



REDDIG RCC/20

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

**RLA/03/901**

**TWENTIETH MEETING OF THE  
COORDINATION COMMITTEE  
(RCC/20)**

**PRELIMINARY REPORT**

**(Lima, Peru, 21 to 23 March 2017)**

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## **HISTORY OF THE MEETING**

### **ii-1. PLACE AND DURATION OF THE MEETING**

The Twentieth Meeting of the Coordination Committee of Project RLA/03/901 -*REDDIG Management System and Satellite Segment Administration*, was carried out in the ICAO South American Regional Office, in Lima, Peru, from 21 to 23 March 2017.

### **ii-2. OPENING**

Mr. Onofrio Smarrelli, in representation of the Regional Director of the ICAO South American Regional Office, welcomed the participants, pointing out the importance of the topics to be dealt with and wishing success in the deliberations. Thereafter, he inaugurated the meeting.

### **ii-3. WORKING LANGUAGES**

The meeting working languages for the discussions and documentation were Spanish and English.

### **ii-4. PARTICIPANTS AND ORGANIZATION**

The meeting counted with the assistance of 11 member States (Argentina, Brazil, Chile, France (French Guiana), Guyana, Paraguay, Peru, Suriname, Trinidad & Tobago, Uruguay and Venezuela), and one company (AIREON), making a total of 27 participants, including ICAO officers. The list of participants is being presented in page iii-1.

Mr. Onofrio Smarrelli, Communications, Navigation and Surveillance (CNS) Regional Officer, acted as Secretary, assisted by Ms. Veronica Chávez, Technical Assistance Officer and Mr. Luis Alejos Torres, REDDIG Administrator.

### **ii-5. LIST OF CONCLUSIONS**

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**LISTA DE PARTICIPANTES / LIST OF PARTICIPANTS****ARGENTINA**

Néstor Damián Battistessa  
Director de Proyectos de Navegación Aérea  
Administración Nacional de Aviación Civil (ANAC)  
Azopardo 1405, 3er Piso  
Buenos Aires, Argentina

Tel: +54 11 66128048  
E-mail: [nbattistessa@anac.gob.ar](mailto:nbattistessa@anac.gob.ar)

Moira Lidia Callegare  
Jefa Departamento CNS  
Administración Nacional de Aviación Civil (ANAC)  
Azopardo 1405, 3er Piso  
Buenos Aires, Argentina

Tel: +54 11 5941-3097  
E-mail: [mcallegare@anac.gob.ar](mailto:mcallegare@anac.gob.ar)

Walter Alejandro Rupo  
Comunicaciones – Gerencia CNS  
EANA S.E.  
Av. Rivadavia 578, Piso 3  
Buenos Aires, Argentina

Tel: +54 911 44029276  
E-mail: [wrupo@eana.com.ar](mailto:wrupo@eana.com.ar)

Javier Schenk  
Gerente CNS  
EANA S.E.  
Peru 2, 3er Piso  
Buenos Aires, Argentina

Tel: +54 11 1528370135  
E-mail: [jschenk@eana.com.ar](mailto:jschenk@eana.com.ar)

**BRASIL / BRAZIL**

Eduardo Alberto do Nascimento Fontes  
Jefe de TIC  
DECEA  
Avenida General Justo, 160  
Rio de Janeiro, Brasil

Tel: +55 21 21016620  
E-mail: [eduardeanf@decea.gov.br](mailto:eduardeanf@decea.gov.br)

Renata Rodrigues Frias  
Asesora de Comunicaciones  
DECEA  
Avenida General Justo, 160  
Rio de Janeiro, Brasil

Tel: +55 21 21016869  
E-mail: [renatarrf@decea.gov.br](mailto:renatarrf@decea.gov.br)

**CHILE**

Eduardo Villalobos  
Director de Planificación  
Dirección General de Aeronáutica Civil (DGAC)  
Miguel Claro 1314, Providencia  
Santiago, Chile

Tel: +56 9 988991680  
E-mail: [eduardo.villalobos@dgac.gob.cl](mailto:eduardo.villalobos@dgac.gob.cl)

Christian J. Vergara  
Supervisor de Mantenimiento ACCS  
Dirección General de Aeronáutica Civil (DGAC)  
San Pablo 8411  
Santiago, Chile

Tel: +562 2836-4005 / +569 98886452  
E-mail: [cvergara@dgac.gob.cl](mailto:cvergara@dgac.gob.cl)

#### FRANCE (FRENCH GUIANA)

Jean-François Corlosquet  
IESSA  
DGAC  
Felix Eboué Airport  
97351 Matoury

Tel: +594 594 359317  
E-mail: [jean-francois.corlosquet@aviation-civile.gouv.fr](mailto:jean-francois.corlosquet@aviation-civile.gouv.fr)

