

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

**CAR/SAM 01/01-CNS INFORMAL MEETING**

(Bogota, Colombia, 9 to 11 October 2001)

**Item 1: Review of AFS planning and implementation in the area of interest of the Meeting.**

**STATUS OF PLANNING AND IMPLEMENTATION OF THE AFS COMMUNICATION  
REQUIREMENTS ESTABLISHED BY THE CAR/SAM/3 RAN MEETING AT THE  
BOUNDARIES OF THE CAR/SAM REGIONS**

(Presented by the Secretariat)

**Summary**

This working paper presents information on the planning carried out by the RAN CAR/SAM/3 Meeting with regard to the Aeronautical Fixed Service, with special emphasis on the analysis of the ATS printed and voice communications requirements to be supported by the recommended AFS networks at the boundaries of the CAR/SAM Regions within the area covered by this meeting. It is expected that the meeting identify the requirements still not implemented in accordance with the plan and/or that are not being satisfactorily met by the current AFS networks.

**References:**

- CAR/SAM/3 RAN meeting report.
- Draft Air Navigation Plan (yellow cover), Volume I - Basic ANP.
- Draft Air Navigation Plan (yellow cover), Volume II, Facilities and Implementation Document (FASID).
- Summary of Discussions and Conclusions of the First Informal CAR/SAM 01/00-CNS Meeting.

**1. Background**

1.1 The First Informal CAR/SAM 01/00 Meeting, held in Mexico City, 26 – 29 June 2000, was convened with the purpose set by Conclusion 9/8 –  *Holding of a special informal meeting*  and Conclusion 13/28 –  *AFS implementation meeting*  that were formulated by the CAR/SAM/3 RAN Meeting, held in Buenos Aires, 5 – 15 October 1999. **Appendix A** shows the texts of the aforementioned conclusions.

1.2 Based on the above the CAR/SAM 01/00-CNS meeting reviewed the status of planning and implementation of the AFS, identifying the need for interconnections and alternatives of interconnection solutions that would require further study.

## 2. **Analysis**

2.1 Taking into consideration the background of this working paper, with the aim to supporting the work of the Meeting. **Appendices B and C** present updated information of the Secretariat regarding the status of the planning and implementation of the AFS for the geographical area covered by the meeting and based on the planning contained in Tables CNS 1B and CNS 1C of the FASID ANP CAR/SAM. Appendix B presents the pertinent parts of the AFTN plan and status of implementation and future of AFTN circuits. Appendix C presents the ATS speech circuits plan and the status of implementation of the ATS speech circuits.

2.2 The meeting should thoroughly examine this information to determine whether the requirements are being met or will be adequately met once the installations foreseen in the CAR/SAM FASID are implemented. To facilitate this task to the meeting, available and useful information for this purpose is provided hereunder by the Secretariat.

2.3 Note should be taken that the AFS communications operational requirements are being supported by communications systems leased to public/private providers or by networks implemented through multilateral agreements. In this respect, dedicated and switched channels are being used within these networks. Likewise, it is important to observe that, within the switched speech channels, many administrations are using the public telephone system with international direct dialling for the establishment of speech communications for ATS coordination, as a primary as well as an alternate means. In other cases, the printed and voice communications channels form part of a multiplexed communications system that can be either analogue or digital; nevertheless, this aspect of the communications physical means is not normally provided in the plans.

2.4 Moreover, there is a trend with regard to the aeronautical telecommunications development applied to AFS of establishing regional digital networks under implementation or implemented to meet operational requirements, such as:

- a) In the CAR Region, the MEVA and E-CAR networks already implemented, and the Central American CAMSAT network, under implementation.
- b) In the SAM Region, the SAM digital network (REDDIG), also under implementation process.

2.5 The indicated networks have, to date, no nodes encompassing both regions, with the exception of Panama, which has a MEVA network node, and Venezuela which has a E/CAR Network node. A review of the current implementation status of inter-regional communications requirements is made hereunder.

### **Status of implementation of printed COM requirements**

2.6 With respect to printed communications; they are normally met by the aeronautical fixed telecommunications network (AFTN), though for meteorological communications the ISCS VSAT network is available which, in certain cases, is the main means for the exchange of OPMET messages, in accordance with the FASID (Appendix A). Since printed communications requirements are supported in a global manner. The analysis will be made by States/International Organizations. The information available of the Secretariat on the status of implementation of the AFTN is the following:

