



International Civil Aviation Organization
South American Regional Office - Regional Project RLA/03/901
REDDIG Management System and Satellite Segment Administration
Twentieth Meeting of the Coordination Committee (RCC/20)
Lima, Peru, 21 to 23 March 2017

Agenda Item 4: Work plan for 2017

ACTIVITES FORESEEN FOR THE PERIOD 2017

(Presented by the Secretariat)

SUMMARY	
This paper presents information related to the activities foreseen by the project RL/03/901 - <i>REDDIG Management System and Satellite Segment Administration</i> Progress for year 2017.	
Reference	
• Fifteenth Meeting of the Coordination Committee (Lima, Peru, 7-9 March 2016).	
ICAO Strategic Objectives:	<i>A - Safety</i> <i>B – Air navigation capacity and efficiency</i>

1. **Background**

1.1 The main activities scheduled for 2017 are:

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

2. **Analysis**

REDDIG II TRAINING PROGRAMME

2.1 The following courses are planned for year 2017:

- Operation of the REDDIG II Advance Course
- Course on IP network applied to the REDDIG
- SKYWAN IDU 7000/1070 “Network Commission & Operation”

Operation of the REDDIG II Advance Course

2.2 This course is addressed to the technical staff responsible of the operation and maintenance of the REDDIG station who has attended the basic course. Among the aspects to be treated, the course will emphasize the operation and management of the Skywan 1070/7000 modem with a theoretical-practical description of the software 'Line Up Manager' as well as 'troubleshooting' of the station components. **Appendix A** to this working paper presents the content of the course.

2.3 This course will be delivered tentatively in Manaus, Brazil from 13 to 16 June 2017. A fellowship has been considered for each member States of project RLA/03/901 as well as simultaneous interpretation services.

Course on IP network applied to the REDDIG

2.4 This course is addressed to the technical staff with IP network knowledge and responsible of the operation and maintenance of the REDDIG station. The content will be the same as CISCO ICND 1 and ICND2 courses but focused on REDDIG current equipment and services with virtual labs using “Packet Tracer”.

2.5 This course is foreseen to be delivered in five days from 16 to 20 October 2017. Arrangements will be made in order that the course be prepared and dictated by two attendees to both CISCO ICND 1 and ICND2 courses. A fellowship for each member States of project RLA/03/901 will be required as well as simultaneous interpretation services. Initially the course will be carried out in Manaus.

SKYWAN IDU 7000/1070 “Network Commission & Operation”

2.6 This course is intended for NCCs staff (Manaus and Ezeiza) and has as main objective the planning and setting of an entire SKYWAN network, set the relevant parameters for management network, monitoring and controlling the relevant parameters for the operation of the network and the sustainability of its service level. (See course 8240 of NDSATCOM Appendix E to WP/03). For this course the participation of two persons has been considered, one from Manaus NCC and one from Ezeiza NCC. Project RLA/03/901 will cover air tickets cost (economy class) and daily subsistence allowances. The course endures 5 days and will tentatively be carried out at the NDSATCON factory in Germany from 18 to 22 September 2017.

REDDIG II OPERATIONS AND ANALYSIS OF THE IMPLEMENTATION OF NEW SERVICES

2.7 Activities to be carried out during 2017:

- Activities to resolve REDDIG II pending matters
- Relocation of the Bogota node
- Relocation of the current Ezeiza node in Cordoba and installation of a new REDDIG II node in Ezeiza
- Sixth REDDIGII Technical-Operational Meeting
- Implementation of new REDDIG II services and MEVA III/REDDIG II interconnection
- New administrator for the REDDIG II

Activities to resolve REDDIG II pending matters

2.8 Pending activities to accomplish during 2017 by INEO are as follows:

- Replacement of LNB in remaining REDDIG II nodes: Asuncion, Bogota, La Paz, Montevideo and Santiago to fully solve the freezing problem in satellite MODEMs.
- Setting of IP administrative channel in node Asuncion-Paraguay
- Procedure for calculating the consumption of satellite band-wide (BW or payload) in each network station.
- Software/archives of initial installation of NMS server and “WhatsUpGold” in each network station.
- Correction of connections of data base servers for its redundancy in the Manaus node.
- Repair the “Ethernet Switch-A” in Brasilia node.
- Recurrent failure in the Modem Master of Manaus NCC.

2.9 All activities indicated in paragraph 2.8 are expected to be completed by INEO during the first semester of 2017. The most relevant problem, which was solving the random freezing of the

satellite modems, has almost been solved in view that since August 2016 the LNBs have been situated in thirteen stations of the REDDIG II. Since that date, no freezing in the satellites MODEMS has been reported. Another problem represents the recurrent failure in the Modem Master of Manaus NCC. INEO is working on the solution.

