINICAN REPUBLIC									
MDBH BARAHONA/ Maria Montes Intl.	TWR	1 (1)							
<u>MDCY EL CATEY/ El Catey Intl.</u>	<u>TWR</u> <u>APP</u> <u>SMC</u> <u>D-ATIS</u>	<u>2</u> <u>1</u> <u>1</u> <u>1</u>							
<u>MDHE HERRERA/ Herrera Intl.</u>	<u>TWR</u>	<u>1 (1)</u>							
<u>MDEH EL HIGÜERO/ Dr. Joaquín Balaguer Intl.</u>	<u>TWR</u> <u>APP</u> <u>SMC</u>	<u>2</u> <u>1</u> <u>1</u>							
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	4 1 (1)	1 (06/08)						

CAR/SAM FASID

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
	GP	1							
MDSD SANTO DOMINGO/ De las Américas Intl.	APP-SR-I TWR SMC D-ATIS CLRD	2 (1) 1 (1) 1 (1) 1 (1) 1							
EL SALVADOR									
MSLP SAN SALVADOR/ El Salvador Intl.	APP-I APP-I APP-SR-I TWR SMC GP D-ATIS	1 1 1 (1) 1 (1) 1 (1) 1 (1) 1 (1)							
MSSS SAN SALVADOR/ Ilopango Intl.	APP-I TWR TWR SMC	1 (1) 1 (1) 1 (1) 1 (1)							
FRENCH ANTILLES (France)									
TFFF FORT-DE-FRANCE Le Lamentin, Martinique	APP-U APP-I TWR APP-SR-I D-ATIS SMC	1 1 1 (1) 1 (1) 1 (1) 1 (1)							
TFFR POINTE-A-PITRE/ Le Raizet, Guadeloupe	APP-U APP-I TWR APP-SR-I D-ATIS SMC	1 2 1 (1) 1 (1) 1 (1) 1							
TFFJ SAINT-BARTHELEMY/ Saint-Barthelemy	AFIS	1							
TFFG SAINT MARTIN/ Grand Case, Guadeloupe	AFIS	1							
GRENADA									
TGPZ LAURISTON/ Carriacou	TWR	1							
TGPY SAINT GEORGES/ Point Salines	APP-L TWR SMC	1 (1) 1 (1) 1 (1)							
GUATEMALA									
MGFL FLORES/Flores	APP-L TWR	1 1							
MGGT GUATEMALA/ La Aurora	APP-SR-I TWR	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
	SMC	1							
	<u>D-ATIS</u>	1							
	GP	1							
MGPB PUERTO BARRIOS/ Puerto Barrios	TWR	1 (1)							
MGSJ SAN JOSE/San José	TWR	1 (1)							
HAITI									
MTCH CAP HAITIEN/Intl.	APP-L	1							
	TWR	1 (1)							
MTEG PORT-AU-PRINCE	ACC-SR-U	1 2(1)	1 (06/08)						
	GP	1							
MTPP PORT-AU-PRINCE/Intl.	APP-SR-I	1							
	APP-I	1 (1)							
	TWR	1 (1)							
	SMC	1							
	<u>D-ATIS</u>	<u>1</u>							
HONDURAS									
MHLC LA CEIBA/ Golosón Intl.	APP-L	1							
	TWR	1 (1)							
	SMC	1							
MHRO COXEN HOLE/Juan Manuel Gálvez Intl.	TWR	1 (1)							
	SMC	1 (1)							
MHLM SAN PEDRO SULA/ La Mesa Intl.	APP-I	1 (1)							
	TWR	1 (1)							
	SMC	1 (1)							
	GP	1 (1)							
	<u>D-ATIS</u>	1 (1)							
MHTG TEGUCIGALPA (CENAMER)	ACC-SR-U	7 (4)	3 (06/08)	CAR-A (6) SAM-1 (2)	X (06/08)	X (06/08)	X (06/08)		
	GP	1							
MHTG TEGUCIGALPA/ Toncontin	APP-I	1 (1)							
	TWR	1 (1)							
	SMC	1 (1)							
	GP	1 (1)							
	<u>D-ATIS</u>	1 (1)							
JAMAICA									
MKJK KINGSTON	ACC-SR-U	1	2 (06/068)		X (06/068)	X (06/068)	X (06/068)		
	ACC-U	5 (2)							
	GP	1							
MKJP KINGSTON/Norman Manley Intl.	APP-SR-1	1							
	APP-I	1 (1)							
	TWR	1							
	SMC	1 (1)							
	<u>D-ATIS</u>	<u>1</u>							
MKJS MONTEGO BAY/	APP-SR-I	1							