#### GUYANA

Mortimer B. Salisbury  
Air Navigation & Telecommunication – Supervisor  
Guyana Civil Aviation Authority  
Timehri Control  
East Bank Demerara, Guyana

Tel: +592 2612569 / +592 6257669  
E-mail: [mbsalisbury2000@yahoo.com](mailto:mbsalisbury2000@yahoo.com);  
[msalisbury@gcaa-gy.org](mailto:msalisbury@gcaa-gy.org)

#### PARAGUAY

Victor Morán Maldonado  
Jefe Dpto. de Comunicaciones  
DINAC  
Gral. Artigas y Fernando de Mompox  
Ciudad de Mariano Roque Alonso  
Asunción, Paraguay

Tel: +595 21 7585-208  
E-mail: [moranchu@gmail.com](mailto:moranchu@gmail.com);  
[vmoran@dinac.gov.py](mailto:vmoran@dinac.gov.py)

Aldo Pereira Alcaraz  
Jefe Dpto. CCAM/AMHS  
DINAC  
Gral. Artigas y Fernando de Mompox  
Ciudad de Mariano Roque Alonso  
Asunción, Paraguay

Tel: +595 21 7585257 / +595 21 7585255  
E-mail: [aldopereira26@gmail.com](mailto:aldopereira26@gmail.com)

#### PERÚ

Luis Alberto Silva Gárate  
Jefe Equipo Radiocomunicaciones  
Punto Focal REDDIG  
Corporación Peruana de Aeropuertos y  
Aviación Comercial (CORPAC S.A.)  
Aeropuerto Internacional Jorge Chávez  
Av. Elmer Faucett 34 00  
Callao 1, Perú

Tel: +51 1 414 1198  
E-mail: [lsilva@corpac.gob.pe](mailto:lsilva@corpac.gob.pe)

José M. Rubira Chauca  
Technician Manager  
Corporación Peruana de Aeropuertos y  
Aviación Comercial (CORPAC S.A.)  
Aeropuerto Internacional Jorge Chávez  
Av. Elmer Faucett 34 00  
Callao 1, Perú

Tel: +51 1 414 1198  
E-mail: [jrubira@corpac.gob.pe](mailto:jrubira@corpac.gob.pe)

Andrés Arango Almidón  
CNS Professional Technician  
Corporación Peruana de Aeropuertos y  
Aviación Comercial (CORPAC S.A.)  
Aeropuerto Internacional Jorge Chávez  
Av. Elmer Faucett 34 00  
Callao 1, Perú

Tel: +51 1 414 1198  
E-mail: [aarango@corpac.gob.pe](mailto:aarango@corpac.gob.pe)

### **SURINAM / SURINAME**

Mitchell Themen  
Supervisor CNS  
Department of Civil Aviation Suriname  
Paramaribo, Suriname  
Coesewijnestraat 1

Tel: +597 498898 / +597 325123 / +597 497143  
E-mail: [mickiano@live.com](mailto:mickiano@live.com)

Jurgen Cicilson  
Technician CNS  
Department of Civil Aviation Suriname  
Paramaribo, Suriname  
Coesewijnestraat 1

Tel: +597 498898 / +597 325123 / +597 8792810  
E-mail: [jurmaja@hotmail.com](mailto:jurmaja@hotmail.com)

### **TRINIDAD & TOBAGO**

Shiraz Gopaul  
CNS Supervisor  
Air Navigation Services  
Trinidad and Tobago Civil Aviation Authority  
Golden Grove Road, Piarco  
Republic of Trinidad and Tobago

Tel: + 1 868 4679717 / +1 868 6694806 ext. 2525  
Email: [sgopaul@caa.gov.tt](mailto:sgopaul@caa.gov.tt)

### **URUGUAY**

Ricardo Clavijo  
Director de Electrónica  
Dirección Nacional de Aviación Civil e  
Infraestructura Aeronáutica (DINACIA)  
Av. Wilson Ferrerira Aldunate 5519  
Aeropuerto Intenacional de Carrasco  
CP, 14000, Canelones, Uruguay

Tel: +598 98 454 104  
E-mail: [rclavijo@dinacia.gub.uy](mailto:rclavijo@dinacia.gub.uy)

Miguel Vera  
Responsable Nodo REDDIG II  
Dirección Nacional de Aviación Civil e  
Infraestructura Aeronáutica (DINACIA)  
Av. Wilson Ferrerira Aldunate 5519  
Aeropuerto Intenacional de Carrasco  
CP, 14000, Canelones, Uruguay