2.10 In this sense, it is expected that in the first semester of 2017 the final acceptance of the REDDIG II (FSAT) network can be released. As indicated in the RCC/19, for the FSAT, the supplier of the REDDIG II (INEO), in accordance with REDDIG II contract (2250120), will submit to the REDDIG II Project Management a testing protocol and execution date to carry out the final acceptance tests.

2.11 The FSAT only will be done for the VSAT network in view that the final acceptance test for the terrestrial network was done and approved on 31 December 2015. The preliminary FSAT testing protocol presented by consortium INEO LEVEL 3 as part of the REDDIG II design documentation (SSD), must be adjusted in order to include only the corresponding tests to the satellite network.

Relocation of the Bogota node

2.12 The initial activities considered for the relocation of the Bogota node, in which INEO was requested to analyze the possibility of using an antenna belonging to Colombia (Andrew model C37T c-band of 3.7 m in diameter) was dismissed by INEO considering the risks that this could bring, but informed that if Colombia assumed responsibility on installing said antenna, INEO would complete the relocation works, subject to prior verification of the operation.

2.13 During the visit carried out by the Secretariat to Bogota, Colombia, from the week of 27 February to 3 March 2017, the relocation of the REDDIG node of Bogota was analyzed with the Director of Telecommunications, the Coordinator of the communication system group and with the REDDIG focal point. In this respect, it was considered that the initial possibility to relocate the REDDIG node of Bogota by the technical personnel of the communication system group of Colombia will no longer take place considering that the REDDIG equipment was in warranty and any action taken place without the approval of the REDDIG supplier, could affect the equipment warranty not only in Colombia but in all the network. Therefore, it was considered that the relocation work must be done by the REDDIG II supplier (INEO).

2.14 After the mentioned visit, a teleconference was carried out (9 February 2017) between the Director of Telecommunications, the Coordinator of the communication system group, the REDDIG focal point of Colombia, ICAO, the REDDIG administrator and the REDDIG II supplier (INEO) in order to coordinate an in-situ visit that could allow the REDDIG II supplier to know exactly the activities to be done and the required material for such installation. The installation of a new antenna was considered in the REDDIG II equipment relocation works.

2.15 The site survey by INEO was done on 19 and 20 February 2017. To date, INEO has not presented the new offer for the relocation of the node. It is expected to receive it by the end of March 2017. The Aeronautical Administration of Colombia, once they receive the offer, will proceed with the corresponding analysis and possible approval.

Relocation of the actual Ezeiza node to Cordoba and installation of a new REDDIG II node in Ezeiza

2.16 Argentina informed to the RCC/19 Meeting, due to the construction of a new control centre in Ezeiza, the installation of a new REDDIG II node would be required and also the relocation of the actual node of Ezeiza to the Airport of Cordoba. In this sense, Argentina requested to the Secretariat to ask INEO for an economic proposal.

2.17 After the request of the Secretariat to INEO and clarification about installation aspects between Argentina, the REDDIG Administration and INEO, on 21 December 2016 INEO sent an economic proposal for the installation of a new REDDIG node where the new control centre and the Ezeiza control tower will operate.

2.18 The economic proposal includes equipment and installation services at the new premises of the Ezeiza ACC (Antenna, VSAT, new Indoor & Outdoor equipment, installation services, documentation, test and delivery of equipment). The economic proposal was delivered to the focal point of Argentina but as of to-dated, no comments have been received. Once the comments of Argentina are received, INEO should send the proposal to the procurement section in order to start the process through the actual REDDIG II contract.

2.19 The Appendix B to this working paper presents the tentative schedule presented by INEO on 18 November 2016. It is expected that during the Meeting, an update should be done regarding the corresponding relocation of the actual node of Ezeiza to Cordoba and the installation of the new REDDIG II node in Ezeiza.

Sixth Technical – Operational Meeting of the REDDIG II

2.20 The Sixth Technical – Operational Meeting of the REDDIG II will take place in Manaus, Brazil, on 12 June 2017; one day before the Operations Advance Course of the REDDIG II. A fellowship for each State and simultaneous interpretation are considered for this event.

Implementation of new REDDIG II services and MEVA III – REDDIG II interconnection

2.21 It is planned for 2017 the implementation of new AMHS circuits. The **Appendix C** presents a chart with the circuits to be implemented and the estimated dates.

2.22 In addition, in the regional planning as part of the ATM automatization project, is pending the exchange of radar data and AIDC (this last exchange is being implemented through AFTN/AMHS existing circuits). It is expected to complement the exchange of radar data planned between Argentina-Chile and Ecuador-Peru.

2.23 In the MEVAIII – REDDIG II interconnection, the implementation of the AMHS between Bogota-Panama, Lima-Atlanta and Brasilia-Atlanta are planned for 2017.