CAR/SAM FASID

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
Sangster Intl.	APP-I TWR SMC <u>D-ATIS</u>	1 1 (1) 1 (1) <u>1</u>							
MEXICO									
MMAA ACAPULCO/Gral. Juan Alvarez Intl.	APP-SR-I APP-SR-L <u>D-ATIS</u> SMC TWR GP	1 (1) 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 <u>D-ATIS</u> 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 <u>D-ATIS</u> 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 <u>D-ATIS</u> SMC TWR CLRD GP	1 (1) 1 (1) 1 (1) 1 (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
MMGM GUAYMAS/Gral. José María Yáñez Intl.	TWR	1 (1)							
MMHO HERMOSILLO/Gral. Ignacio Pesqueira Garcia Intl.	APP-I D -ATIS TWR SMC	1 (1) 1 (1) 1 (1) 1							
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 D -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)		
MMQID MERIDA/Lic. Manuel Crescencio Rejón Intl.	ACC-SR-L ACC-SR-U APP-I D -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 D -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)							

CAR/SAM FASID

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
MMMY MONTERREY/Gral. Mariano Escobedo Intl.	ACC-SR-L ACC-SR-U APP-SR-I APP-SR-L <u>D</u> -ATIS GP SMC TWR	2 2 (3) 1 (1) 1 (1) 1 (1) 1 1 (1) 1 (1)	3 (06/08)		X (06/08)	X (06/08)	X (06/08)		
MMMM MORELIA/ Gral. Francisco Mujica Intl.	APP-L TWR	1 1 (1)							
MMNG NOGALES/Nogales Intl.	AFIS	1							
MMNL NUEVO LAREDO/ Quetzalcoatl Intl.	APP-L TWR	1 1 (1)							
MMPG PIEDRAS NEGRAS/Intl.	<u>D</u> -ATIS	1 (1)							
MMPR PUERTO VALLARTA/ Lic. Gustavo Díaz Ordaz Intl.	APP-SR-I APP-SR-L <u>D</u> -ATIS SMC TWR	1 (1) 1 (1) 1 1 1 (1)							
MMRX REYNOSA/Gral. Lucio Blanco Intl.	APP-L TWR	1 1 (1)							
MMSF SAN FELIPE/ San Felipe Intl.	AFIS	1 (1)							
MMSD SAN JOSE DEL CABO/San José del Cabo Intl.	APP-I TWR GP	1 1 (1) 1							
MMTM TAMPICO/Gral. Francisco Javier Mina Intl.	APP-I TWR GP	1 (1) 1 (1) 1							
MMTP TAPACHULA/ Tapachula Intl.	TWR	1 (1)							
MMTJ TIJUANA/ Gral. Abelardo L. Rodríguez Intl.	APP-SR-I APP-SR-L <u>D</u> -ATIS GP TWR SMC	1 (1) 1 (1) 1 (1) 1 (1) 1 (1) 1							
MMTO/TOLUCA/Lic. Adolfo Lopez Mateos	TWR GP	1 (1) 1							
MMTC TORREON/Torreón Intl.	APP-L TWR	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
MMVR VERACRUZ/Gral. Heriberto Jara Intl.	APP-L TWR	1 (1) 1 (1)							
MMVA VILLAHERMOSA/ C.P.A. Carlos Rovirosa	APP-L TWR	1 1 (1)							
MMZC ZACATECAS/Gral. Leobardo Ruíz Intl.	APP-I TWR	1 1 (1)							
MONTERRAT (United Kingdom)									
TRPM PLYMOUTH/ Blackburne, Montserrat I.	APP-L TWR	1 1							
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 <u>D-ATIS</u>	1 1 (1) 1 1 (1) <u>1</u>							
NICARAGUA									
MNMG MANAGUA/Augusto César Sandino Intl.	APP-I TWR SMC GP <u>D-ATIS</u>	1 (1) 1 (1) 1 (1) 1 (1) <u>1</u>							
MNPC PUERTO CABEZAS/ Puerto Cabezas	TWR	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	1							