Tel: +598 99 680 521  
E-mail: [miguelvera@adinet.com.uy](mailto:miguelvera@adinet.com.uy)

#### **VENEZUELA**

Luis Escobar Guillén  
T.R.A. IV  
Instituto Nacional de Aeronáutica Civil (INAC)  
Edificio ATC  
Centro de Control  
Aeropuerto Internacional Maiquetía Simón Bolívar  
Venezuela

Tel: +58 426 7174927  
E-mail: [luis.guillen@inac.gov.ve](mailto:luis.guillen@inac.gov.ve)

Willy Rojas  
Tecnico Administrativo II  
Oficina de Relaciones Internacionales  
Instituto Nacional de Aeronáutica Civil (INAC)  
Av. José Felix Sosa  
Torre Británica, piso 2  
Altamira Sur  
Caracas, Venezuela

Tel: +58 212 277 4439  
E-mail: [willy.rojas@inac.gob.ve](mailto:willy.rojas@inac.gob.ve)

#### **AIREON LLC**

Ana María Blanco  
Directora para América Latina y el Caribe  
1750 Tysons Blvd. Suite 1150  
Milian, VA 22102  
USA

Tel: +1 480 4275658  
E-mail: [ana.persiani@aireon.com](mailto:ana.persiani@aireon.com)

Dennis Yarger  
Implementation Engineer Manager  
1750 Tysons Blvd. Suite 1150  
Milian, VA 22102  
USA

Tel: +1 703 2068565  
E-mail: [dennis.yarger@aireon.com](mailto:dennis.yarger@aireon.com)

#### **OACI / ICAO**

Onofrio Smarrelli  
Especialista Regional en Comunicaciones,  
Navegación y Vigilancia  
Oficina Regional Sudamericana  
Av. Víctor Andrés Belaúnde No.147  
Centro Empresarial Real, Vía Principal No.102  
Edificio Real 4, Piso 4, San Isidro  
Lima 27 – Perú

Tel: +511 611 8686, Ext 107  
E-mail: [osmarrelli@icao.int](mailto:osmarrelli@icao.int)

Verónica Chávez  
Especialista de Asistencia Técnica  
Oficina Regional Sudamericana  
Av. Víctor Andrés Belaúnde No.147  
Centro Empresarial Real, Vía Principal No.102  
Edificio Real 4, Piso 4, San Isidro  
Lima 15073, Perú

Tel: +511 611 8686, Ext 201  
E-mail: [vchavez@icao.int](mailto:vchavez@icao.int)

Luis Alejos  
Administrador de la REDDIG  
CINDACTA IV – REDDIG / Sala Técnica  
Av. do Turismo 1350, Tarumã  
69041-010 Manaus, AM, Brasil

Tel. +55 92 3652 5714  
E-mail: [lalejos@icao.int](mailto:lalejos@icao.int)

**Agenda Item 1: Approval of the agenda and of the meeting schedule**

1.1 Under this Agenda Item, the Meeting reviewed and approved the agenda and meeting schedule included as **Appendixes A and B** to this part of the Report.

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**APPENDIX A****AGENDA**

- Agenda Item 1: Approval of the agenda and of the meeting schedule
- Agenda Item 2: Review of the report of the Nineteenth Meeting of the Coordination Committee
- Agenda Item 3: Report of the activities carried out to date since the last Coordination Committee meeting.
- Agenda Item 4: Work plan for 2017
- Agenda Item 5: Financial situation of the project and approval of the budget
- Agenda Item 6: Annual project evaluation
- Agenda Item 7: Other matters

## EXPLANATORY NOTES TO THE PROVISIONAL AGENDA

### **Agenda Item 1: Approval of the agenda and of the meeting schedule**

The Coordination Committee will consider and approve the provisional agenda and meeting schedule proposed by the Secretariat for its Twentieth Meeting.

### **Agenda Item 2: Review of the report of the Nineteenth Meeting of the Coordination Committee**

The Committee will review, for approval, the report of its Nineteenth Meeting (RCC/19) held in Lima from 7 to 9 March 2016. Likewise, the Committee will analyse the status of implementation of conclusions formulated during said meeting, as well as of conclusions in force from previous meetings.

### **Agenda Item 3: Report of the activities carried out to date since the last Coordination Committee meeting**

The Committee will analyse the activities carried out since its last meeting regarding:

- a) Follow-up to REDDIG II performance;
- b) Safety analyse of the REDDIG II;
- c) REDDIG II training programme; and
- d) New REDDIG II services and activities.

