



**Agenda Item 3**

**CNS Developments**

**3.1 Follow-up on the Status of the E/CAR AFS and MEVA II Digital Networks and their Related Inter and Intra-Regional Interconnection/Integration**

**MEVA II NETWORK PERFORMANCE AND  
MEVA II / REDDIG INTERCONNECTION ACTIVITIES**

(Presented by the Secretariat)

SUMMARY	
This paper presents the follow-up and activities for: 1) the performance of the MEVA II Network and 2) the interconnection of the MEVA II and the REDDIG VSAT Networks.	
<b>References:</b>	
<ul style="list-style-type: none"><li>Report of the Fifth MEVA II / REDDIG Coordination Meeting, Mexico City, Mexico, 3-5 October 2007</li><li>MEVA TMG/19 Meeting, Mexico City, 26-28 February 2008</li><li>GREPECAS/14 Report</li></ul>	
<i>Strategic Objectives</i>	<i>This working paper relates to Strategic Objectives A and D.</i>

**1. Introduction**

1.1 The MEVA network has been in operation since 1996, improving the quality and effectiveness of the telecommunication services for the Central Caribbean members. By 2006, the network was updated to meet new CNS/ATM services and the integration of the current VSAT telecommunication networks.

1.2 Due to the need to decide certain ANP requirements in a cost-effective manner, taking into account current and future interoperability communications requirements among the CAR, NAM and SAM regions, considering ALLPIRG/5 Conclusion 5/16, and taking advantage of the hemispheric coverage of the satellites available, it was concluded that CAR/SAM States, Territories and International Organizations should implement the requirements through a simple MEVA II and REDDIG VSAT digital networks integration/interconnection solution, to provide high performance at low cost and avoid the use of multiple VSAT networks.

## **2. Performance of the MEVA II Network**

2.1 Based on the evaluation of the performance and operation of the MEVA Network after the first year of its upgrade, conducted by the MEVA II member administrations, the results achieved were found highly satisfactory during the Nineteenth MEVA II Technical Management Team Meeting (MEVA TMG/19) held from 26 to 28 February 2008. In addition, some improvements were identified for optimizing performance, training has been provided to the users, a contingency plan has been developed and future services were discussed. The information on the network's performance and usage, as well as other technical information and relevant news, is available through the MEVA II Service Provider website. More detailed information on the current status of implementation and operation of the MEVA Network is provided in the **Appendix** to this paper.

## **3. Interconnection of the VSAT MEVA II Network and the REDDIG Network**

3.1 The analysis and coordination of the MEVA II and REDDIG network interconnection has been conducted through the various coordination meetings between the networks, and the results have been presented to GREPECAS.

3.2 Based on GREPECAS Conclusion 14/52 – *Review for the Adoption of the Memorandum of Understanding and Implementation of the Action Plan for the MEVA II / REDDIG Interconnection*, the Fifth MEVA II / REDDIG Coordination Meeting (MR/5) reviewed the MEVA II / REDDIG Memorandum of Understanding (MoU) taking into account the proposals for amendment to the MoU received by the Regional Offices. The amendments were minor and the essential technical-administrative content of the initial MoU remained without major changes, specifying the solution for implementation of the MEVA II/ REDDIG interconnection. The revised MoU was circulated by the ICAO NACC Regional Office to the MEVA II network member administrations through State Letters Ref. EMX1037 dated 24 October 2007 and EMX0097, dated 29 January 2008.

3.3 Furthermore, the Action Plan for the MEVA II / REDDIG Interconnection is scheduled to be reviewed and updated by the MR/6 Meeting that will be held in Lima, Peru, from 7 to 8 May 2008. The results of the MR/6 Meeting will be provided to the NACC/WG/2 accordingly. The Appendix to this working paper also includes the Action Plan updated by the MR/5 Meeting.