- Central America:** It does not have the requirement of AFTN circuits with the SAM Region States. The AFTN automated centre was implemented and is located in Tegucigalpa.
- Colombia:** Four recommended circuits and information exchanges through AFTN by means of three of them (Bogota/Lima, Bogota/Caracas and Bogota/Guayaquil), the Bogota/Panama circuit has not been implemented. The circuit Bogotá/Guayaquil is implemented through communication means of a VSAT terminal of the Colombian network implemented in Guayaquil. The circuit Bogota/Caracas is implemented at low speed, but Colombia and Venezuela are considering to increase the transmission speed of the circuit. Moreover. The three circuits are implemented as part of voice plus data analog multiplexed circuits. The AFTN centre was implemented and is located in Bogota.
- Ecuador:** Two recommended AFTN circuits (Guayaquil-Lima and Guayaquil-Bogota) are implemented, the operational availability is satisfactory. These two circuits are implemented as part of analogue voice plus data multiplexed circuits. The Automatic AFTN centre is implemented and located at Quito.
- Jamaica:** There are not requirement of AFTN circuit with the SAM Region States. The automatic AFTN centre is implemented and located at Kingston.
- Panama:** The circuit Panama-Bogota is not yet implemented and its implementation is not scheduled. It appears to be that for still unclear reasons, there are message exchange problems with Colombia. These problems would be solved when the Panama-Bogota circuit is implemented. The AFTN automatic centre is implemented and located in Panama City.
- Netherlands Antilles:** There are no requirements of AFTN circuit with SAM States. Apart from the plan, an AFTN circuit link is kept with Caracas. The AFTN centre is mechanical and implemented.
- Trinidad and Tobago:** In relation to the required circuits in the boundaries of the CAR/SAM Region, the trunk AFTN circuit Port-of-Spain/Caracas has some deficiencies, but the concerned States are studying the solutions. The AFTN automatic communication centre is fully implemented.
- Venezuela:** In view of the coverage area, two trunk circuits (Caracas/United States and Caracas/Port-of-Spain, and the tributary circuit Caracas/Bogota) were recommended. Messages are exchanged through all circuits. With the exception of the Caracas/Port of Spain circuit, the operational availability has been acceptable in the rest of the circuits and seems to meet operational requirements. The Caracas/United States is a multiplexed digital circuit integrated to the Caracas/San Juan ATS speech channel. Automatic AFTN centre located at Maiquetía.

### **Status of implementation of ATS speech circuits**

2.7 With respect to speech communications of ATS coordination, these are normally met through dedicated or switched circuits. According to the requirements and information of Appendix C and to the Shortcomings and Deficiencies detected in the Meeting coverage area, there are ATS/COM requirements among pairs of ACC/FIC units not implemented or presenting deficiencies in their operation. In this respect, it would be highly useful to establish the shortcomings (lack of implementation) and deficiencies in the ATS speech communications so as to complete the information available at the Secretariat. The information, by FIR, available on this matter is as follows:

**Barranquilla FIR:** In addition to Bogota ACC, Barranquilla ACC has other communication requirements with the ACCs of Curacao, Kingston, Maiquetia, and Panama which are met through the Bogota voice switching system. When the primary means fail, international direct dialing (IDD) is used. Improvements have been done to the speech circuit ATS Barranquilla ACC - Kingston ACC, but the cost of the monthly lease is a very high.

**Bogota FIR:** The Bogota ACC has communications required that are met through the Bogota voice switching system with the ACCs of CENAMER, Guayaquil, Maiquetia and Panama. In the event of failure of the primary means, public telephone international direct dialing (IDD) is used as an alternate.

**Central America FIR:** Cenamer ACC has Cenamer ACC/Bogota ACC, Cenamer ACC/Guayaquil ACC and Cenamer ACC/Panama ACC communication requirements. The first two are met through the connection of the Cenamer ACC to the Bogotá ATS voice switch circuits. The Cenamer ACC/Panama ACC requirement is met through a dedicated circuit through the MEVA network.

**Guayaquil FIR:** The Guayaquil ACC has communications requirements with the Bogota, Cali and Cenamer ACCs using the Bogota voice switch. The circuits with Colombia use ATS voice communications channels of a VSAT Station of the Colombian network of Guayaquil.

**Kingston FIR:** The Kingston ACC has communication requirements with the ACCs of Barranquilla and Panama. The requirement at Barranquilla is met through the Bogota switch and there are problems of availability of the service and high costs. A circuit is established with Panama through the MEVA network.

**Maiquetia FIR:** Maiquetia ACC has communications' requirements with Barranquilla, Bogota, Curacao, Georgetown, Piarco and San Juan. Requirements with ACCs at Barranquilla and Bogota, are met through commuting services at the Bogota voice switch. The other requirements are met through dedicated circuits. It is planned that Maiquetia joins the E/CAR network. The ACC Maiquetia may access the ACC Curacao through the Bogota switch.

**Panama FIR:** Panama ACC has communication requirements with Colombian ACCs at Barranquilla, Bogota, Cali, Medellin and the San Andres APP. It seems that these requirements are met through the Bogota voice switching system. Panama=s ACC also has requirements with Cenamer ACC and Kingston ACC which are served through the MEVA network. The IDD is used intensely in Panama as an alternative.

**Piarco FIR:** Piarco ACC has communications requirements with ACCs of Georgetown, Maiquetia, Paramaribo, Rochambeau and San Juan. Requirements with Georgetown and Maiquetia are met through dedicated systems through IDD with Paramaribo and Rochambeau and with San Juan with a dedicated circuit through the E/CAR network.

2.8 **Appendix D** shows a graphic with thick arrows indicating the connectivity requirements among States/Territories/International Organizations of the CAR and SAM Regions identified by the Informal CNS – CAR/SAM 01/00 Meeting.

2.9 To facilitate the Meeting’s review of the AFS requirements among the States/Territories/International Organizations of the CAR and SAM Regions, **Appendix E** shows a summary of the required AFTN and ATS voice circuits.

### 3. **Suggested Action**

3.1 The meeting is invited to take into consideration the information presented in this working paper, with the purpose to:

- a) carry out, within the area covered by the meeting, a detailed analysis of the printed and voice communications requirements to be met by the AFS networks recommended by the CAR/SAM FASID ANP shown in Appendices B and C;
- b) determine the degree of implementation of the AFTN plan and of the ATS speech circuits required at the boundaries of the CAR/SAM Regions, contained in the Appendices in a) and represented and summarized in the Appendices D and E; and
- c) identify the deficiencies of the AFS circuits that have not been satisfactorily implemented.