### **Agenda Item 4: Work plan for 2017**

The Committee will analyse the work programme for 2017:

- a) New REDDIG II activities and services (final acceptance tests of the satellite network (FNAT), installation of the REDDIG II Cordoba (Argentina), transfer of the Bogota and Ezeiza's Node and implementation of new services);
- b) New MEVAIII / REDDIG II activities and interconnection services; and,
- c) Training programme for 2017

### **Agenda Item 5: Financial situation of the project and approval of the budget**

The Committee will consider the status of the cost-sharing contributions to the project and a summary of the obligations assumed during 2016, as well as the project budget for 2017 for approval.

### **Agenda Item 6: Annual project evaluation**

The Committee will take note of the project's situation at the end of the year, including the management and outputs indicators, as well as the monitoring and control of the project with regard to the approved work plan for 2016, shown in the corresponding forms, concluding with the review of the survey conducted among participant States concerning their annual project evaluation.

### **Agenda Item 7: Other matters**

Under this agenda item, the Committee could analyse any other related issue deemed appropriate.

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**APPENDIX B**  
**PROVISIONAL TIMETABLE**

| <b>HOUR</b>    | <b>Tuesday</b><br>21 March 2017            | <b>HOUR</b>    | <b>Wednesday</b><br>22 March 2017 | <b>HOUR</b>    | <b>Thursday</b><br>23 March 2017 |
|----------------|--|----------------|-----------------------------------|----------------|----------------------------------|
| 08:30<br>09:00 | Registration                               | 09:00<br>10:30 | Review of Agenda<br>Item 4        | 10:00<br>10:30 | Review of Report                 |
| 09:00<br>09:15 | Opening                                    |                |                                   |                |                                  |
| 09:15<br>10:30 | Review of Agenda<br>Items 1 and 2          |                |                                   |                |                                  |
| 10:30<br>11:00 | <i>Coffee break</i>                        | 10:30<br>11:00 | <i>Coffee break</i>               | 10:30<br>11:00 | <i>Coffee break</i>              |
| 11:00<br>12:30 | Review of Agenda<br>Item 3                 | 11:00<br>12:30 | Review of Agenda<br>Item 5        | 11:00<br>12:00 | Approval of the Report           |
| 12:30<br>13:30 | <i>Lunch break</i>                         | 12:30<br>13:30 | <i>Lunch break</i>                | 12:00<br>12:15 | Closing Ceremony                 |
| 13:30<br>15:00 | Continuation of review<br>of Agenda Item 3 | 13:30<br>15:00 | Review of Agenda<br>Items 6 and 7 |                |                                  |

**Agenda Item 2: Review of the report of the Seventeenth Meeting of the Coordination Committee**

2.1 Under this Agenda Item, the Meeting discussed and approved the report of the Nineteenth Coordination Committee Meeting of the REDDIG (RCC/19) held in Lima, Peru, from 7 to 9 March 2016 and was attended by participants from 10 member States (Argentina, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Trinidad & Tobago, and Uruguay), and one international organization (SITA), making a total of 27 participants, including ICAO officers.

2.2 The RCC/19 Meeting reviewed the report of the Eighteenth Coordination Committee of the REDDIG (RCC/18), the presentation of the activities carried out from the RCC/18 to the RCC/19, the work plan for year 2016, the financial situation of the project and the approval of the budget for year 2016, the annual project evaluation from the RCC/18 to the RCC/19 and other matters.

2.3 During the RCC/19 the following conclusions were formulated:

- RCC/19-1 *Suriname cost-sharing contributions payment schedule*
- RCC/19-2 *Confirmation of implementation of new circuits in the MEVA III / REDDIG II interconnection by involved REDDIGII member States*
- RCC/19-3 *Registration of VSAT stations for fixed-satellite service (FSS) for aeronautical use at MIFR (Master International Frequency Register)*
- RCC/19-4 *Review to the LEVEL 3 SLA*
- RCC/19-5 *Approval of the project RLA/03/901 budget Revision*

2.4 The Meeting examined the list of valid conclusions presented in WP/02 and in this respect considered that Conclusions 8/8, 19/1 and 19/3 were valid, and Conclusions 15/1, 15/4, 16/3, 18/4 18/5, 19/2, 19/3, 19/4 and 19/5 were completed. Since content of Conclusion 18/1 is already included in Conclusion 19/3 part a), it was reformulated as Conclusion 19/3. The **Appendix** to this Agenda Item presents the status of the conclusions as a result of the Meeting review.

