



**INTERNATIONAL CIVIL AVIATION ORGANIZATION
South American Regional Office**

**REGIONAL PROJECT RLA/03/901
REDDIG Management System and Satellite Segment Administration**

THIRD REDDIG TECHNICAL-OPERATIONAL MEETING (RTO/3)

(Paramaribo, Suriname, 15 to 16 October 2009)

Agenda Item 5: New Services in the Region

(Presented by the REDDIG Administration)

SUMMARY

This working paper analyses the new services in the Region and gives technical recommendations for the implementation of these services in the REDDIG.

1. Background

1.1 New aeronautical applications based on the IP protocol, such as the AMHS, RADAR, and VoIP services, are being implemented or are being planned in the States of the Region.

1.2 Being the REDDIG a multi-protocol network, it also supports IP-based applications to provide international services among the various States of the Region.

1.3 In 2006, operational tests were conducted successfully in the REDDIG for the exchange of IP-based RADAR data between the SVMI-Maiquetía and the SBMN-Manaus nodes, for a period of one month.

1.4 Also in 2006, demonstrations were carried out successfully in the REDDIG between the SAEZ-Ezeiza and the SPIM-Lima nodes of the AMHS system that had been implemented by the Argentine Administration in its State.

1.5 In 2007, end-to-end connectivity tests were conducted in the REDDIG between the SAEZ-Ezeiza and the SGAS-Asunción nodes, including the routing equipment, for the implementation of the AMHS. Link tests were also conducted between routing equipment in the SAEZ-Ezeiza and the SLLP-La Paz nodes. All tests were conducted satisfactorily.

1.6 In 2008, VoIP communication tests were conducted in the REDDIG, using a satellite hop between the SBCT-Curitiba and the SBMN-Manaus nodes, and ‘forcing’ a double satellite hop between the SAEZ-Ezeiza and the SBCT-Curitiba nodes, going through SBMN-Manaus. It is important to note that there is no need to use a double hop in the REDDIG to establish communications between any two nodes of the network, because of its ‘full mesh’ topology. Through these tests, the use of the VoIP application over satellite systems can be assessed.

1.7 In 2009, operational tests of the AMHS service have been carried out successfully in the REDDIG between the SAEZ-Ezeiza and the SGAS-Asunción nodes.

2. **Recommendation**

2.1 In order to reduce the hardware resources used in the operation of the existing and new IP-based applications, and also to optimise the use of the REDDIG bandwidth, it is recommended to:

- a) Use a single physical port in the FRAD MPS equipment (example: Port P03 in the patch panel of the rack) to run all IP-based applications, such as AMHS and RADAR. The speed of the port will depend on the number of FR PVC circuits, the priority or time-sensitivity of applications, and the simultaneousness of communications;
- b) Install a DB-25Male to M-34Female connector converter cable in the specified physical port of each node. Thus, the REDDIG will have a port with V.35 electrical interface and DCE protocol;
- c) Configure all the necessary FR PVC circuits in this physical port to establish connections with the other nodes of the network; and
- d) Connect routing equipment to the physical port of the REDDIG and configure it with Frame Relay (FR) encapsulation and the same type of LMI as ANSI Annex D. The DLCI identifier number will be provided in a timely fashion.

2.2 For the ATS and ADM voice services, the current voice over Frame Relay (VoFR) setup will continue to be used.

2.3 The REDDIG Administration will coordinate with each point of contact of the nodes when planning to implement a new service, and also to provide information on the configuration parameters of the equipment, as required.

2.4 It is also recommended that the States continue with the administrative procedure of requesting ICAO and the REDDIG Administration to implement a new service when so required.

3. **Suggested action**

3.1 The Meeting is invited to:

- a) take note of the information presented in this working paper; and
- b) examine any other aspect related to this matter that the Meeting may deem necessary.