



**Agenda Item 2: Report of the activities carried out to date since the last REDDIG Coordination Committee meeting**

**FOLLOW-UP TO THE MEVA II / REDDIG INTERCONNECTION**

(Paper presented by the Secretariat)

**SUMMARY**

This working paper presents a follow-up to the interconnection of the MEVA II / REDDIG VSAT based digital networks.

**References:**

- Eighth MEVAII / REDDIG Coordination Meeting (MR/8) (Lima, Perú, 17-18 May 2010);
- Contract No. 22500187 between ICAO and Americom Government Services, Inc (AGS) for MEVA II and REDDIG interconnection; and
- RLA/09/901 project – Interconnection of COCESNA MEVA II node to REDDIG.

<b>ICAO strategic objectives:</b>	<i>A – Safety; and C – Environmental protection and sustainable development of air transport.</i>
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**1. Background**

1.1 The interconnection of the CAR/SAM digital networks has the purpose of improving efficacy, quality and availability of the aeronautical fixed service (AFS) voice and data communications circuits, as well as facilitating the introduction of ATN and its applications in an evolutionary manner.

1.2 The third Caribbean and South American regional air navigation meeting (RAN CAR/SAM/3) (Buenos Aires, Argentina, 5-15 October 1999) led GREPECAS towards the need of drafting pertinent criteria and guidelines to achieve the interconnection between the various available and emerging digital networks, through Recommendation 9/1 – *Implementation of digital networks to improve the current AFS and to facilitate the introduction of the ATN.*

1.3 In this respect, in view of the similar characteristics of the MEVA II and REDDIG VSAT satellite based networks, installed, respectively, in the CAR and SAM Regions, the NACC and SAM Regional Office, in coordination with the REDDIG Administration, the MEVA II group and members of the MEVA II and REDDIG networks, undertook the planning and implementation of both networks' interconnection.

## 2. **The interconnection process**

2.1 After eight coordination meetings for the interconnection of MEVA II / REDDIG and three MEVA II / REDDIG Task Force meetings, the works for the interconnection of the REDDIG nodes in Bogota and Caracas and the MEVA II were completed in March 2010, and in November 2010, the interconnection of the COCESNA MEVA II node to REDDIG.

### *Interconnection of the Bogota and Caracas REDDIG node to MEVA II*

2.2 Installation works for the interconnection of the Bogota and Caracas REDDIG node to the MEVA II network were carried out from 1 to 17 March 2010, as programmed in the agreement signed between ICAO and the MEVA II Service Provider (N° 22500187).

2.3 A Viasat Linkway 2100 modem, two DVP2 E-1 cards for the FRAD MEMOTEC CX 950 equipment (1 for the MPS A and 1 for the MPS B), three two-port L-band dividers, and three L-band combiners, were installed in Bogota; and a Viasat Linkway 2100 modem, 4 DAV cards for the FRAD MEMOTEC CX 950 equipment (2 for the MUX A and 2 for the MUX B), three two-port L-band dividers, three two-port L-band combiners and two Datacom Standard 75 Watt C-band amplifiers, had been installed at the Caracas (Maiquetia) REDDIG node.

2.4 The MEVA II Service Provider, prior to installing the equipment at the Bogota and Caracas REDIG node, had installed the cards required in the FRAD Memotec equipment at each of the MEVA II nodes involved in the MEVA II / REDDIG interconnection (Aruba, Curacao, Jamaica, Miami, Panamá and San Juan). Also, REDDIG Administration had installed the respective cards in the FRAD MEMOTEC equipment at the Guayaquil REDDIG node.

2.5 Once the MEVA II Service Provider and the REDDIG Administration, acting in coordination, had completed the installation of the equipment at the Bogota and Caracas REDDIG nodes, proceeded to carry out the trials on voice and data circuits (AFTN) planned in the implementation for MEVA II / REDDIG interconnection.

2.6 In this regard, communications could be successfully established in both ways in ATS speech circuits foreseen in the MEVA II / REDDIG interconnection, except for the circuit Josefa Camejo (via Caracas) and Aruba.

2.7 AFTN circuits foreseen in the MEVA II / REDDIG interconnection were initially programmed in the Memotec equipment, but were unable to be tested due to compatibility problems between the protocol used by the instrument equipment (fire bird 6000 test set) and the protocol configured in the Memotec, in accordance to information contained in the on-site acceptance document prepared by the AGS installer and, also, because local connection works between the AFTN switch exit and the corresponding entry points of the Memotec had not been completed at many of the nodes involved in the interconnection.