2.5 To follow-up on Conclusions 19/3 part a) the Meeting took note that Argentina, Chile, Guyana, Paraguay, Trinidad & Tobago, Uruguay and Venezuela had registered their REDDIG II equipment and frequencies at their national entities that manage the spectrum. Regarding part b) of above-mentioned Conclusion some States (Uruguay and Paraguay) reported having informed their national entities; however the entities ignore the process for the registration of REDDIG II equipment and frequencies at MIFR (Master International Frequency Register).

2.6 On this respect the Meeting concurred that the Secretariat would draft a model letter so that States submit to national entities that manage the spectrum so that those in turn raise it to the MIFR. This process would strengthen the position to protect the frequency band FSS in band C for VSAT networks (3.4 to 4.2 GHz). The Secretariat would consult with ICAO headquarters in Montreal the content of the letter. In this sense, the following conclusion was formulated:

**Conclusion RCC/20-1****Preparation of model letter for the registration of the REDDIG frequencies and other VSAT networks in the Member States of the REDDIG at the MIFR - ITU**

That the REDDIG Administration prepares and send to the States members of project RLA/03/901 by end May 2017, a model letter to be submitted to the national entities that manage the frequency spectrum with the aim of that these entities may proceed to register at MIFR (International Master frequency register) of the ITU (International Union of communications) the frequencies used in REDDIG II as well as national networks VSAT used to transport voice and data services for aeronautical applications.

## APPENDIX

### CONCLUSIONS ADOPTED BY THE REDDIG COORDINATION MEETINGS THAT REMAIN VALID AND THEIR STATUS OF IMPLEMENTATION

| No.  | Title  | Content  | Status       | Remarks   |
|------|--|--|--------------|---|
| 8/8  | REDDIG Administration  | That, until such time that the institutional aspects related to the management of multinational systems for the provision of air navigation services are more clearly defined, the States agree that, for the next two years, starting 15 October 2005, the REDDIG will continue to be managed through the ICAO technical cooperation mechanism, as an extension of Regional Project RLA/03/901.   | Valid        | Whereas the establishment of the South American Air Navigation and Safety Organization, multinational system with ability to manage the REDDIG continues undefined, RCC/15 meeting (Lima, Peru, 15-17 August 2012) approved the RLA/03/901 project document substantive revision, extending the management of REDDIG until 2018.<br><br>During RCC/20 Meeting RLA/03/901 member States approved the extension of the REDDIG II management for a 5 year period until 2023. |
| 18/1 | Registration process at the national entities that manage the spectrum, of the REDDIG II equipment and frequencies | That, REDDIG II Member States:<br><br>a) That still have not complete the process of registration of the frequencies and equipment at the entities that manages the national frequencies spectrum, carry out the procedure not later than 29 May 2015, forwarding a copy of registration forms to ICAO SAM Regional Office by 12 June 2015; and<br><br>b) Those States that have already registered REDDIG II frequencies and equipment send a copy of the forms by 31 March 2015. | Reformulated | Included into Conclusion 19/3.  |
| 18/4 | Delay in the payment of cost sharing contributions to the Project RLA/03/901 - Suriname                            | That the Secretariat takes the necessary actions to inform Suriname about the need to comply with the payment of cost sharing contributions in order that the REDDIG project has the necessary funds for the network management; among the actions to be taken are considered the delivery of a communication, having a teleconference with all the member States of the project or a high level visit to the State.   | Concluded    | Actions were taken by Suriname to pay their pending contributions.  |

| No.  | Title   | Content  | Status    | Remarks   |
|------|---|--|-----------|---|
| 19/1 | Suriname cost-sharing contributions payment schedule  | That, Suriname with the aim of complying with full payment of its 2012 to 2016 cost-sharing contributions, present a payment schedule in this regard, in order to avoid the application of the payment delay procedure indicated by the ICAO SAM Regional Office through letters SA5033 and SA5192 of 21 January and 7 March 2016, respectively. | Valid     | Suriname presented a payment schedule and on mid-March 2017 made two payments of USD 80,000, pending USD 109,260 until 2016, without considering the contribution of 2017.  |
| 19/2 | Confirmation for implementation of new circuits in the MEVA III / REDDIG II interconnection by involved REDDIG ii MEMBER States | That Brazil, Colombia, Peru, Trinidad & Tobago and Venezuela confirm feasibility of implementing the new circuits indicated in paragraph 3.30 of this Agenda Item, in the MEVA III/REDDIG II interconnection as well as the estimated date of implementation not later than 29 April 2016.   | Concluded | <p>Even when the mentioned States haven't confirmed feasibility of implementing the circuits, they have begun evaluating and/or implementing new circuits in the MEVA III/REDDIG II interconnections.</p> <p>Brazil started the coordination with the United States for the migration for the AFTN circuit to AMHS between Brasilia and Atlanta.</p> <p>Between Colombia and Panama, a circuit configuration in the MEVA III / REDDIG II interconnection was established and on the week of 13 March, 2017 they will start with the tests.</p> <p>A hot line was implemented between the Maiquetia AAC (Venezuela) and the San Juan de Puerto Rico AAC.</p> |