CAR/SAM FASID

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 APP-L	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.	D-ATIS TWR SMC APP-SR-I	1 (1) 2 (1) 1 (1) 2 (2)							
TJVQ VIEQUES/Antonio Rivera	TWR	1 (1)							
SAINT KITTS AND NEVIS									
TKPK BASSETERRE/Golden Rock, Saint Kitts I.	APP-L TWR	1 (1) 1 (1)							
TKPN CHARLESTOWN/ Newcastle, Nevis I.	TWR	1							
SAINT LUCIA									
TLPC CASTRIES/Vigie	TWR SMC	1 (1) 1 (1)							
TLPL VIEUX-FORT/ Hewanorra Intl.	APP-L TWR SMC	1 (1) 1 (1) 1 (1)							
SAINT VINCENT AND THE GRENADINES									
TVSV BEQUIA/J. F. Mitchel	TWR	1 (1)							
TVSC CANOUAN/Canouan	TWR	1 (1)							
TVSV KINGSTOWNE/ E.T. Joshua	APP-L TWR	1 (1) 1 (1)							
TVSM MUSTIQUE/Mustique	TWR	1 (1)							
TVSU UNION ISLAND/ Union Island	TWR	1							
TRINIDAD AND TOBAGO									
TTZP PIARCO	ACC-SR-U ACC-U GP	3 4 (2) 1 (1)	2 (06/08)	CAR-A (3) CAR-B (1) SAM-2 (2)	X (06/08)	X (06/08)	X (06/08)		
TTPP PORT OF SPAIN/ Piarco Intl., Trinidad I.	APP-I APP-SR-I TWR SMC ATIS	1 2 (1) 1 (1) 1 (1) 1 (1)							
TTCP SCARBOROUGH/	APP-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
Crown Point, Tobago I.	TWR SMC	1 (1) 1 (1)							
TURKS AND CAICOS ISLANDS (United Kingdom)									
MBGT GRAND TURK/ Grand Turk Intl.	APP-L TWR	1 1 (1)							
MBPV PROVIDENCIALES/ Intl.	APP-L TWR	1 (1) 1 (1)							
MBSC SOUTH CAICOS/Intl.	APP-L TWR	1 1 (1)							
UNITED STATES									
KZWY NEW YORK	GP-U	1-ER	1 (06/08)	CAR-A CAR-B	X (06/08)	X (06/08)	X (06/08)		
VIRGIN ISLANDS (United Kingdom)									
TUPJ ROADTOWN/ Beef Island	APP-L TWR	1 1 (1)							
TUPW VIRGIN GORDA/ Virgin Gorda	TWR	1							
VIRGIN ISLANDS (United States)									
TISX SAINT CROIX/Henry E. Rohlsen, St. Croix	APP-I TWR SMC	1 (1) 1 (1) 1 (1)							
TIST SAINT THOMAS/ Cyril E. King	APP-I TWR SMC D-ATIS	1 (1) 1 (1) 1 (1) 1 (1)							

APPENDIX F

**TABLE CNS 1BB – ATN GROUND-GROUND APPLICATIONS PLAN / TABLA CNS1 BB – PLAN DE APLICACIONES TIERRA-TIERRA ATN
(CAR REGION / REGIÓN CAR)**