New REDDIG Administrator

2.24 The REDDIG Administrator, Mr. Luis Alejos, will leave his position on 30 June 2017 due to meeting the retirement date. In this sense, it has been started through the ICAO Technical Cooperation section (Montreal) the hiring process for the new Administrator. The new Administrator should assume functions on May 2, 2017. Mr. Luis Alejos undertook the position on 15 September 2013, and has been working since then with great dedication contributing with the high availability of the REDDIG.

3. Suggested action

3.1 The Coordination Committee is invited to:

- a) Take note of the information provided;
- b) review the activities planned for 2017 described in Section 2, and Appendixes A to C of this working paper; and
- c) analyse any other aspect deemed necessary for REDDIG RLA/03/901 project for 2017.

APPENDIX A**Operation of the REDDIG II Advance Course****Contents**

- 1. Architecture**
 - Satellite network
 - Support ground network
 - Plan for Addressing IP (Global and Local)
 - Equipment and services
 - Node types
- 2. RF Equipment**
 - IBUC + LNB
 - Redundancy
 - Management/setting via HHT, TCP/IP (Web) and Telnet
- 3. Modem Skywan**
 - Model 7000
 - Model 1070
 - Access through “LineUp Manager”
 - Software Upload
 - Set Parameters
 - Tests
 - Operations
 - Monitoring Screens
 - Log Files
 - Performance, parameters assesment
- 4. Ethernet Switch Netgear**
- 5. Router Cisco**
 - Interfaces
 - VRRP redundancy protocol
 - OSPF routing protocol
 - VLANs
 - Commands on line
 - Interfaces monitoring
 - Settings
- 6. Baseband Commuter (RSS) and “Patch Panel”**
- 7. NMS – WhatsUp Gold**
 - NMS Central Server
 - NMS Remote Server (Local)
 - Web access
 - Modules and displays
 - Monitors
 - Active Monitor
 - Performance Monitor
 - Alarms

APPENDIX C

AMHS INTERCONNECTION REQUIREMENT AND DATE OF IMPLEMENTATION

STATES	AMHS INTERCONNECTION REQUIREMENTS	DATE OF IMPLEMENTATION	COMMENTS
Argentina	Bolivia	Jul 2017	Coordination has not begun.
	Brazil	Mar 2017	Pending operational implementation. Final operational tests for AMHS interconnection between Brasilia and Ezeiza were successfully completed on 18 May 2016. Beginning of implementation first trimester 2017.
	Chile	Mar 2017	Operational implementation foreseen by the end of the first trimester 2017.
	Paraguay	Mar 2012	Implemented and operational
	Peru	Mar 2017	Positive P1 connectivity between MTA Ezeiza y MTA Lima (March 2016). Pending completion of operational tests. Operational phase foreseen by the first trimester 2017.
	Uruguay	Mar 2017	Connectivity in Protocol P1 level between MTA Ezeiza – Montevideo achieved, pending operational tests.
	Venezuela	June 2016	Implemented and operational (out of service - AMHS failure)
Bolivia	Argentina	Jul 2017	Coordination has not begun
	Brazil	Jul 2017	Coordination has not begun
	Peru	Jul 2017	Initial coordination carried out
Brazil	Argentina	Mar 2017	Pending operational implementation. Final operational tests for AMHS interconnection between Brasilia and Ezeiza were successfully completed on 18 May 2016. Operational implementation first trimester 2017.
	Bolivia	Jul 2017	Coordination has not begun.
	Colombia	Mar 2017	Connectivity in Protocol P1 level between Brasilia and Bogota achieved (October 2016). Pending continuation of operational tests
	Guyana	Mar 2017	Start operations on 15 Dec 2016 at 17:00 UTC. On mid-February 2017 returned to AFTM configuration. New tests with updated software will be conducted on 17 March 2017 in Brasilia MTA.
	French Guiana	TBD	French Guiana has no AMHS
	Paraguay	Apr 2017	Positive tests connectivity IP. Pending operational tests by 20 April 2017.