| No.  | Title  | Content  | Status | Remarks  |
|------|--|--|--------|--|
| 19/3 | Registration of VSAT stations for fixed-satellite service (FSS) for aeronautical use at MIFR (Master International Frequency Register) | <p>In order to ensure adequate protection to the operating frequencies of REDDIG II as well as the frequencies of VSAT stations for aeronautical use at the national level, REDDIG member States:</p> <ul style="list-style-type: none"> <li>a) That still have not proceeded to registration of frequencies and REDDIG equipment as well as the frequencies of its VSAT stations for aeronautical use, in case that exists the respective national entities that manage the spectrum of radio frequency, do so as soon as possible and send the registration forms to the ICAO SAM Office</li> <li>b) Ensure that national entities that manage the radio frequency spectrum recorded operating frequencies of each REDDIG II station as well as frequencies of VSAT networks for local aeronautical use, in case they had it, to the UIT Master International Frequency Register (MIFR) and report the process to SAM Office.</li> </ul> | Valid  | <ul style="list-style-type: none"> <li>a) Argentina, Chile, Guyana, Paraguay, Trinidad &amp; Tobago, Uruguay and Venezuela had registered their REDDIG II equipment and frequencies at their national entities that manage the spectrum.</li> <li>b) RCC/20 agreed that the REDDIG Administration prepares a model letter for member States to be submitted to the national entities that manage the frequency spectrum with the aim of that these entities may proceed to register at MIFR (International Master frequency register) of the ITU.</li> </ul> |

### **Agenda Item 3: Report of the activities carried out to date since the last meeting of the Coordination Committee**

3.1 The Meeting under this Agenda Item analysed the following working paper and information papers:

- WP/03 - *Report of the activities carried out to date since the last meeting of the Coordination Committee* (presented by the Secretariat)
- IP/03 - *Follow up on Maiquetia REDDIG II Node* (presented by Venezuela)
- IP/04 - *The DSNA approach regarding security* (presented by France)

### **Report of the activities carried out to date since the last meeting of the Coordination Committee**

3.2 The Meeting analysed the following activities agreed upon at the Nineteenth Coordination Committee Meeting (RCC/19):

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

#### ***REDDIG II training programme***

3.3 With regard to training activities, the Meeting took note on the following courses carried out:

- a) Second course “Interconnecting Cisco Network Devices Part 2 (ICND2)”
- b) Basic course on REDDIG II operations and maintenance.

#### ***Second course “Interconnecting Cisco Network Devices Part 2 (ICND2)”***

3.4 The Meeting was informed that as part of the training plan for the personnel in charge of the REDDIG II maintenance, in the 2015-2016 period approved by the Eighteenth Coordination Committee Meeting of the REDDIG (RCC/18) and the Nineteenth Coordination Committee Meeting of the REDDIG (RCC/19), two Basic Courses on IP CISCO Switches and Routers were held in Lima, Peru, from 9 to 13 November 2015 and from 4 to 8 April 2016.

3.5 In the second course “*Interconnecting Cisco Network Devices Part 2 (ICND2)*” the content was: implementation of medium-capacity scalable networks, EIGRP solution implementation, multi-area scalable networks implementation, solution based on OSPF and management of network devices. To the ICND2 Course, 10 member States participated (Argentina, Brazil, Chile, Ecuador, Colombia, Paraguay, Peru, Suriname, Trinidad & Tobago and Uruguay) with a total of 16 participants. The list of participants is attached in the **Appendix A** (See Appendix A to the WP03) and the content of the course in the **Appendix B** (See Appendix B to the WP03) of this Agenda Item.

#### ***Basic course on REDDIG II operations and maintenance***

3.6 The Meeting was informed that the basic course on REDDIG II operations and maintenance was delivered, one for the Spanish-speaking REDDIG member States including Brazil

which was carried out in the premises of the *Centro de Instrucción, Perfeccionamiento y Experimentación* (CIPE) of the ANAC, in the “*Ministro Pistarini*” International Airport in Ezeiza, Buenos Aires, Argentina, from 5 to 9 September 2016 and the other course delivered for the non-Spanish-speaking States delivered in the “*Cheddi Jagan*” International Airport of Timehri, Guyana, from 26 to 30 September 2016.