**APPENDIX A**

**TEXTS OF CONCLUSIONS 9/8 AND 13/28 FORMULATED BY THE CAR/SAM/3 RAN MEETING**

**Conclusion 9/8 – Holding of a special informal meeting**

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

**Conclusion 13/28 - AFS implementation meeting**

That, the regional offices coordinate the conduct of an implementation meeting between Colombia, Curaçao, Jamaica, Panama, Trinidad and Tobago, Venezuela and COCESNA to deal with AFS problems, to be carried out in the last quarter of 1999 or early in the year 2000.

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**APPENDIX/APENDICE B**

**Tabla CNS IA - PLAN AFTN**

**EXPLICACIÓN DE LA TABLA**

*Columna*

1 Los Centros/Estaciones AFTN de cada Estado son listados alfabéticamente. Cada circuito aparece dos veces en la Tabla. La categoría de estas facilidades son las siguientes:

*M - Centro principal AFTN COM, instalación en conmutador automático AFTN.*

*T - Centro tributario AFTN COM.*

*S - Estación AFTN.*

2 Categoría del circuito:

*M - Circuito troncal principal conectando los centros principales de comunicaciones AFTN.*

*T - Circuito tributario conectando el centro principal de comunicaciones AFTN. Y las estaciones AFTN para enviar o retransmitir el tráfico AFTN.*

*S - Circuito AFTN utilizado para transmitir y recibir el tráfico AFTN hacia y desde un centro de comunicaciones AFTN principal o tributario directamente conectado a éste y que no envía tráfico AFTN excepto con el propósito de servir a la(s) estación(es) nacional(es).*

3 y 7 Tipo de circuito proporcionado:

*LTT/a - Circuito telegráfico terrestre, analógico (eg. cable, microonda)*

*LTT/d - Circuito telegráfico terrestre, digital (eg. cable, microonda)*

*LDD/a - Circuito de datos terrestre, analógico (eg. cable, microonda)*

*LDD/d - Circuito de datos terrestre, digital (eg. cable, microonda)*

*SAT/a/d - Circuito satélite. También utiliza /a para analógico o /d para digital.*

4 y 8 Velocidad de señalización del circuito, actual o planificado en bps.

5 y 9 Protocolos de los circuitos, actuales o planificados.

6 y 10 Código de transferencia de datos (sintaxis), actual o planificado.