## **4. Integration phase of the MEVA II and REDDIG VSAT Networks**

4.1 As a result of the studies carried out during the MEVA II / REDDIG coordination meetings, it was concluded that integration of the MEVA II and REDDIG networks under one control unit represented the best option. Due to the impossibility of changing the current administrative and operational schemes for both VSAT networks, it was agreed that this option would be implemented after a five-year period. The MR/6 Meeting is expected to issue a draft document for future MEVA II / REDDIG integration.

**3. Suggested action**

3.1 The Meeting is requested to:

- a) take note of the information contained in this working paper and its Appendix;
- b) review the information that will be provided by the Secretariat on the results of the MR/6 Meeting for the interconnection phase action plan and provide comments on the draft document for future MEVA II / REDDIG integration, if available; and
- c) agree to any other actions as deemed appropriate.

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## APPENDIX

### SUMMARY ON THE IMPLEMENTATION STATUS OF THE MEVA II VSAT NETWORK AND THE PROCESS FOR ITS INTERCONNECTION WITH THE SOUTH AMERICAN VSAT NETWORK (REDDIG)

#### MEVA II NETWORK

1. The MEVA VSAT network was developed and implemented, mainly in the Central Caribbean since 1996, providing voice and data communications for Aeronautical Fixed Services (AFS) between 15 VSAT-equipped nodes in the Central Caribbean and neighbouring zones. MEVA operates in the 4-6 GHz C-band on the PAS-1R satellite and uses SCPC/DAMA technology for bandwidth-on-demand communications and circuit management. This network has made implementation and improvement of the AFTN and ATS speech circuits required for this area in the Air Navigation Plan possible.
  
2. The States, Territories and International Organization members of MEVA I, considering the SARPs contained in Annex 10, Vol. III, Chapter 3, as well as the ICAO guidance related to the need not only to satisfy AFS communications requirements, but also aimed at supporting communications, navigation, surveillance and air traffic management services to facilitate the introduction of aeronautical telecommunications network (ATN), recognized the need to update the MEVA Network to facilitate the adoption of protocols and services with common interface equipment based on the reference model for the open system interconnection (OSI) of the International Standardization Organization (ISO), and the MEVA Network interconnection/interoperability achievement with other regional and sub-regional digital networks, such as the South American Digital Network (REDDIG). This initiative was called the “MEVA II Network.”
  
3. Through the MEVA II Network Project, updated and improved capabilities and performance was accomplished:
  - To support ICAO’s new and evolving digital communications requirements in the Caribbean and South American air traffic control regions in an operationally efficient and cost effective manner over the next decade.
  - Use of Time Division Multiple Access (TDMA), dynamic bandwidth-on-demand (BoD) satellite access technologies, implementation of Frame Relay, IP or IP over Frame Relay type telecommunication solutions, representing benefits in the monthly recurrent costs of the services.
  - Interconnection designated VSAT nodes in the MEVA II Network with designated nodes in the REDDIG VSAT Network.
  
4. The MEVA Technical Management Group, consisting of experts from States, Territories and an International Organization, studied in detail the MEVA update aspects toward MEVA II Network implementation. Such work represented the basis for the Request for Information (RFI) and subsequently the Request for Proposals (RFP) for MEVA II and the evaluation and selection of the best proposal. This stage of the process culminated with the MEVA/10 Meeting held in Mexico City, 13 – 15 December 2004, in which the Civil Aviation Directors approved the service provider for the MEVA II Network, as well as the updated Document of Agreement (DOA) for the MEVA II Network, which has been approved through signatures of Directors of Civil Aviation.

5. The MEVA II Network has been conceived with a satellite technology access VSAT/TDMA/Frame Relay, through a “Full Mesh” network topology, the use of IS 1R satellite with beam directed over United States / Latin America, operation frequencies in the C Band, and vertical linear polarization. All of this contributes to objectives to satisfy the AFS communications presently required to ease the ATN sub-network implementation and to achieve interoperability between the MEVA II and REDDIG networks and other CAR Region subregional networks, contributing to the implementation of the new CNS/ATM systems, including the new ATM integrated global system.