ATN GROUND-GROUND APPLICATIONS PLAN / PLAN DE APLICACIONES TIERRA-TIERRA					
Administration and Location/ Administración y localidad	Application Type/ Tipo de Aplicación	Connected with Administration & Location of/ Conectada con Administración y Localidad de	Used Standard / Norma usada	Implementation Date/ Fecha de Implementación	Remarks/ Observaciones
1	2	3	4	5	6
ARUBA, Aruba	AMHS	FAA-Atlanta	ATN	TBD/Por determinar	
BAHAMAS, Nassau,	AMHS	FAA-Atlanta	ATN	TBD/Por determinar	
CAYMAN ISLANDS, Grand Cayman ISLAS CAIMANES , Gran Caimán	AMHS	FAA-Atlanta	ATN	TBD/Por determinar	
CUBA, Havana CUBA, La Habana	AMHS	FAA-Atlanta	ATN	2008	
	AIDC	TBD/Por determinar	ATN	TBD/Por determinar	
DOMINICAN REPUBLIC, Santo Domingo/ REPÚBLICA DOMINICANA, Santo Domingo	AMHS	FAA-Atlanta	ATN	2008	
	AIDC	TBD/Por determinar	ATN	TBD/Por determinar	
HAITI, Port-au-Prince/ HAITÍ, Puerto Príncipe,	AMHS	FAA-Atlanta	ATN	2008	
HONDURAS, Tegucigalpa (COCESNA)	AMHS	FAA-Atlanta	ATN	2007	
	AIDC	TBD/Por determinar	ATN	TBD/Por determinar	
JAMAICA, Kingston	AMHS	FAA-Atlanta	ATN	2008	
	AIDC	TBD/Por determinar	ATN	TBD/Por determinar	

ATN GROUND-GROUND APPLICATIONS PLAN / PLAN DE APLICACIONES TIERRA-TIERRA					
Administration and Location/ Administración y localidad	Application Type/ Tipo de Aplicación	Connected with Administration & Location of/ Conectada con Administración y Localidad de	Used Standard / Norma usada	Implementation Date/ Fecha de Implementación	Remarks/ Observaciones
1	2	3	4	5	6
MEXICO, Mexico City MÉXICO, Ciudad de México	AMHS	FAA-Atlanta	ATN	TBD/Por determinar	
	AIDC	FAA- TBD/Por determinar	ATN	TBD/Por determinar	
	AIDC	TBD/Por determinar	ATN	TBD/Por determinar	
NETHERLANDS ANTILLES (Curacao) / ANTILLAS NEERLANDESAS (Curazao)	AMHS	FAA-Atlanta	ATN	TBD/Por determinar	
PANAMA, Panama City/ PANAMÁ, Ciudad de Panamá	AMHS	FAA-Atlanta	ATN	TBD/Por determinar	
TRINIDAD AND TOBAGO, Piarco	AMHS	FAA-Atlanta	ATN	TBD/Por determinar	
	AIDC	TBD/Por determinar	ATN	TBD/Por determinar	
UNITED STATES, Atlanta ESTADOS UNIDOS, Atlanta	AMHS	Aruba	ATN	TBD/Por determinar	03 2007 - USA Availability to connect to the CAR/SAM Regions/ Disponibilidad de conectar con las Regiones CAR/SAM
	AMHS	Bahamas Nassau,		TBD/Por determinar	
	AMHS	Cayman Islands, Grand Cayman Islas Caimanes , Gran Caimán		TBD/Por determinar	
	AMHS	Cuba, Havana Cuba, La Habana		2008	
	AMHS	Dominican Republic, Santo Domingo/ República Dominicana, Santo Domingo		2008	
	AMHS	Haiti, Port-au-Prince/ Haití, Puerto Príncipe,		2008	

ATN GROUND-GROUND APPLICATIONS PLAN / PLAN DE APLICACIONES TIERRA-TIERRA					
Administration and Location/ Administración y localidad	Application Type/ Tipo de Aplicación	Connected with Administration & Location of/ Conectada con Administración y Localidad de	Used Standard / Norma usada	Implementation Date/ Fecha de Implementación	Remarks/ Observaciones
1	2	3	4	5	6
	AMHS	Honduras, Tegucigalpa (COCESNA)		2007	
	AMHS	Jamaica, Kingston		2008	
	AMHS	Mexico, Mexico		TBD/Por determinar	
	AMHS	Netherlands Antilles (Curacao) / Antillas Neerlandesas (Curazao)		TBD/Por determinar	
	AMHS	Panama, Panama City/ Panamá, Ciudad de Panamá		TBD/Por determinar	
	AMHS	Peru, Lima		TBD/Por determinar	
	AMHS	Trinidad and Tobago, Piarco		TBD/Por determinar	
	AMHS	Venezuela, Maiquetía		2009	
UNITED STATES, TBD ESTADOS UNIDOS, Por determinar	AIDC	MEXICO, Por determinar		TBD/Por determinar	
	AIDC	TBD/Por determinar		TBD/Por determinar	