*ITA-2 - Alfabeto Telegráfico Internacional No. 2 (Código Baudot).*

*IA-5 - Alfabeto Internacional No. 5 (OACI 7 - código de unidades).*

*CBI - Procedimiento independiente de códigos y multietos (cumple con la ATN).*

11 Fecha de implantación

*TBD - A ser determinado.*

12 Observaciones

*Nota (1) - Por razones de factor de carga se requiere 150 bps mínimo*

*MEVA - Red Digital Satelital MEVA del Caribe Central*

*E/CAR - Red Digital del Caribe Este*

*REDDIG - Red Digital SAM*

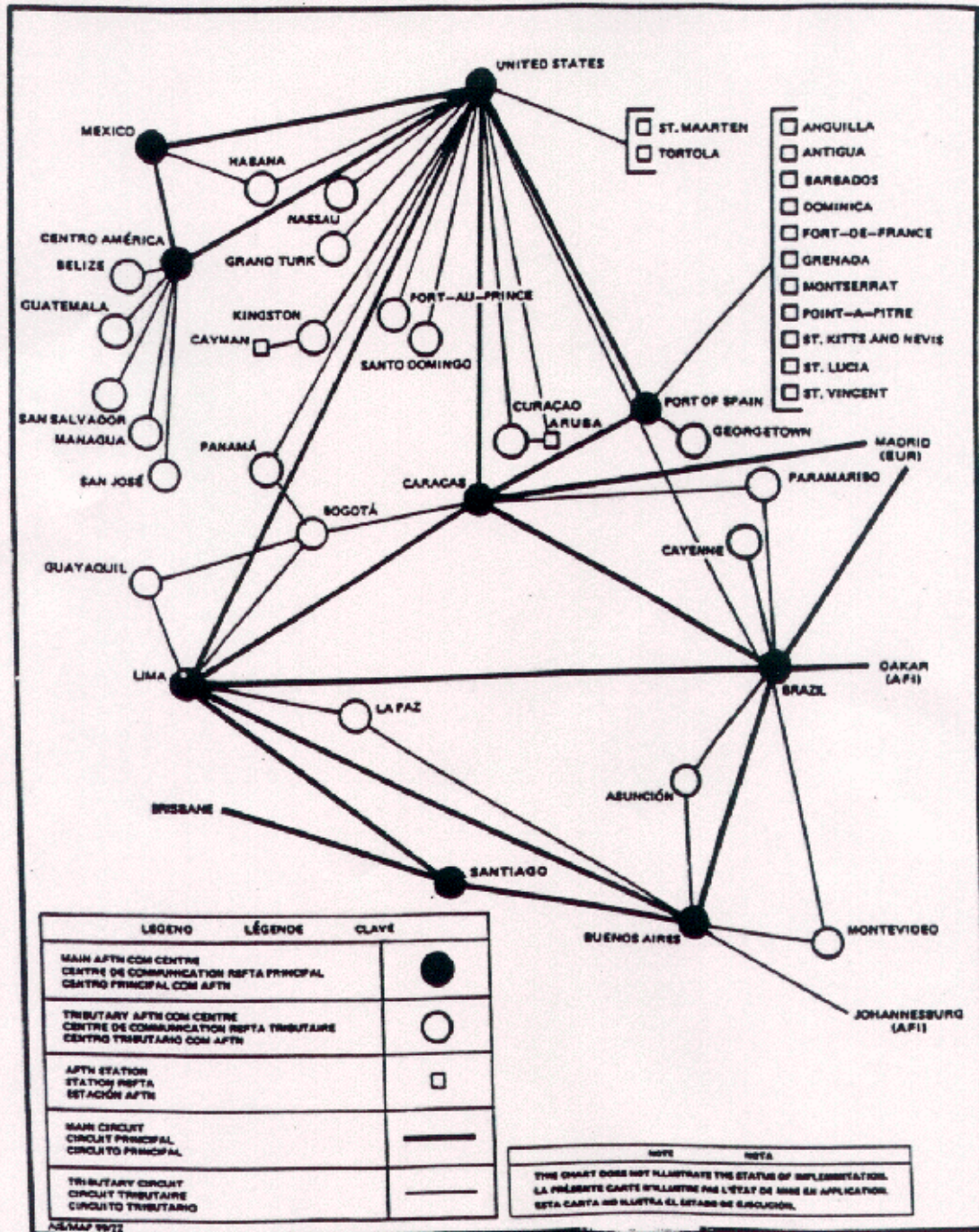
TABLE/TABLA CNS IA - AFTN PLAN/PLAN AFTN

| State/Station<br>Estado/Estación | Cat.     | CURRENT/ACTUAL |   |                      |                 | PLANNED/PLANIFICADO |   |                      |                 | Target date<br>implementation/<br>Fecha<br>implantación | Remarks/<br>Observaciones |
|----------------------------------|----------|----------------|---|----------------------|-----------------|---------------------|---|----------------------|-----------------|---|---------------------------|
|                                  |          | Type/<br>Tipo  | Signalling<br>Speed/<br>Velocidad<br>Señalización | Protocol/<br>Procolo | Code/<br>Código | Type/<br>Tipo       | Signalling<br>Speed/<br>Velocidad<br>Señalización | Protocol/<br>Procolo | Code/<br>Código |   |                           |
| 1                                | 2        | 3              | 4   | 5                    | 6               | 7                   | 8   | 9                    | 10              | 11  | 12                        |
| <b>COLOMBIA</b>                  |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Bogotá-T</i>                  |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Caracas</i>                   | <i>T</i> | <i>SAT/a</i>   | <i>150</i>  | <i>None</i>          | <i>ITA-2</i>    | <i>SAT/a</i>        | <i>300</i>  | <i>None</i>          | <i>IA-5</i>     | <i>TBD</i>  |                           |
| <i>Guayaquil</i>                 | <i>T</i> | <i>LTT/a</i>   | <i>50 ( 1 )</i>                                   | <i>None</i>          | <i>ITA-2</i>    | <i>SAT/d</i>        | <i>300</i>  | <i>None</i>          | <i>IA-5</i>     | <i>TBD</i>  |                           |
| <i>Panama</i>                    | <i>T</i> |                |   |                      |                 |                     | <i>2400</i>                                       | <i>X25</i>           | <i>IA-5</i>     | <i>TBD</i>  |                           |
| <b>ECUADOR</b>                   |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Guayaquil-T</i>               |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Bogota</i>                    | <i>T</i> | <i>LTT/a</i>   | <i>50 ( 1 )</i>                                   | <i>None</i>          | <i>ITA-2</i>    | <i>SAT/a</i>        | <i>300</i>  | <i>None</i>          | <i>IA-5</i>     | <i>TBD</i>  |                           |
| <b>GUYANA</b>                    |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Georgetown-S</i>              |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Port-of-Spain</i>             | <i>S</i> | <i>LTT/a</i>   | <i>75</i>   | <i>None</i>          | <i>ITA-2</i>    |                     | <i>2400</i>                                       | <i>X25</i>           | <i>IA-5</i>     | <i>TBD</i>  | <i>E/CAR</i>              |
| <b>PANAMA</b>                    |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Panama-T</i>                  |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Bogota</i>                    | <i>T</i> |                |   |                      |                 |                     | <i>2400</i>                                       | <i>X25</i>           | <i>IA-5</i>     | <i>TBD</i>  |                           |
| <i>United States</i>             | <i>T</i> | <i>SAT/a</i>   | <i>75</i>   | <i>None</i>          | <i>ITA-2</i>    | <i>SAT/d</i>        | <i>2400</i>                                       | <i>X25</i>           | <i>IA-5</i>     | <i>11/99</i>  | <i>MEVA</i>               |
| <b>SURINAME</b>                  |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Paramaribo-T</i>              |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Caracas</i>                   | <i>T</i> | <i>SAT/a</i>   | <i>75 ( 1 )</i>                                   | <i>None</i>          | <i>ITA-2</i>    | <i>SAT/a</i>        | <i>150</i>  | <i>None</i>          | <i>IA-5</i>     | <i>TBD</i>  |                           |
| <b>TRINIDAD AND TOBAGO</b>       |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Port-of-Spain-M</i>           |          |                |   |                      |                 |                     |   |                      |                 |   |                           |
| <i>Caracas</i>                   | <i>M</i> | <i>LTT/a</i>   | <i>300</i>  | <i>None</i>          | <i>ITA-2</i>    | <i>LTT/d</i>        | <i>2400</i>                                       | <i>X25</i>           | <i>IA-5</i>     | <i>TBD</i>  |                           |
| <i>Georgetown</i>                | <i>S</i> | <i>LTT/a</i>   | <i>75</i>   | <i>None</i>          | <i>ITA-2</i>    |                     | <i>2400</i>                                       | <i>X25</i>           | <i>IA-5</i>     | <i>TBD</i>  | <i>E/CAR</i>              |

