



Agenda Item 4: Assessment of operational requirements to determine the implementation of improvements in communication, navigation and surveillance (CNS) capabilities for operations in route and terminal area

FOLLOW UP TO PERFORMANCE AND ACTIVITIES OF REDDIG II

(Presented by the Secretariat)

SUMMARY	
This working paper presents information on performance and activities carried out since the Twenty-First Workshop/Meeting of the SAM Implementation Group (SAM/IG/21).	
References	
<ul style="list-style-type: none">• Contract REDDIG 22501200;• Report of the Twenty-First meeting of the REDDIG Coordination Committee (RCC/21) (Lima, Peru, 14-16 May 2018);• Twenty-First workshop/meeting of the SAM Implementation Group (SAM/IG/21) (Lima, Peru, 21-25 May 2018); and• Seventh meeting on the technical-operational implementation of REDDIG II (RTO/7) (Curitiba, Brazil, 5-9 November June 2018).	
ICAO strategic objectives:	<i>A – Safety</i> <i>B – Air navigation capacity and efficiency</i>

1. Background

1.1 The SAM/IG/21 meeting analysed the performance and activities of REDDIG II since the SAM/IG/20 meeting, highlighting the increase in REDDIG II availability informed in the REDDIG Coordination Committee meeting (RCC/21) of 99.99%, as shown in **Appendix A** to this working paper.

2. Discussion

2.1 The main activities carried out in REDDIG II, as agreed at the last meeting of the Committee, are presented below, as well as an analysis of its performance since the SAM/IG/21 meeting. The description covers mainly the following aspects:

- a) REDDIG II training programme;
- b) REDDIG II operation and analysis of the implementation of new services.

REDDIG II training programme

2.2 Regarding training activities, the following courses were delivered:

- a) Maintenance and operation training of Maiquetia node;
- b) Skywan 7000/1070 MODEM maintenance, operation and configuration course;
- c) Skywan 7000/1070 MODEM maintenance, operation and configuration training.

Operation and Maintenance Training in the Maiquetia REDDIG Node

2.3 From 6 to 10 August 2018, was applied a training by the REDDIG Administrator (Mr. Cristian Javier Vittor), with participation of 17 technicians of Venezuela. In this opportunity, the Administrator carried out the inventory and revised the node's equipment, cabling and configuration.

MODEM Skywan models 7000/1070 Maintenance, Operation and Configuration Course

2.4 This course was carried out in German, from 8 to 12 October 2018, with participation of the REDDIG Administrator, a technician from the NCC Manaus and a technician from NCC Ezeiza.

Modem Skywan model 1070 Maintenance, Operation and Configuration Training

2.5 From 6 to 9 November 2018, in Curitiba-Brazil, was carried out a training about maintenance, operation and configuration of MODEM Skywan 1070 with the REDDIG Administrator. This event was intended to train two technicians of each REDDIG node.

Training of Manaus NCC personnel in the Fluke model DTX-1800 network certifier utilization

2.6 In May, the REDDIG Administrator has carried out a training of network certification, with utilization of the Fluke model DTX-1800 equipment. This training allowed checking/certification of all cables in use in the Manaus station.

REDDIG II operation and analysis of the implementation of new services

New AMHS interconnections

2.7 Since SAM/IG/22 to the date, the following AMHS interconnections went operational:

- Brasilia – Paramaribo
- Brasilia – Atlanta (SITA)
- Brasilia – Madrid
- Caracas – Quito
- Georgetown – Paramaribo

2.8 Also, the following connections were established for RADAR data interchange:

- Corrientes RADAR – Asunción ACC (Operational)
- Asuncion RADAR – Resistencia ACC (Operational)
- Foz de Iguacu RADAR – Guaraní APP (Testing)

Analysis of REDDIG II security

2.9 The Sixth meeting on the technical-operational implementation of REDDIG II (RTO/6) presented an initial action plan for the adoption of measures to mitigate identified threats which might affect REDDIG II security.

2.10 On 25 June 2018, a teleconference was carried out to discuss the proposition made by Engie-INEO for provision of a network security solution (firewalls) for REDDIG. The offer should include:

- Provision of 17 redundant equipment for the 17 REDDIG nodes;
- Provision of 19 switches (1 per node + 2 spares);
- Provision of a centralized monitoring system, by means of a separate system, or integrated to the NMS WhatsUp Gold system;
- Actualization of each node diagrams;
- Basic training in general security policies, to be applied in Lima for 20 persons;
- Configuration training, to be applied in Lima for 20 persons, so each participant can configure its own node equipment;
- Administration training in Lima for 3 persons (REDDIG Administrator, one Manaus NCC technician and one Ezeiza NCC technician).

2.11 For the firewalls, two quotations were presented:

- CISCO ASA5506, 38 units: USD 402,417.00;
- FORTINET Fortigate, 38 units: USD 293, 458.00.

2.12 The provision costs of 19 switches CISCO WS-C2960X-24TS-LL of 24 ports would be USD 40,060.00.

2.13 During the RTO/7 meeting, the participants will evaluate the quotation and will make recommendation to the next REDDIG Coordination Committee (RCC) meeting.

Antivirus Kaspersky Endpoint Security for Business (Advanced)license

2.14 The antivirus license for all nodes was updated with the cost of 1.465,33 Euros, according to **Appendix B** to this working paper.

Translation of Bogotá REDDIG station and installation of a new REDDIG station in Ezeiza

2.15 Argentina and Colombia has already made the payment and the Technical Cooperation Bureau will proceed with the necessary arrangements to contract Engie-Ineo for these activities. After signing the contract, a schedule will be presented for States approval. The installation activities will be carried out in 2019.

Spare parts for REDDIG

2.16 A quotation from Engie-Ineo was approved and TCB continues in the process to buy spare parts for the REDDIG project. **Appendix C** to this working paper presents the quotation.

Connection to SITA Data Link Services via REDDIG

2.17 Chile has manifested the intention of using the REDDIG to connect to the SITA infrastructure in Brazil, in order to contract CPDLC and ADS-C services from that communication provider, lowering costs of last mile link leasing.

2.18 This kind of connection was tested and, during the SAM/IG/19 meeting, a configuration was approved and it is presented in the **Appendix D** to this working paper. An initial teleconference was carried out (26 September 2018) with representatives of Brazil, Chile, SITA and the SAM Regional CNS Officer, when a brief revision of previous SAM/IG conclusions and recommendations was made. Also, the focal points for this subject were nominated.

2.19 The current contract between Chile and SITA for provision of Oceanic CPDLC and ADS-C will terminate on 30 April 2019, thus the intention is to establish the connection via REDDIG by the end of February 2019, with all the necessary activities and testing done.

3 Suggested action

3.1 The Meeting is invited to:

- a) Take note of the information provided herein;
- b) review the activities carried out and the performance of REDDIG II since the SAM/IG/21 meeting, as shown in section 2 and the corresponding **Appendices A, B, C and D** to this working paper; and
- c) discuss any other matter it may deem appropriate.