3.7 The Meeting took note that in the basic course provided in Argentina, 23 participants assisted from the States of Argentina, Bolivia, Brazil, Chile, Ecuador, Paraguay, Uruguay and Venezuela. In the basic course provided in Georgetown, Guyana 18 participants assisted from the States of Guyana, French Guyana, Suriname, and Trinidad&Tobago. The lists of participants of the courses delivered in Argentina and Guyana are presented respectively in the **Appendixes C and D** (See Appendixes C and D to the WP03) of this Agenda Item.

3.8 The content of the course on REDDIG II operations and maintenance is presented in the **Appendix E** (See Appendix E to the WP03), which includes a general description of the REDDIG II, the REDDIG II node, the RF equipment; MODEM Skywan, Switch Ethernet, CISCO Router, baseband switchboard and the NMS.

3.9 As a follow-up to the request of the RCC/19 Meeting, the Secretariat presented to the Meeting information regarding operational courses, maintenance and SKYWAN modem satellites programme which is presented in the **Appendix F** (See Appendix F to the WP03).

### ***REDDIG II operation and analysis to the implementation of new services***

#### *REDDIG II pending activities*

3.10 The Meeting was informed about the implementation fo the following pending activities by INEO:

- Changes on the LNBS and installation of the redundancy in the signal of 10MHz that Skywan equipment’s provides (one at a time) to the IBUC equipment’s and new LNBS in thirteen (13) stations: Bogota, Brasilia, Cayenne, Curitiba, Ezeiza, Georgetown, Guayaquil, Lima, Maiquetia, Manaus, Paramaribo, Piarco and Recife in order to solve the problem of the random freezing of some REDDIG II nodes.
- Reconfiguration of the Skywan profile completed on 20 July 2016 leaving the satellite network on evaluation.
- Configuration fo the administrative channel of 6 digits in the node of La Paz, Bolivia.

#### *Implementation of the REDDIG II Brasilia Node*

3.11 The Meeting took note that the node of Brasilia started operation on April 2016 and that as of to date, the services still operating are the AMHS Brasilia-Lima circuit, the AFTN circuits between Brasilia-Cayenne, Brasilia-Georgetown and Brasilia-Paramaribo and three oral administrative circuits.

#### *Level 3 terrestrial network*

3.12 The Meeting took note that the administration of the REDDIG configured additional monitoring parameters (“Active Monitors”) in the monitoring applicative and in the control of the Manaus, Ezeiza and Lima stations in order to monitor the availability of all the Level 3 circuits; having 3 stations allows having a better precision in the calculation of the circuit’s availability in the LEVEL 3 terrestrial network.

3.13 By using this tool, is being calculated since January 2016, the monthly availability (numeric and graphic) of each of the Level 3 terrestrial networks which is used to analyse the compliance of the respective SLA (Service Level Agreement). The performance of the LEVEL 3 terrestrial network during 2016 and during January – February 2017 is presented in the **Appendix G** (See Appendix H to the WP03).

*Analysis on the security in REDDIG II*

3.14 The Meeting, as a follow-up to the RCC/19, analysed the work done by the ad hoc group was comprising Argentina, Brazil, Colombia, French Guyana, Paraguay, Peru and the REDDIG Administration, about general aspects of the security in REDDIG II such as the updated of the anti-virus software of the servers, the classification and analysis of the threats of risks and the respective recommendations.

*Update of the antivirus software*

3.15 Regarding the antivirus software in the NMS servers of the REDDIG II, it was informed to the Meeting that INEO had updated it on July 2016 and that in Cayenne, Georgetown, Paramaribo and Maiquetia the antivirus software had not been installed in their NMS servers, reason why it was provided to the delegates of these States this software and were requested to made the installation no later than 14 April 2017.

3.16 The Meeting considered important that the antivirus software in the NMS servers of the REDDIG II always keeps updated and to this respect, was considered that the RLA/03/901 project proceed to the acquisition of licenses for the software updated in all the REDDIG nodes from the moment of warranty period of the REDDIG II ends. In this sense, the Meeting formulated the following conclusion:

**Conclusion RCC/20-2**

**Implementation and updated of the REDDIG antivirus software**

That in order to maintain the security in the REDDIG II:

- a) The member States of the REDDIG II that have not yet proceed to the implementation of the antivirus software in the NMS servers of the REDDIG II, must complete the implementation by 14 April 2017.
- b) That the REDDIG II Administration, in order to always keep updated the antivirus software in the NMS servers of the REDDIG II, proceed with the acquisition of updating licences from the moment the REDDIG warranty period ends.