**TABLE/TABLA CNS IA - AFTN PLAN/PLAN AFTN**

|                      |          | <i>CURRENT/ACTUAL</i> |                              |             |              | <i>PLANNED/PLANIFICADO</i> |                              |             |             |  | <i>E/CAR</i> |
|----------------------|----------|-----------------------|------------------------------|-------------|--------------|----------------------------|------------------------------|-------------|-------------|--|--------------|
|                      |          |                       | <i>Signalling<br/>Speed/</i> |             |              |                            | <i>Signalling<br/>Speed/</i> |             |             | <i>Target date<br/>implementation/</i> |              |
| <i>United States</i> | <i>M</i> | <i>LTT</i>            | <i>2400</i>                  | <i>X.25</i> | <i>IA-5</i>  |                            |                              |             |             |  |              |
| <b>VENEZUELA</b>     |          |                       |                              |             |              |                            |                              |             |             |  |              |
| <i>Caracas-M</i>     |          |                       |                              |             |              |                            |                              |             |             |  |              |
| <i>Bogotá</i>        | <i>T</i> | <i>SAT/a</i>          | <i>150</i>                   | <i>None</i> | <i>ITA-2</i> | <i>SAT/a</i>               | <i>300</i>                   | <i>None</i> | <i>IA-5</i> | <i>TBD</i>                             |              |
| <i>Paramaribo</i>    | <i>T</i> | <i>SAT/a</i>          | <i>75 ( 1 )</i>              | <i>None</i> | <i>ITA-2</i> | <i>SAT/a</i>               | <i>150</i>                   | <i>None</i> | <i>IA-5</i> | <i>TBD</i>                             |              |
| <i>Port-of-Spain</i> | <i>M</i> | <i>LTT/a</i>          | <i>300</i>                   | <i>None</i> | <i>ITA-2</i> | <i>LLT/d</i>               | <i>2400</i>                  | <i>X25</i>  | <i>IA-5</i> | <i>TBD</i>                             |              |
| <i>United States</i> | <i>M</i> | <i>LTT/d</i>          | <i>600</i>                   | <i>None</i> | <i>ITA-2</i> | <i>SAT/d</i>               | <i>2400</i>                  | <i>X25</i>  | <i>IA-5</i> | <i>TBD</i>                             |              |

CHART/CARTA CNS 1 - AFTN Centres and Circuits



**APPENDIX/APÉNDICE C**

**Tabla CNS 1C - PLAN DE CIRCUITOS ORALES ATS**

*EXPLICACIÓN DE LA TABLA*

*Columna*

*1 y 2 Las estaciones terminales de los circuitos se enumeran alfabéticamente por la estación Terminal I.*

*3 A - indica requisitos ATS para las comunicaciones de voz que deberían ser establecidos en 15 segundos.*

*D - indica requisitos para comunicaciones instantáneas.*

*4 Tipo de servicio especificado:*

*LTF - telefonía por circuito terrestre (circuito terrestre, cable UHF, VHF, satélite).*

*RTF - radiotelefonía*

*5 Tipo de circuitos, Directo (DIR) o Conmutado (SW).*

*D - indica que el circuito mostrado en la Terminal I y II es un circuito directo.*

*S - indica que no existe un circuito directo y que el requisito será proporcionado a través del(de los) centro(s) conmutadores indicados en la columna 6.*

*IDD - Servicio de discado directo internacional por la red telefonica conmutada pública*

*Nota 1: El número de circuitos D y/o S entre los Terminales I y II es indicado por un prefijo numérico; ejemplo, 2 D/S significa 2 circuitos directos y un conmutado.*

*Nota 2: Hasta la implantación de los circuitos orales ATS apropiados, siempre que satisfagan los requerimientos operacionales aeronáuticos, podrán usarse los servicios IDD para las comunicaciones orales ATS en las zonas de baja densidad de tránsito.*

*6 Localización de centro(s) conmutadores. Si se dispone, la localidad alterna de encaminamiento es indicada entre paréntesis.*

*Nota 3: Las siguientes redes han sido identificadas en la tabla para proveer la conexión entre los terminales:*

*CAMSAT Red de Comunicaciones via Satelite de COCESNA*

*E/CAR Red Digital del Caribe del Este*

*MEVA Red Digital Satelital MEVA del Caribe Central*

*REDDIG Red Digital SAM*

*7 Estado de implantación. Se utilizan los siguientes códigos en esta columna:*

- I - si el circuito está implantado.*

*Nota 4: Si el circuito está implantado, pero existen planes a corto plazo para establecerlo dentro de otra red pública/privada, el símbolo I/P debe colocarse indicando en la Columna 8 - Observaciones, el futuro ambiente de red para el circuito.*

- ninguna indicación o marca, si el circuito no está implantado y la fecha de implantación es desconocida.*
- si el circuito no está implantado, pero la fecha de implantación está disponible, ésta es indicada entre paréntesis.*