STATES	AMHS INTERCONNECTION REQUIREMENTS	DATE OF IMPLEMENTATION	COMMENTS
Chile	Peru	Dec 2015	Implemented and operational 14 December 2015
	Suriname	Mar 2017	Start operations on 15 Dec 2016 at 17:00 UTC. On mid-February 2017 returned to AFTM configuration. New tests with updated software will be conducted on 17 March 2017 in Brasilia MTA.
	Uruguay	Mar 2017	IP connectivity completed. (First week October 2016). Positive connectivity in Protocol P1 level concluded on the week of 28 Nov 2016 (30 Nov and 1 Dec). Starting operations foreseen by the end of the first trimester of 2017.
	Venezuela	Sep 2017	Connectivity in Protocol P1 level between Brasilia and Caracas achieved (October 2016) Pending operational test foreseen by early second semester 2017 when Venezuela has already installed the new AMHS system.
	Spain	Mar 2017	Pending operational implementation. Operational tests successfully completed. Connection made through CAFSAT. Operation foreseen by 10 March 2017.
	United States	Jul 2017	Technical coordination began May-Sep 2016. IP configuration under assessment by FAA.
	Argentina	Mar 2017	Operational implementation foreseen by the end of the first trimester of 2017
	Peru	Dec 2016	Began operations second-mid Dec 2016
Colombia	Brazil	Mar 2017	Connectivity in Protocol P1 level between Brasilia and Bogota achieved (October 2016). Pending continuation of operational tests
	Ecuador	Mar 2017	Positive tests connectivity IP. Pending continuation of operational tests
	Panama	Jun 2017	Circuitual configuration set through MEVA III REDDIG II interconnection (Mid Feb 2017). Tests will begin on 17 March 2017.
	Peru	Sep 2010	Implemented and operational
	Venezuela	Apr 2017	Pending continuation of tests on March 2017 with the provisional AMHS system of Venezuela
Ecuador	Colombia	Mar 2017	Positive tests in connectivity in IP. Pending continuation of operational tests
	Peru	Julio 2012	Implemented and operational

STATES	AMHS INTERCONNECTION REQUIREMENTS	DATE OF IMPLEMENTATION	COMMENTS
	Venezuela	Sep 2017	Pending continuation of operational tests with the provisional AMHS system of Venezuela
French Guiana (France)	Brazil	TBD	AMHS pending implementation
	Venezuela	TBD	AMHS pending implementation
Guyana	Brazil	Mar 2017	Start operations on 15 Dec 2016 at 17:00 UTC. On mid-February 2017 returned to AFTM configuration. New tests with updated software will be conducted on 17 March 2017 in Brasilia MTA.
	Suriname	Jun 2011	Implemented and operational
	Venezuela	Sep 2017	Pending continuation of operational tests with the provisional AMHS system of Venezuela.
Panama	Colombia	Jun 2017	Circuitual configuration set through MEVA III REDDIG II interconnection (Mid Feb 2017). Tests will begin on 17 March 2017.
Paraguay	Argentina	Mar 2012	Implemented and operational
	Brazil	Abr 2017	IP interconnectivity tests began mid July 2016. Connectivity tests will continue on 20 April
Peru	Argentina	Mar 2017	Positive P1 connectivity between MTA Ezeiza y MTA Lima (March 2016). Pending continuation of operational tests. Operational phase foreseen first trimester 2017
	Bolivia	Jul 2017	Initial coordination made
	Brazil	Dec 2015	Implemented 14 December 2015
	Chile	Dec 2016	Start operations the second half Dec 2016
	Colombia	Sep 2010	Implemented
	Ecuador	Jul 2012	Implemented
	Venezuela	Apr 2017	Pending continuation of operational tests with the provisional AMHS system of Venezuela.
Suriname	Brazil	Mar 2017	Start operations on 15 Dec 2016 at 17:00 UTC. On mid-February 2017 returned to AFTM configuration. New tests with updated software will be conducted on 17 March 2017 in Brasilia MTA.
	Guyana	Jun 2011	Implemented and operational
	Venezuela	Sep 2017	Pending continuation of operational tests with foreseen by the second semester of 2017 when new AMHS system of Venezuela starts operations.

STATES	AMHS INTERCONNECTION REQUIREMENTS	DATE OF IMPLEMENTATION	COMMENTS
Uruguay	Argentina	Mar 2017	Positive P1 connectivity between Ezeiza and Montevideo achieved. Pending operational tests
	Brazil	Mar 2017	IP connectivity completed. (First week October 2016). Positive connectivity in Protocol P1 level concluded on the week of 28 Nov 2016 (30 Nov and 1 Dec). Starting operations foreseen by the end of the first trimester of 2017.
Venezuela	Argentina	Jun 2016	Implemented and operational
	Brazil	Sep 2017	Pending continuation of operational tests with foreseen by the second semester of 2017 when the new AMHS system of Venezuela starts operations
	Colombia	Apr 2017	Pending continuation of operational tests with the provisional AMHS system of Venezuela.
	Ecuador	Sep 2017	Pending continuation of operational tests with foreseen by the second semester of 2017 when new AMHS system of Venezuela starts operations
	Guyana	Sep 2017	Pending continuation of operational tests with foreseen by the second semester of 2017 when the new AMHS system of Venezuela starts operations
	French Guiana	TBD	Pending continuation of operational tests with foreseen by the second semester of 2017 when the AMHS system of Venezuela starts operations
	Peru	Apr 2017	Positive P1 connectivity between MTA Lima y MTA Maiquetia. Pending operational tests
	Suriname	Sep 2017	Pending continuation of operational tests with foreseen by the second semester of 2017 when the new AMHS system of Venezuela starts operations