### *COCESNA node interconnection to REDDIG*

2.8 For the COCESNA MEVA II node interconnection to REDDIG, an agreement was established between ICAO and COCESNA (RLA/09/901 project), which was signed on March 2010 by the ICAO Secretary General and COCESNA authorities.

2.9 The agreement defines the technical, services and economical aspects for the interconnection of the COCESNA MEVA II node with REDDIG, and that the services initially taken into consideration in the Project are the ATS speech circuits between the COCESNA (CENAMER) ACC with the Bogota ACC and the Guayaquil ACC.

2.10 The installation works at the COCESNA (Tegucigalpa, Honduras) MEVA II node were completed during the week of 21 to 27 November 2010. As scheduled, a Linkway2100 Modem, 3 combiners –dividers, two DAV and three SLIM FXS cards were installed.

2.11 After the installation, tests were carried out to the ATS speech circuits scheduled in the interconnection, Guayaquil-CENAMER and Bogota-CENAMER, with a successful result.

### 3. Analysis

#### *Bogota and Caracas REDDIG nodes interconnection to MEVA II*

3.1 All the ATS speech circuits programmed in the Bogota and Caracas nodes have been configured in the MEVA II / REDDIG interconnection and are operational. The ATS speech circuit between Josefa Camejo and Aruba is operational only in the Maiquetia-Aruba leg. The Venezuelan aeronautical administration should complete the Josefa Camejo-Maiquetia stretch.

3.2 In follow-up to the performance verification of the ATS speech circuits through MEVA II / REDDIG, it is important that the technical personnel in charge of maintaining the Bogota and Caracas nodes inform the REDDIG Administrator of any problem that might present itself regarding the operation of these circuits, with the aim that the REDDIG Administrator can coordinate a solution with the MEVA II Service Provider.

3.3 Taking into account the operation of the ATS speech circuits through this interconnection, the aeronautical administrations of Colombia and Venezuela should analyze the future of the ATS speech circuits used before the interconnection of MEVA II / REDDIG.

3.4 ICAO has made payment to AGS (currently SES) with regard to the Bogota and Caracas REDDIG nodes interconnection works to MEVA II and to the recurrent services (ATS speech circuits), in accordance with Contract No. 22500187, Section 5.1.1, signed between ICAO and AGS. With regard to the payment of recurrent services, these have been made from April to November 2010. **Appendix A** to this working paper shows the invoice pertaining to April (first month charged), which represents the monthly payments.

3.5 Considering that the AFTN circuits are not included in the MEVA II / REDDIG interconnection, same are not being paid to AGS; it shall be effected upon completion of their installation.

#### *COCESNA node interconnection to REDDIG*

3.6 The Guayaquil-CENAMER and Panama-CENAMER ATS speech circuits are operating normally through the interconnection and without difficulties since the end of November. In this respect, same should officially become operational and be considered as main circuits. With reference to the circuits used before, the aeronautical administrations involved should analyze upon their future use.

3.7 It is important that the Bogota and Guayaquil REDDIG nodes, as well as the COCESNA MEVA II node, communicate with their respective NCC whenever there is a failure in the corresponding speech circuits, as indicated in the maintenance coordination procedure in the Memorandum of Understanding (MoU) between the MEVA II States/Territories/International Organizations members and the REDDIG members.

3.8 Installation, as well as recurrent, costs (ATS speech circuits) that COCESNA should pay to REDDIG are taken under consideration in the service management agreement between ICAO and COCESNA (RLA/09/901 project), under the section pertaining to economical aspects.

*Implementation of AFTN circuits in the MEVA II / REDDIG interconnection*

3.9 For the implementation of AFTN circuits, **Appendix B** shows the local and MEVA II / REDDIG technical characteristics coordinated with AGS.

3.10 The AFTN connections indicated in Appendix B have yet to be implemented, as AGS informed that the asynchronous conversion to X.25 had not been mentioned in Contract No. 22500187 and, therefore, this was a new proposal subject to be quoted. Also, because some States had not completed local connections and United States proposes the installation of routers in Bogota and Caracas converting from asynchronous to IP in view of the problem presenting itself for the conversion from asynchronous to X.25. With regard to the United States proposal, we also consider that this would represent a new request for AGS, who would provide a new quotation.

3.11 In this respect, the Coordination Committee should provide a solution to propose to AGS, with the aim of completing the implementation of the proposed AFTN circuits in the interconnection.