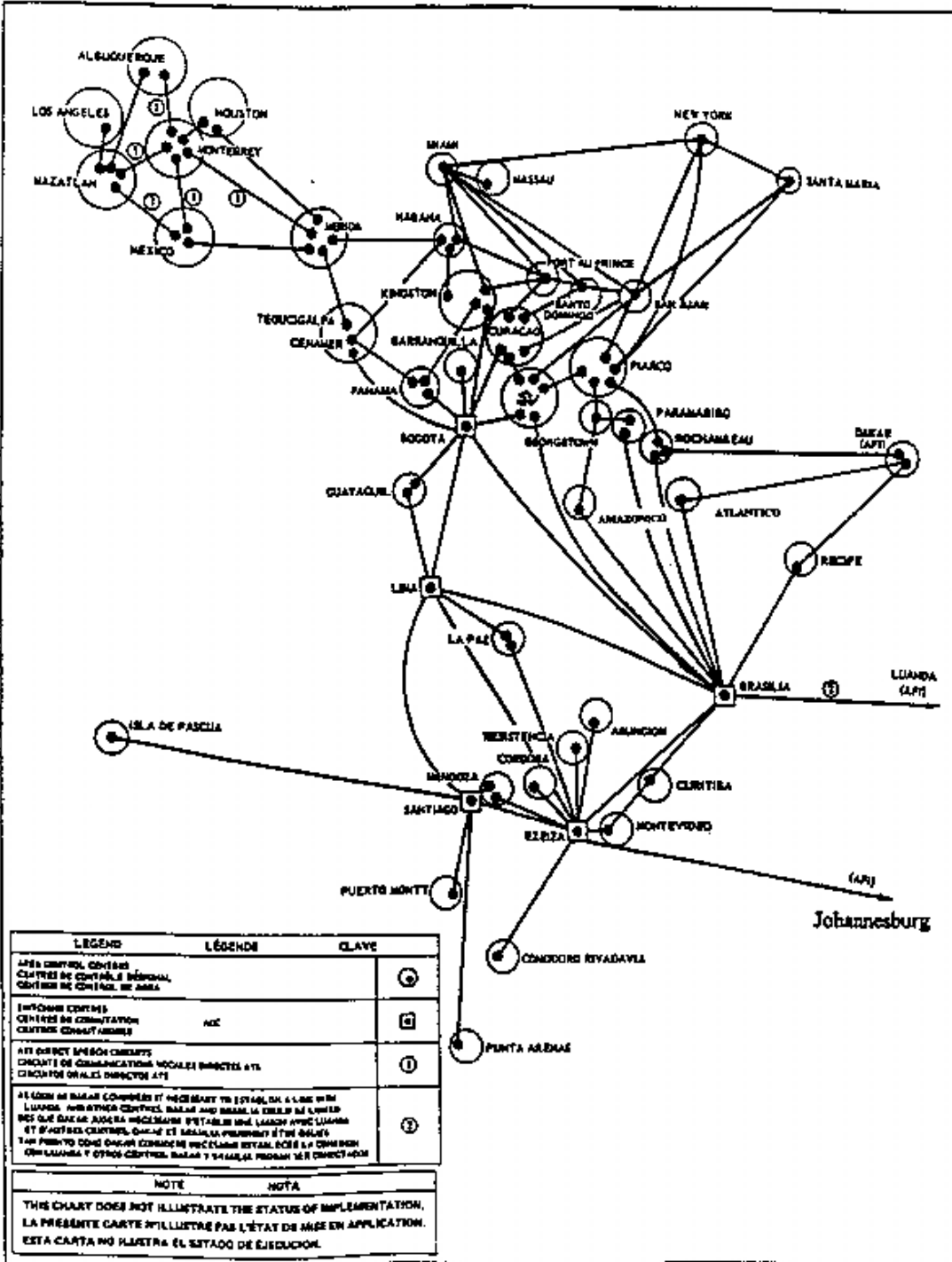
*8 Observaciones/notas*

| <b>TABLA/TABLE CNS I C - ATS DIRECT SPEECH CIRCUITS PLAN/PLAN DE CIRCUITOS ORALES ATS</b>        |                         |                       |                              |            |  |   |                                   |
|--|-------------------------|-----------------------|------------------------------|------------|--|---|-----------------------------------|
| <i>ATS requirements for speech communications/<br/>Requisitos ATS para comunicaciones orales</i> |                         |                       | <i>Circuit/Circuito</i>      |            |  | <i>Status of<br/>implementation/<br/>Estado de<br/>implantacion</i> | <i>Remarks/<br/>Observaciones</i> |
| <i>Terminal I</i>  | <i>Terminal II</i>      | <i>Type/<br/>Tipo</i> | <i>Service/<br/>Servicio</i> | <i>D/S</i> | <i>To be switched via/<br/>A ser conmutado via</i> |   |                                   |
| <b>1</b>   | <b>2</b>                | <b>3</b>              | <b>4</b>                     | <b>5</b>   | <b>6</b>   | <b>7</b>  | <b>8</b>                          |
| <b>COLOMBIA</b>  |                         |                       |                              |            |  |   |                                   |
| <i>Barranquilla ACC</i>  | <i>Bogotá ACC</i>       | <i>D</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
|  | <i>Curacao ACC</i>      | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I</i>  |                                   |
|  | <i>Kingston ACC</i>     | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I</i>  |                                   |
|  | <i>Maiquetía ACC</i>    | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I/P</i>  | <i>REDDIG</i>                     |
|  | <i>Panamá ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I</i>  |                                   |
| <i>Bogotá ACC</i>  | <i>Barranquilla ACC</i> | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I</i>  |                                   |
|  | <i>Cali ACC</i>         | <i>A</i>              | <i>LTF</i>                   |            |  |   |                                   |
|  | <i>Cenamer ACC</i>      | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I</i>  |                                   |
|  | <i>Guayaquil ACC</i>    | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I/P</i>  | <i>REDDIG</i>                     |
|  | <i>Maiquetía ACC</i>    | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I/P</i>  | <i>REDDIG</i>                     |
|  | <i>Medellin ACC</i>     | <i>D</i>              | <i>LTF</i>                   |            |  |   |                                   |
|  | <i>Panamá ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I/P</i>  | <i>REDDIG</i>                     |
| <i>Cali ACC</i>  | <i>Bogotá ACC</i>       | <i>D</i>              | <i>LTF</i>                   |            |  |   |                                   |
|  | <i>Guayaquil ACC</i>    | <i>A</i>              | <i>LTF</i>                   |            |  |   |                                   |
|  | <i>Panamá ACC</i>       | <i>A</i>              | <i>LTF</i>                   |            |  |   |                                   |
| <i>Medellin ACC</i>  | <i>Bogotá ACC</i>       | <i>D</i>              | <i>LTF</i>                   |            |  |   |                                   |
|  | <i>Panamá ACC</i>       | <i>A</i>              | <i>LTF</i>                   |            |  |   |                                   |
| <i>San Andrés APP</i>  | <i>Panamá ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  |   |                                   |
| <b>COCESNA</b>   |                         |                       |                              |            |  |   |                                   |
| <i>Cenamer ACC</i>   | <i>Bogotá ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
|  | <i>Guayaquil ACC</i>    | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
|  | <i>Kingston ACC</i>     | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>MEVA</i>  | <i>I</i>  |                                   |
|  | <i>Panamá ACC</i>       | <i>D</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
| <b>ECUADOR</b>   |                         |                       |                              |            |  |   |                                   |
| <i>Guayaquil ACC</i>   | <i>Bogotá ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA (LIMA)</i>                               | <i>I/P</i>  | <i>REDDIG</i>                     |
|  | <i>Cali ACC</i>         | <i>A</i>              | <i>LTF</i>                   |            |  |   |                                   |
|  | <i>Cenamer ACC</i>      | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I/P</i>  | <i>REDDIG</i>                     |
| <b>FRENCH GUIANA<br/>(France)</b>  |                         |                       |                              |            |  |   |                                   |
| <i>Rochambeau ACC</i>  | <i>Paramaribo ACC</i>   | <i>A</i>              | <i>LTF</i>                   | <i>IDD</i> |  | <i>I</i>  |                                   |
|  | <i>Piarco ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>IDD</i> |  | <i>I</i>  |                                   |