6. During the first months of 2005, the MEVA II TMG finalized Annex I of the MEVA II Document of Agreement, which is a technical document describing the network. Likewise, the transition plan of MEVA to MEVA II was developed. Based on these documents, and in accordance with the corresponding national laws, the MEVA II members arranged their contracts with the MEVA II service provider. Cuba and Panama established their MEVA contracts through the ICAO Technical Co-operation Bureau.

7. The implementation of the following MEVA II nodes were completed in November 2006:

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| • Aruba, Aruba                   | • Dominican Republic, Santo Domingo |
| • Bahamas, Freeport              | • Haiti, Port-au-Prince             |
| • Bahamas, Nassau                | • Jamaica, Kingston                 |
| • Cayman Islands, Grand Cayman   | • USA, Miami, FL                    |
| • Cuba, Havana                   | • Panama, Panama                    |
| • Netherlands Antilles, Curacao  | • USA, Puerto Rico, San Juan        |
| • COCESNA, Honduras, Tegucigalpa |                                     |

8. The MEVA II Network has performed satisfactorily as concluded in the Nineteenth Technical Management MEVA Meeting (TMG MEVA/19 Meeting) and some improvements are being identified and implemented for optimization of its performance, training has been given to the users, a contingency Plan has been developed and future services are to be discussed. The information on the Network's performance and usage is available through its website as well as other technical information and relevant news.

### **MEVA II / REDDIG INTERCONNECTION**

9. Regarding the interconnection of MEVA II with VSAT REDDIG, the Fifth MEVA II / REDDIG Coordination Meeting (MR/5) held in Mexico City, Mexico, from 3 to 5 October 2007, reviewed the responses to the Technical-Economical Request for Proposal (RFP), a final revision of the Memorandum of Understanding (MoU) was concluded, and an update to the Action Plan for all technical-operational aspects was developed for the implementation of the interconnection solution of the Bogotá and Caracas REDDIG nodes; in the Tegucigalpa COCESNA MEVA II node; as well as the impact that the interconnection would have on the Aruba, Curaçao, Kingston, Miami, San Juan and Panama MEVA II nodes; and in the Guayaquil, Lima and Manaus REDDIG nodes.

10. It is expected that the Sixth MEVA II / REDDIG Coordination Meeting (MR/6) to be held in Lima, Peru, from 7 to 8 May 2008, will review the Action Plan and discuss the future MEVA II / REDDIG Integration Phase.

11. In addition, as a follow-up action, ICAO requested MEVA II member administrations to approve the revised MoU and point-of-contact information for the implementation of the Action Plan. The contract between the MEVA II Service Provider and REDDIG Administration for implementation of technical/economical requirements relevant to the MEVA II / REDDIG interconnection is in review.

**UPDATED ACTION PLAN FOR IMPLEMENTATION OF MEVA II AND REDDIG INTERCONNECTIONS**  
**PLAN DE ACCIÓN ACTUALIZADO PARA LA IMPLANTACIÓN DE LAS INTERCONEXIONES MEVA II Y REDDIG**

Date/Fecha: October/Octubre 2007

Item No.	Action / Acción	Responsible / Responsable	Completion Date / Fecha de Finalización	Status- Encountered Difficulties / Estado-Dificultades encontradas
1	2	3	4	5
1	RFP Completion/Finalización del RFP	COCESNA	30-Apr-07	Completed / Finalizado
2	Required connections: / Conexiones requeridas: Aruba COCESNA Ecuador Colombia Peru Venezuela Brazil / Brasil Panama United States / Estados Unidos Jamaica Curacao / Curazao	MEVA II Service Provider and REDDIG Administration / Proveedor Servicio MEVA II y Administración REDDIG	30-Apr-07 / 30-Abr-07	Completed / Finalizado
3	Identification of Current Equipment / Identificación de Equipo Actual	MEVA II Service Provider and REDDIG Administration / Proveedor Servicio MEVA II y Administración REDDIG	28 Sep-07	Completed / Finalizado
4	Completion of SLA / Finalización de SLA	MEVA II Service Provider and REDDIG Administrator / Proveedor Servicio MEVA II y Administración REDDIG	30 Nov07	
5	Review of RFP / Revisión de RFP	MEVA II and REDDIG members / Miembros MEVA II y REDDIG	29 June -07/ 29 Junio 07	The RFP was reviewed and approved by all MEVA II / REDDIG member administrations. / El RFP fue revisado y aprobado por todas las Administraciones miembros de las redes MEVA II y REDDIG.

