



ICAO

International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

MEVA/TMG/31 — WP/12
24/05/16

Thirty First MEVA Technical Management Group Meeting (MEVA/TMG/31)
Kingston, Jamaica, 24 to 26 May 2016

Agenda Item 4: Network Interconnection Activities and New Circuits
4.1 MEVA III- REDDIG II Interconnection

**ADDITIONAL CIRCUIT PATH FOR AMHS BETWEEN PIARCO (TRINIDAD AND TOBAGO)
AND ATLANTA (UNITED STATES)**

(Presented by AMHS Contingency Ad Hoc Group)

EXECUTIVE SUMMARY	
There currently exist two circuit paths between Piarco and Atlanta for AMHS traffic: E/CAR AFS Network through San Juan and REDDIG network through Caracas. Due to simultaneous failures of both paths in the recent past, a contingency path is being sought.	
Action:	The suggested actions are detailed in Section 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency
<i>References:</i>	<ul style="list-style-type: none">• First MEVA III/REDDIG II Interconnection Coordination Meeting (MIII-RII/INTERCON/01) Oranjestad, Aruba, 25 to 26 May 2015• Thirtieth MEVA Technical Management Group Meeting (MEVA/TMG/30) Oranjestad, Aruba, 27 to 29 May 2015• CAR Region-Venezuela Coordination Teleconference, 17 December 2015• AIM and NOTAM Contingency meeting in Curaçao, 24 September 2015

1. Introduction

1.1 During the last MEVA/TMG/30 Meeting held in Oranjestad, Aruba from 25 to 26 May 2015, the TMG reviewed and adopted the revised Memorandum of Understanding (MoU) between States/Territories/International Organizations members of MEVA III and REDDIG II project organization for the coordination and cooperation process for the MEVA III REDDIG II interconnection network.

1.2 The Meeting also identified the future interconnection requirements shown in the following table:

NO	Circuit requirement	Implementation estimate
1	Radar Data sharing between Curacao-Venezuela (1 radar data circuit)	Prior to 2017
2	Radar Data sharing between Colombia - Panama	By mid 2016
3	SAM AMHS circuit implementation with Atlanta <ul style="list-style-type: none"> • Caracas - Atlanta • Brasilia - Atlanta • Lima - Atlanta • Bogotá – Panama 	2016-2017
4	AMHS circuit Atlanta- PIARCO-- planned thru COCESNA REDDIG	2016
5	AFTN Data circuit PIARCO- Curacao	After June 19 2015

Table 1 - Proposed new circuits

1.3 The following updates were previously provided by Trinidad and Tobago, Curaçao and ICAO regarding the MEVA III-REDDIG II interconnection circuit requirements agreed in May 2015:

- a) At the AIM and NOTAM Contingency meeting in Curaçao in September 24, 2015 Curaçao advised that they were not open to a satellite circuit because of the cost of such a circuit. As a result, Trinidad and Tobago informed at the CAR Region-Venezuela Coordination Teleconference, 17 Dec 2015 that the AFTN/AMHS data circuit between Curaçao and PIARCO for the NOTAM Contingency was not needed. Both Curaçao and Trinidad and Tobago agreed that this service will be made through an IP VPN between their systems.
- b) The AMHS circuit Trinidad and Tobago- Atlanta, may be interconnected through the MEVA III/REDDIG II Node in COCESNA (Tegucigalpa, Honduras) and neither through Venezuela nor Colombia.

2. Discussion

2.1 An ad-hoc group was formed during the MEVA/TMG/31 Meeting comprising Trinidad and Tobago, MEVA TMG Coordinator, ICAO, COCESNA, Curaçao and Frequentis to discuss possible solutions for a Piarco AMHS circuit contingency. Three technical solutions to realize the Piarco-Atlanta AMHS contingency circuit path are under examination:

- a) MEVA – REDDIG interconnection in COCESNA for a circuit between Piarco and Atlanta. Piarco to COCESNA via REDDIG. REDDIG-MEVA interconnects in COCESNA to Atlanta. Considerations are:
 - One (1) REDDIG circuit Piarco- COCESNA;
 - Circuit equipment in Piarco REDDIG (possibly);
 - Circuit equipment in Atlanta MEVA (possibly);
 - Circuit equipment in COCESNA MEVA/REDDIG (possibly); and
 - Satellite Bandwidth on MEVA from COCESNA to Atlanta
 - Operational agreement with COCESNA and Atlanta.
- b) MEVA – REDDIG interconnection in COCESNA and COCESNA to combine Piarco’s traffic and switch the Piarco traffic to Atlanta (no dedicated circuit path for Trinidad and Tobago between COCESNA and Atlanta). Considerations are:

- Agreement with Atlanta to switch Piarco's traffic in contingency situation;
 - One REDDIG circuit Piarco- COCESNA;
 - Circuit equipment in Piarco REDDIG (possibly);
 - Circuit equipment in COCESNA MEVA/REDDIG (possibly);
 - Operational agreement with COCESNA and Atlanta.
 - Bandwidth to be determined.
- c) Piarco- Curaçao AMHS contingency. The primary objective of the AIM Contingency Plan (ACP) implementation is to enable the participating states to continue operation in the event of primary site failure. The proposal under consideration focuses on an incident which renders local technical facilities inoperable and is localized to a single facility. A MoU was signed with Trinidad and Tobago and Curaçao to conduct a feasibility study for an AIM/NOTAM contingency.

A secondary system will be installed in Curacao and Trinidad and Tobago. The primary site would be configured to replicate data in real time to the secondary site. In the event of the disaster at the primary site the ACP would be initiated to continue operations from the secondary site. This will allow secondary site operators to continue AIM operations on behalf the primary site. During normal operation the AIM database is replicated to the secondary site in real time and continually monitored for readiness of the secondary contingency system to ensure it is up-to-date and ready for activation.

For further consideration and separate from the ACP is the possibility of sending the AMHS traffic from Piarco to Curaçao to be switched by Curaçao to Atlanta.

- Terrestrial circuit (IPLC) between Piarco and Curaçao or connectivity via internet of the appropriate bandwidth sized for the AIM contingency and the AMHS;
- Agreement with Atlanta and Curaçao to switch Piarco's traffic in contingency situation;
- Revised proposal from AIM vendor (IDS) with technical and commercial details;
- Operational agreement with Curaçao and Atlanta.

3. Suggested Action

3.1 The three options are technically feasible. In order to make an informed decision the costs for the different options would need to be made available and analysed. In this regard the associated costs are requested from MEVA (Frequentis), REDDIG, COCESNA, Curaçao and Trinidad and Tobago accordingly.