



ICAO

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WORKING PAPER

MIII-RII/INTERCON/01 — WP/03
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**First MEVA III/REDDIG II Interconnection Coordination Meeting (MIII-RII/INTERCON/01)
Oranjestad, Aruba, 25 to 26 May 2015**

Agenda Item 2: MEVA III and REDDIG II Network Overview

REDDIG II NETWORK OVERVIEW

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This Working Paper presents general information about REDDIG II architecture and the current operation status	
Action:	Suggested Action is presented 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">• REDDIG II user manual• Contract No. 22501200 between ICAO and INEO & LEVEL 3 consortium• Final report of the Fourth meeting on the Technical-Operational Implementation of the new REDDIG II digital network (RTO/4) (Manaos Brazil 20 to 21 April 2015)

1. Introduction

1.1 The SAM Digital Network – REDDIG – is the result of the cooperation spirit existing between the member States which under the Regional Project RLA/03/901 have the objective of sharing an own network that provides them with the current and future aeronautical telecommunications services.

1.2 The REDDIG I, supporting both Frame Relay and IP protocols, began to operate in 2003 and ended in January 2015. During all this period the REDDIG I provided the aeronautical services with the highest standards of quality and availability. The main reason to replace the REDDIG I platform, except the antenna, was the obsolescence of network components.

1.3 After a process of study of requirement for a new digital network in the SAM Region, the elaboration of technical specification and the establishment of a bid process, a Contract No. 22501200, between ICAO, on behalf of all REDDIG II member States, and the INEO & LEVEL 3 consortium for the implementation of REDDIG II was signed the 9th of May 2013. .

1.4 The contract includes, in addition to the installation and operation of satellite network equipment, the leasing of the MPLS service on the Level 3 fibre optics ground network for a period of 6 months, starting on final acceptance of REDDIG II.

1.5 Following the initial six months, depending on the quality of the service during this initial period, the REDDIG II member States will decide whether or not to renew the service for an additional period of 4 years and six months, renewable every year, maintaining the monthly costs established for the first 6 months of the service.

2 Analysis

2.1 The REDDIG II, was launched in February 2015 by the consortium INEO & Level (3), is a digital network totally based on IP protocol on a mixed satellite-ground network. The main satellite equipment of the REDDIG II are the CISCO 2900 routers, the SKYWAN IDU 7000 satellite modems that will act as masters (Manaus and Ezeiza), and the SKYWAN IDU 1070 modems in the other REDDIG II nodes, which will act as slaves. The block structure of a satellite network node is shown in *Figure 1* of **Appendix A** to this working paper.

2.2 The ground network is a fibre optics network based on the MPLS protocol. Access to ground network services is through the CISCO 1921 router. Each node has an access capacity of 256k bits/sec. The configuration for accessing the MPLS network is shown in *Figure 2* of Appendix A. The ground network provider is LEVEL 3

2.3 At present, the REDDIG network comprises 17 nodes belonging to 12 countries and 1 territory of the SAM Region, 1 country of the Caribbean Region and the COCESNA organization. **Appendix B** to this working paper contains a map with the location of the REDDIG II nodes (Figure 3) and the Level 3 ground network (Figure 4) A new REDDIG II node will be installed in Brasilia at the beginning of the last quarter of 2015

2.4 The REDDIG II continues operating in the same transponder of IS-14 satellite, the same satellite segment with three carriers but employing new modulation scheme 8PSK and FEC 2/3. Likewise, the hardware platform continues to be fully redundant. General overview of the REDDIG II architecture and components are presented in the **Appendix C**.

2.5 The Provisional Site Acceptance Test was completed on February 6th; all the REDDIG members States signed the PSAT with commentaries. The commentaries are pending issues that the consortium INEO LEVEL 3 has to complete before the REDDIG II Final Acceptance Test.

2.6 From the pending issues, common aspects to all nodes are highlighted as the lack of IP telephone service operation designed to support the control centers in managing the flow of Air Traffic Management (ATFM), false alarms and quality in the presentation of the Management System (NMS) of the REDDIG II, the quality of the AFTN messages, and the update of the documents containing the circuit diagrams, result of the changes made during the node's installation of the REDDIG II.

2.7 The consortium INEO LEVEL 3, according to the contract, has a time of 40 days (ORD Operational Readiness Demonstration period) to solve all the pending activities identified in the PSAT.

2.8 At the date REDDIG II is within the ORD period and a the Final Network Acceptance Test will be made once all the pending issues will be completed

3. Action required

3.1 The meeting is invited to take note of the information supplied and consider it for the analysis of the coordination and implementation of new services in the MEVA III REDDIG interconnection.