Item No.	Action / Acción		Responsible / Responsable	Completion Date / Fecha de Finalización	Status- Encountered Difficulties / Estado-Dificultades encontradas
1	2		3	4	5
6	Proposal response / Respuesta de propuestas		MEVA II Service Provider and REDDIG Administration / Proveedor Servicio MEVA II y Administración REDDIG	26 Sep.-07	The response for the RFP from the MEVA II Service Provider and REDDIG Administration is presented at this MR/5 Meeting/ Las respuestas al RFP por parte del Proveedor de Servicio MEVA II y la Administración de la REDDIG se presentan en esta Reunión MR/5.
7	Proposal review / Revisión de propuestas		Coordination meeting / Reunión de coordinación	5 Oct.-07	The proposal was reviewed in the MR/5 Meeting. / La propuesta se revisó en la Reunión MR/5
8	Focal nomination / Nomenclamiento Punto Focal	Send a letter to MEVA II / REDDIG Member Administrations / Envío carta a las Administraciones miembros de las redes MEVA II y REDDIG.	ICAO Regional Offices / Oficinas Regionales OACI	15 Oct. 07	
		Focal point designation/ Designación punto focal	MEVA II and REDDIG Members involved / Miembros de MEVA II y REDDIG involucrados	30-Oct-07	
9	Application of MoU reviewed / Aplicación del MoU revisado		MEVA II / REDDIG Member Administrations / Administraciones miembros de las redes MEVA II y REDDIG	30-Oct-07	
10	Review and acceptance of equipment costs for the MEVA II / REDDIG interconnection by the REDDIG Member Administrations / Revisión y aceptación por parte de las Administraciones Miembros de la REDDIG sobre costo de equipamiento para la interconexión MEVA II / REDDIG		All the REDDIG Member States / Todos Estados miembros de REDDIG	30 Oct-07	



Item No.	Action / Acción	Responsible / Responsable	Completion Date / Fecha de Finalización	Status- Encountered Difficulties / Estado-Dificultades encontradas
1	2	3	4	5
11	Review and acceptance of equipment costs for the MEVA II / REDDIG interconnection by the MEVA II member administrations involved / Revisión y aceptación por parte de las Administraciones Miembros de la MEVA II involucradas sobre costo de equipamiento para la interconexión MEVA II / REDDIG	Aruba, Curaçao, Jamaica, Panama, USA (Miami and Puerto Rico) and COCESNA / Aruba, Curaçao, Jamaica Panamá, USA (Miami y Puerto Rico) y COCESNA	30 Oct -07	
12	Review and acceptance of proposed recurrent costs for the MEVA II / REDDIG interconnection/ Revisión y aprobación costos recurrentes propuestos para la interconexión MEVA II REDDIG	MEVA II/ REDDIG Member Administrations involved / Administraciones Miembros de la MEVA II y REDDIG involucradas	30 Oct- 07	
13	Revised MoU Signature / Firma del MoU Revisado	MEVA II and REDDIG Members / Miembros MEVA II y REDDIG	30 Nov 07	
14	Review, approval and signing of contracts or contract amendments to carry out the MEVA II / REDDIG interconnection presented by the MEVA II Service Provider / Revisión, aprobación y firma de los contratos o enmienda de los mismos para llevar a cabo la interconexión MEVA II/REDDIG presentada a través del Proveedor de Servicio de la MEVA II	MEVA II Member Administrations involved and REDDIG Administration / Administraciones Miembros de la MEVA II involucradas y Administración REDDIG	30 Nov 07	
15	To ensure that all MEVA II and REDDIG nodes work with IS-IR Satellite, using Band C transponder with US/Latin America hemispheric beam and co-linear vertical polarization / Asegurar que todos los nodos de la MEVA II y REDDIG operen en el satélite IS-IR, empleando transpondedores de banda C con haz hemisférico US/Latin America y polarización co-lineal vertical.	MEVA II Service Provider and REDDIG Administration/ Proveedor Servicio MEVA II/Administración REDDIG	30 Nov-07	
16	Equipment and spare parts acquisition for MEVA II/REDDIG interconnection/ Adquisición de equipamiento y repuestos para la interconexión MEVA II / REDDIG.	REDDIG Administration and MEVA II involved Member Administrations / Administración de la REDDIG y Administraciones Miembros de la MEVA II involucradas	14 Dec 07/14 Dic 07	