| <b>TABLA/TABLE CNS I C - ATS DIRECT SPEECH CIRCUITS PLAN/PLAN DE CIRCUITOS ORALES ATS</b>        |                         |                       |                              |            |  |   |                                   |
|--|-------------------------|-----------------------|------------------------------|------------|--|---|-----------------------------------|
| <i>ATS requirements for speech communications/<br/>Requisitos ATS para comunicaciones orales</i> |                         |                       | <i>Circuit/Circuito</i>      |            |  | <i>Status of<br/>implementation/<br/>Estado de<br/>implantacion</i> | <i>Remarks/<br/>Observaciones</i> |
| <i>Terminal I</i>  | <i>Terminal II</i>      | <i>Type/<br/>Tipo</i> | <i>Service/<br/>Servicio</i> | <i>D/S</i> | <i>To be switched via/<br/>A ser conmutado via</i> |   |                                   |
| <i>1</i>   | <i>2</i>                | <i>3</i>              | <i>4</i>                     | <i>5</i>   | <i>6</i>   | <i>7</i>  | <i>8</i>                          |
| <b>GUYANA</b>  |                         |                       |                              |            |  |   |                                   |
| <i>Georgetown ACC</i>  | <i>Maiquetía ACC</i>    | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
|  | <i>Paramaribo ACC</i>   | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
|  | <i>Piarco ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
| <b>JAMAICA</b>   |                         |                       |                              |            |  |   |                                   |
| <i>Kingston ACC</i>  | <i>Barranquilla ACC</i> | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I</i>  |                                   |
|  | <i>Cenamer ACC</i>      | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>MEVA</i>  | <i>I</i>  |                                   |
|  | <i>Curacao ACC</i>      | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>MEVA</i>  | <i>I</i>  |                                   |
|  | <i>Panamá ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>MEVA</i>  | <i>I</i>  |                                   |
| <b>NETHERLANDS<br/>ANTILLES (Netherlands)</b>  |                         |                       |                              |            |  |   |                                   |
| <i>Curacao ACC</i>   | <i>Barranquilla ACC</i> | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I</i>  |                                   |
|  | <i>Kingston ACC</i>     | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>MEVA</i>  | <i>I</i>  |                                   |
|  | <i>Maiquetía ACC</i>    | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
|  | <i>San Juan ACC</i>     | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>MEVA</i>  | <i>I</i>  |                                   |
| <b>PANAMÁ</b>  |                         |                       |                              |            |  |   |                                   |
| <i>Panamá ACC</i>  | <i>Barranquilla ACC</i> | <i>D</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I/P</i>  |                                   |
|  | <i>Bogotá ACC</i>       | <i>D</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I/P</i>  |                                   |
|  | <i>Cali ACC</i>         | <i>A</i>              | <i>LTF</i>                   |            |  |   |                                   |
|  | <i>Cenamer ACC</i>      | <i>D</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
|  | <i>Kingston ACC</i>     | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>MEVA</i>  |   |                                   |
|  | <i>Medellin ACC</i>     | <i>A</i>              | <i>LTF</i>                   |            |  |   |                                   |
|  | <i>San Andrés APP</i>   | <i>D</i>              | <i>LTF</i>                   | <i>D</i>   |  |   |                                   |
| <b>SURINAME</b>  |                         |                       |                              |            |  |   |                                   |
| <i>Paramaribo ACC</i>  | <i>Georgetown ACC</i>   | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I/P</i>  | <i>REDDIG</i>                     |
|  | <i>Piarco ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  |   |                                   |
|  | <i>Rochambeau ACC</i>   | <i>A</i>              | <i>LTF</i>                   | <i>IDD</i> |  | <i>I/P</i>  | <i>REDDIG</i>                     |
| <b>TRINIDAD AND TOBAGO</b>   |                         |                       |                              |            |  |   |                                   |
| <i>Piarco ACC</i>  | <i>Georgetown ACC</i>   | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  | <i>E/CAR</i>                      |
|  | <i>Maiquetía ACC</i>    | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  | <i>E/CAR</i>                      |
|  | <i>Paramaribo ACC</i>   | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  |   |                                   |
|  | <i>Rochambeau ACC</i>   | <i>A</i>              | <i>LTF</i>                   | <i>IDD</i> |  | <i>I</i>  |                                   |
|  | <i>San Juan ACC</i>     | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  | <i>E/CAR</i>                      |