APPENDIX G

AMHS IMPLEMENTATION PLANS IN THE CAR REGION

AMHS Implementation Plans in the CAR Region	
Date	Management
Implemented	COCESNA and Central American States
2007	Atlanta (United States), Puerto Rico and Trinidad and Tobago
2008	Cuba, Jamaica, Haiti and Dominican Republic
2009	Others

APPENDIX H

PLAN DE ACCIÓN PARA EL SEGUIMIENTO E IMPLEMENTACIÓN DE LAS COMUNICACIONES AIRE-TIERRA Y TIERRA-TIERRA

Estado/Organización:

Fecha:

No.	Strategic Objective/ Objetivo	Global Plan/ Plan Mundial - GPI	GREPECAS No. Con/Dec/Pa	Target Activity/ Actividad Meta	Follow-up Action/ Acción de seguimiento	To be developed by/ A ser desarrollado por	Deliverable/ Entregable	Target date/ Fecha límite	Remarks/ Observaciones
1	2	3	4	5	6	7	8	9	10
1	A, D	GPI-17	13/71 a)	Improve or mitigate the VHF and HF/SMA (R) coverage		States and International Organizations.	Compliance with the required coverage		
2	A, D	GPI-17	13/71 b)	Implement required satellite voice communications		States and International Organizations.	Implement the required voice communications		
3	A, D	GPI-17	13/71 b)	Review and proposal for amendment corresponding to the FASID Table CNS 2A, according to the results of action 13/71 a).		States and International Organizations.	Proposal for amendment		
4	A, D	GPI-17	13/71 c)	Inform the ICAO NACC Regional Office regarding the progress on actions a) and b) of Con. 13/71		States and International Organizations.	Information sent		
5	A, D	GPI-17	13/72 a)	Prepare an execution Plan of the progressive air-ground data links, based on the Plan of activities and the Implementation Programme presented in Appendixes AW and AX to Agenda Item 3 of the GREPECAS/13 Report.		States and International Organizations.	Prepared Plan		
6	A, D	GPI-17	13/72 b)	Review and proposal for amendment corresponding to the FASID Table CNS 2A, according to the results of action 13/72 a).		States and International Organizations.	Proposal for amendment		
7	A, D	GPI-17	13/72 c)	Inform the ICAO NACC Regional Office regarding the progress on actions a) and b) of Con. 13/72		States and International Organizations.	Information sent		
8	A, D	GPI-17	13/74	Forward the proposal for amendment to the ATN Regional Plan format.		ICAO	Proposal for amendment forwarded		
9	A, D	GPI-17	13/75 a)	Analyze requirements and prepare plans to implement ATN ground-ground applications, such as AMHS and AIDC.		States and International Organizations.	Prepared Plan		

APPENDIX H

No.	Strategic Objective/ Objetivo	Global Plan/ Plan Mundial - GPI	GREPECAS No. Con/Dec/Pa	Target Activity/ Actividad Meta	Follow-up Action/ Acción de seguimiento	To be developed by/ A ser desarrollado por	Deliverable/ Entregable	Target date/ Fecha límite	Remarks/ Observaciones
1	2	3	4	5	6	7	8	9	10
10	A, D	GPI-17	13/75 a)	Inform the ICAO NACC Regional Office regarding the results of action a) of Con. 13/75.		States and International Organizations.	Information sent		
11	A, D	GPI-17	13/78	Carry out activities for the deployment of the ATN and its applications according to the deadlines and strategies presented in Appendix BA to Agenda Item 3 of the GREPECAS/13 Report.		States and International Organizations.	Deployment of the ATN according to planned dates.		
12	A, D	GPI-17	13/79	Develop national plans for the implementation of the AMHS and the AIDC, contributing to the development of the ATM automation.		States and International Organizations.	Prepared Plan		
13	A, D	GPI-17	14/53	Forward the proposal for amendment of the FASID Table CNS 2A that was reviewed by the GREPECAS/14.		ICAO	Proposal for amendment forwarded		
14	A, D	GPI-17	GRP14 pa. 3.6.3.17	Forward the Table format proposal for the ATN air-ground applications regional plan, presented in Appendix AD to the Report on Agenda Item 3 of the GREPECAS/14 Report.		ICAO	Proposal for amendment forwarded		