Item No.	Action / Acción	Responsible / Responsable	Completion Date / Fecha de Finalización	Status- Encountered Difficulties / Estado-Dificultades encontradas
1	2	3	4	5
17	Site survey/ Inspección sitio	MEVA II Service Provider and REDDIG Administration / Proveedor MEVA II y Administración REDDIG	15 –Jan-08/15-Ene-08	
18	Site preparation for equipment installation for MEVA II / REDDIG interconnection / Preparación de los sitios para albergar equipamiento para la interconexión MEVA II / REDDIG	Colombia, Venezuela and/y COCESNA	30 –Jan-08/30-Ene-08	
19	Delivery of purchased equipment at the required sites. / Entrega de equipamiento adquirido en los sitios requeridos	MEVA II Service Provider and REDDIG Administration / Proveedor de Servicio MEVA II y Administración REDDIG	15-Feb-08	
20	Equipment installation / Instalación equipamiento /	MEVA II Service Provider and REDDIG Administration / Proveedor de Servicio MEVA II y Administración REDDIG	14 Mar- 08	
21	Satellite line-up, configuration of site equipment and NCC for the interconnection/ Line-up satelital, configuración equipamiento en sitio y NCC para interconexión	MEVA II Service Provider and REDDIG Administration / Proveedor de Servicio MEVA II y Administración REDDIG	21-Mar-08	
22	End-to-end trials for voice and data circuits / Pruebas de extremos a extremos para los circuitos de voz y datos	MEVA II Service Provider and REDDIG Administration / Proveedor de Servicio MEVA II y Administración REDDIG	27-Mar-08	
23	System Performance Evaluation / Evaluación de la performance del sistema	MEVA II Service Provider and REDDIG Administration / Proveedor de Servicio MEVA II y Administración REDDIG	25-Apr-08/25-Abr-08	
24	Service acceptance / Aceptación de los servicios /	MEVA II / REDDIG Member Administrations / Administraciones miembros de las redes MEVA II y REDDIG	30-Apr-08/30-Abr-08	

Item No.	Action / Acción	Responsible / Responsable	Completion Date / Fecha de Finalización	Status- Encountered Difficulties / Estado-Dificultades encontradas
1	2	3	4	5
25	MEVA II / REDDIG Interconnection Implementation / Implantación de la interconexión MEVA II / REDDIG	MEVA II / REDDIG Member Administrations, MEVA II Service Provider and REDDIG Administrator / Administraciones miembros de las redes MEVA II y REDDIG, Proveedor Servicio MEVA II y Administración REDDIG	May 08/ Mayo 08	

**Legend / Leyenda:**

MoU: Memorandum of Understanding / Memorando de Entendimiento

RFP: Request for Technical and Economic Proposal / Solicitud de Propuestas Técnicas y Económicas

SLA: Service Level Agreement / Acuerdo de Nivel de Servicio

– END –