4. **Action suggested**

4.1 The Coordination Committee is invited to:

- a) Take note of the information provided in the working paper;
- b) Analyze the aspects related with the follow-up in the operation of the MEVA II / REDDIG interconnection speech circuits indicated in Section 2 of this working paper, and propose corresponding actions;
- c) Analyze the proposal indicated in Section 3, paragraphs 3.8 to 3.10 and in Appendix B, with regard to the solution to adopt to implement the AFTN circuits in the interconnection; and
- d) Analyze any other aspects deemed necessary.

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APPENDIX A / APENDICE A

RLA/03/901 RCC/14-WP/08 - NE/08

2010 Coporate Ridge, Suite 550

McLer VA 22102

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INVOICE NO: INV-00000002907\*
SALES ORDER: SO-9000019
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Page: 1 of 2
Invoice Date: 06/30/2010
Due Date: 07/30/2010

COPY

To: International Civil Aviation Organizatio
Procurement Officer
Technical Co-operation Bureau
999 University Street
Montreal, QUE H3C5H7 Canada

Ship To:

Contact: Attn: Marie-Ange Baraer (Cust # 29449)

Currency: USD

Contract: 22500187

Table with columns: ORDER DATE, SALES REPRESENTATIVE, TERMS, DELIVERY TERMS, SHIP VIA, CUSTOMER PURCHASE ORDER, LINE, ITEM/DESCRIPTION, REV, DUE DATE, U/M, INVOICE QUANTITY, NET UNIT PRICE, EXTENDED PRICE. Includes line items for SAT SVCS and network access fees.



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ORDER DATE	SALES REPRESENTATIVE	TERMS	DELIVERY TERMS	SHIP VIA	CUSTOMER PURCHASE ORDER		
03/25/09	Benning, David	NET 30			22500187		
LINE	ITEM/DESCRIPTION	REV	DUE DATE	U/M	INVOICE QUANTITY	NET UNIT PRICE	EXTENDED PRICE
*****							
						Total Amt :	\$3,146.48

## APPENDIX B

### LOCAL AND MEVA II / REDDIG INTERCONNECTION AFTN CIRCUITS TECHNICAL CHARACTERISTICS

#### *Bogotá-Panamá circuit*

The connection between the AFTN system (Gateway) and the Bogota REDDIG node FRAD equipment is a 2400 bps, 8 bits, NP, 1 stop, asynchronous circuit. The port number at the Bogota FRAD is 44.

At the Panama end, the connection between the AFTN system and the MEVA II node FRAD equipment is also a 2400 bps, 8 bits, NP, 1 stop, asynchronous circuit.

The communications means of this AFTN circuit through the MEVA II / REDDIG interconnection is X.25 at 2400 bits/sec, in accordance with specifications in the ICAO/AGS Contract 22500187, Appendix I.

#### *Caracas-Curacao*

The connection between the AFTN system (Gateway) and the Caracas REDDIG node FRAD equipment is a 2400 bps, 8 bits, NP, 1 stop, asynchronous circuit. The port number at the Caracas FRAD is 44.

At the Curacao end, the connection between the AFTN system and the MEVA II node FRAD equipment is also a 2400 bps, 8 bits, NP, 1 stop, asynchronous circuit.

The communications means of this AFTN circuit through the MEVA II / REDDIG interconnection is X.25 at 2400 bits/sec, in accordance with specifications in the ICAO/AGS Contract 22500187, Appendix I.

#### *Caracas-San Juan*

The connection between the AFTN system (Gateway) and the Caracas REDDIG node FRAD equipment is a 2400 bps, 8 bits, NP, 1 stop, asynchronous circuit. The port number at the Caracas FRAD is 45.

The communications means of this AFTN circuit through the MEVA II / REDDIG interconnection is X.25 at 2400 bits/sec, in accordance with specifications in the ICAO/AGS Contract 22500187, Appendix I.

#### *Lima-Miami and Brasilia-Miami*

In the Bogota REDDIG node (FRAD equipment), connections for these two circuits are the following: Asynchronous at 9600 bps, 8 bits, NP, 1 bit stop corresponding to Brazil, FRAD Port: 43 Asynchronous at 9600 bps, 8 bits, NP, 1 bit stop corresponding to Peru, FRAD Port: 45.

Communications of both circuits through MEVA II / REDDIG interconnection are X.25 at 9600 bits/sec.

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