| <b>TABLA/TABLE CNS I C - ATS DIRECT SPEECH CIRCUITS PLAN/PLAN DE CIRCUITOS ORALES ATS</b>        |                         |                       |                              |            |  |   |                                   |
|--|-------------------------|-----------------------|------------------------------|------------|--|---|-----------------------------------|
| <i>ATS requirements for speech communications/<br/>Requisitos ATS para comunicaciones orales</i> |                         |                       | <i>Circuit/Circuito</i>      |            |  | <i>Status of<br/>implementation/<br/>Estado de<br/>implantacion</i> | <i>Remarks/<br/>Observaciones</i> |
| <i>Terminal I</i>  | <i>Terminal II</i>      | <i>Type/<br/>Tipo</i> | <i>Service/<br/>Servicio</i> | <i>D/S</i> | <i>To be switched via/<br/>A ser conmutado via</i> |   |                                   |
| <i>1</i>   | <i>2</i>                | <i>3</i>              | <i>4</i>                     | <i>5</i>   | <i>6</i>   | <i>7</i>  | <i>8</i>                          |
| <b>VENEZUELA</b>   |                         |                       |                              |            |  |   |                                   |
| <i>Maiquetía ACC</i>   | <i>Barranquilla ACC</i> | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I/P</i>  | <i>REDDIG</i>                     |
|  | <i>Bogotá ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>S</i>   | <i>BOGOTA</i>                                      | <i>I/P</i>  | <i>REDDIG</i>                     |
|  | <i>Curacao ACC</i>      | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
|  | <i>Georgetown ACC</i>   | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I/P</i>  | <i>REDDIG</i>                     |
|  | <i>Piarco ACC</i>       | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  |                                   |
|  | <i>San Juan ACC</i>     | <i>A</i>              | <i>LTF</i>                   | <i>D</i>   |  | <i>I</i>  | <i>E/CAR</i>                      |

CHART/CARTA CNS 3 - ATS SPEECH CIRCUITS AND SWITCHES





## APPENDIX / APENDICE E

**Table 1 – AFS Requirements of CAR/SAM Interconnection**  
**Tabla 1 – Requisitos AFS de Interconexiones CAR/SAM**

| <b>CAR/SAM Interconnection<br/>Interconexiones CAR/SAM</b>                                      | <b>AFS Circuits Required<br/>Circuitos AFS Requeridos</b>          | <b>Remarks<br/>Observaciones</b> |
|---|--|----------------------------------|
| 1   | 2  | 3                                |
| <b>4-Trinidad &amp; Tobago/Venezuela</b>  | 1 AFTN, LTT/d, 2400 bps, X25,<br>IA-5<br>1 ATS – A                 |                                  |
| <b>5-Curaçao/Venezuela</b>  | 1 ATS – A  |                                  |
| <b>6-Colombia<br/>(Barranquilla)/Curaçao</b>  | 1 ATS – D  |                                  |
| <b>7-Colombia<br/>(Barranquilla)/Jamaica</b>  | 1 ATS – A  |                                  |
| <b>8-Colombia (Bogota)/Panama<br/>Barranquilla/Panama<br/>Bogota/Panama<br/>Medellín/Panama</b> | 1 AFTN, 2400 bps, X25, IA-5<br>1 ATS – A<br>1 ATS – A<br>1 ATS – A |                                  |
| <b>9-Colombia (Bogota)/Cenamer</b>  | 1 ATS – A  |                                  |
| <b>10-Cenamer/Ecuador</b>   | 1 ATS – A  |                                  |
| <b>11-Costa Rica/Panama</b>   | 1 ATS – D  |                                  |
| <b>12-Panama/San Andres,<br/>Colombia</b>   | 1 ATS – D  |                                  |

**Notes/Notas:**

D: Indicates requirements for instantaneous communication.  
 Indica requisitos para comunicaciones instantáneas.

A: Indicates ATS requirements for the establishment of voice communication within 15 seconds.  
 Indica requisitos ATS para las comunicaciones de voz que deberían ser establecidas en 15 segundos.