



**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

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

**REDDIG THIRD TECHNICAL-OPERATIONAL MEETING (RTO/3)**

(Paramaribo, Suriname, 15 to 16 October 2009)

**Agenda Item 1: Brief presentation on the current situation of REDDIG equipment and nodes**

(Presented by the REDDIG Administration)

**SUMMARY**

This working paper presents an analysis of the current REDDIG equipment.

**1. Background**

1.1 The technology of the REDDIG node equipment, as well as of the REDDIG control and management centres (NCC/NMS), date back to 2002. Currently, some REDDIG equipment, such as the FRAD and Linkway modem, are no longer commercially available.

1.2 Following is an analysis of the current REDDIG equipment as regards the Linkway, FRAD RF (SSPA/LNB) and antenna systems.

**2. Analysis**

2.1 REDDIG RCC/8 meeting formulated Conclusion RCC 8/2 – *Linkway NCC/NMS frame relay hardware replacement and software updating*, with the aim that the REDDIG administration prepare a hardware and software replacement plan for the Linkway NCC/NMS frame relay and IP equipment.

2.2 RCC/9 meeting (Lima, Peru, 23-24 March 2006), took under consideration the need to update the Linkway NCC/NMS frame relay and IP system software, as well as to replace the REDDIG NCC SUN (hardware) stations, which have been discontinued. The Linkway NCC/NMS frame relay and IP system software version is of 2002.

2.3 Said meeting took note that the amount for this updating would be of USD 45,530.00 and would entail the purchasing of (6) SUN stations (without monitors), the updating of the Linkway FR&IP software, a one-year software maintenance and the support from the manufacturer, ViaSat.

2.4 RCC/10 meeting (Lima, Peru, 5-7 March 2007), took note that the software and hardware updating would be carried out once a technician specialized in network support were available.

2.5 In July 2007, the project requested ViaSat for a quotation on the updating of the mentioned software and hardware. The cost was of USD 119,400.00, as it took under consideration the total change of the hardware platform and of the operational system compatible with a new system software.

2.6 RCC/11 meeting (Lima, Peru, 5-6 May 2008) agreed that, due to the high investment required for the improvements (software and hardware updating) to the Linkway 2100 system NCC/NMS, a study should be carried out for its presentation at RCC/12 meeting, with the objective of deciding on the best moment to make said investment and, in this respect, agreed in adopting Conclusion RCC 11/3 - *Cost-benefit research for software upgrading of Linkway system*.

2.7 The recommendation to make improvements (software and hardware updating) to the Linkway 2100 NCC/NMS was then proposed by the REDDIG Administration as a procedure commonly employed with state-of-the-art technology as regards obsolescence, and not due to a functional need of the network.

2.8 The current Linkway 2100 system technology, REDDIG network's central platform, has been efficiently operating all its services since its start-up in 2003, and is also supporting the new IP protocol based services (AMHS, RADAR, VoIP), which have already been operationally proven within REDDIG.

2.9 With the aim of presenting pertinent recommendations to improve the Linkway system, queries were made regarding the continuity to manufacture the Linkway 2100 modem (satellite modem) and its corresponding Linkway 2100 NCC/NMS.

2.10 In this regard, note has been taken, through publications and information provided via web page [www.viasat.com](http://www.viasat.com), that these products are no longer being promoted by ViaSat.

2.11 Information provided by the manufacturer is that ViaSat has developed the Linkway S2 modem (based on DVB-S2 technology for reception) and the Linkway S2 NCC/NMS software. In addition, information available indicates that the new Linkway S2 modem could be operated in a manner compatible to the Linkway 2100 modem, but the Linkway 2100 modem is not compatible with Linkway S2 modem.

2.12 Taking into consideration that the manufacturer will not continue with the development of the technology used by they Linkway 2100 system and that, nevertheless, this Linkway 2100 system, platform of REDDIG, has an operational life for the current and new services in the Region, the recommendation is to make no investment in the improvements (software and hardware updating) of the Linkway 2100 NCC/NMS.

### ***Memotec FRAD equipment (CX950/950e)***

2.13 The equipment used by REDDIG, since their installation in 2002, were the CX950 with I/O cards for the processing of voice and data services through the network

2.14 The software of the CX950 equipment has been duly updated during the operation of REDDIG to solve any anomalies in the signalling process, as well as to adapt it to the operation requirements of some of the services run through REDDIG, having also the manufacturer developed a version which was initially exclusive for REDDIG.

2.15 The CX950 equipment, basic unit comprising of power supply and the motherboard, were discontinued since 2006. The CX950e equipment was indicated by the manufacturer as its equivalent replacement. It is important to mention that the I/O cards are compatible for both the CX950 equipment, as for the CX950e.

2.16 Some REDDIG nodes have been replacing the CX950 equipment, basic unit, with CX950e, basic unit, when a diagnosis was made indicating failure in the motherboard.

2.17 The CX950 and CX950e and I/O cards are totally inter-operable within REDDIG.

2.18 The CX950/950e equipment has been efficiently working all its services since 2003 and, also, is supporting the new IP protocol based services (AMHS, RADAR, VoIP), which have already been operationally tried at REDDIG.

2.19 Similarly to that carried out with respect to the Linkway 2100 system, investigations were made on the manufacturing continuity of the CX950e equipment and its I/O cards.

2.20 Note has been taken, through publications in web page [www.memotec.com](http://www.memotec.com), that the products of this series are no longer commercially offered by Memotec. Information provided by Memotec is that the replacement product of CX950e is CX-960e, and that it will be sold only until 30 July 2009 (product's end-of-life).

#### ***Paradise Datacom RF system (SSPA/LNB equipment)***

2.21 Paradise Datacom, manufacturer of the SSPA equipment, has been developing its product since 2002, when this equipment (2K series) was installed in REDDIG. The changes made to their new SSPA models are compatible with the REDDIG stations' transmission requirements.

2.22 REDDIG project purchased a new SSPA model (100K series) in 2005 and, also, some States have purchased other new SSPA (200K series) models in the past years.

2.23 It is important to mention that, when new SSPA equipment is purchased, account should be given to the interoperability of the new SSPA M&C (Monitoring & Control) with the REDDIG's current RM&C system. For this, the Purchase Order must specify that the SSPA's M&C should have binary communications protocol with a 38400 Baud rate.

2.24 The LNB's current model will be able to continue operating and, in the event of purchasing new equivalent models, consideration should be given for the electrical and mechanical specifications to comply with the network's operational characteristics.

#### ***Antenna system***

2.25 The antenna system can continue operating until migration is made to a new Communications platform, following the recommendations duly provided for their mechanical and electrical maintenance.

3. **Recommendations**

3.1 Taking the afore described analysis into account, the REDDIG RCC/12 meeting recommended actions regarding REDDIG equipment, and formulated Conclusion RCC 12/1 - *Actions to keep the operativity of REDDIG equipment of the next years.*

4. **Suggested action:**

4.1 The Meeting is invited to:

- a) Take note of the information provided; and
- b) Analyze any other aspect related with this subject that the Meeting might deem necessary.

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