*Classification and analysis of the threats of risks and the respective recommendations*

3.17 The Meeting analysed and approved the following classification and analysis of threats of risks and the respective recommendations. The classification was done in two levels to the REDDIG II, internal and external:

## INTERNAL LEVEL

3.18 The potential threats of risks to be taken into account and the respective recommendations to eliminate or minimise such factors were considered in the LEVEL 3 terrestrial network, VPN access via Internet and human factor.

### Level 3 network

3.19 Even though LEVEL3 confirmed compliance with standard RFC 5920 informing that all its procedures were based on best security practices, the Meeting considered that the ad hoc group should do a more detailed risk analysis about the LEVEL3 terrestrial sublevel.

### VPN access *via* Internet

3.20 Currently, INEO is using VPN access in a recurrent manner in Manaus, Ezeiza, and Brasilia to correct network issues or to update equipment configuration, and will continue using this access until final acceptance of the network. After that, all Internet connection cables will be withdrawn from all VPN routers in the network, and the operating modality will change to on-demand access (the Internet cable will be connected when needed). This modality will apply to all VPN routers of the network. The Meeting considered that all REDDGI II nodes should have VPN access, but its connection to the REDDIG II will be done only under the REDDIG Administrator requirements. The States that still have not implemented the VPN access should do it by 30 June 2017. At the present time, the VPN access has been installed only in Asuncion, Brasilia, Ezeiza and Manaus.

### Human factor

3.21 The Meeting considered not to copy any file from/to the NMS server using a USB port without first verifying (antivirus scanning) that the portable device ('pen drive') is free of virus. Regarding the password to access NMS servers after network reception, the REDDIG Administration will change the access passwords of all network servers. Thus, personnel responsible for station maintenance will only have access to the equipment of their own station.

## EXTERNAL LEVEL

3.22 The Meeting considered that at external level the risks should be caused mainly to users and their equipment connected to the REDDIG II. In this regard, the Meeting highlighted the importance of standardising the connection to REDDIG II by installing a router/border in a dual configuration, which will also permit standardisation of security policies in the router/border switch equipment of the States.

3.23 Likewise, the Meeting also considered as a 'threat' to network operation and security the radiofrequency interference that could occur in REDDIG stations, causing degradation or even interruption of aeronautical communication services. In this sense, it was recommended to pay attention to any installation by public telecommunication operators in the surroundings of the REDDIG station, and to keep in close communication and coordination with local authorities in charge of managing the radio electric spectrum.

3.24 As **Appendix H** to this Agenda Item is presented a chart with the summary of the initial analysis of threats of risks that could affect the REDDIG II and the initial actions to be implemented for its solution.

3.25 The Meeting considered that the ad hoc group prepare an action plan, taking into consideration the information in Appendix H, specifying the implementation dates of the proposed actions. In order to analyse the progress, the Meeting considered the coordination of teleconferences starting with the first one on 29 April 2017. In this regard, the Meeting formulated the following conclusion:

### **Conclusion RCC/20-3**

### **Analysis of the REDDIG II security**

That the ad hoc group of the REDDIG II, in order to analyse the security comprised by Argentina, Brazil, Colombia, French Guyana, Paraguay, Peru and the REDDIG Administration, prepares an action plan for the implementation of the proposed actions stated in the **Appendix H** to this Agenda Item to mitigate the threats of risks identified in the REDDIG II y presents the initial progress in the first teleconference to be held on 29 April 2017.

3.26 The Meeting took note of a presentation made by the delegation of France about the policy of the French DGAC regarding the cybernetic security in the air navigation and how the provider of the air navigation services in France (DSNA) uses such policy to bring alignments, good practices, secure architectural methods, tools and procedures to avoid vulnerability in the air navigations systems. In their presentation, they highlighted that the analysis of the security should be a continuous process.

#### *Relocation of the REDDIG II node of Bogotá*

3.27 The Meeting was informed about the actions done for the relocation of the REDDIG node of Bogota. From 20 to 21 February 2017, INEO made a site survey in order to send a new proposal for the transfer of the current REDDIG II node of Bogota to the new premises of the ACC Bogota. Colombia considered that the relocation of the node should be carried out by INEO to not affect the REDDIG II warranty, changing in this way the considerations made before in which the relocation would be done the technical staff of the Aeronautical Administration of Colombia.

#### *MEVAII REDDIG II service implementation*

3.28 Regarding scheduled activities related to the MEVA III/REDDIG II interconnection, the Meeting was informed that in late August 2016, an ATS speech circuit (hot line) was implemented and commissioned between the Maiquetía ACC and the San Juan ACC.

3.29 It was also informed about the coordination for the AMHS tests between Bogota and Panama MTAs through MEVA III/REDDIG II interconnection. IN the **Appendix I (see Appendix J to the WP03)** is presented the circuit configuration scheme. The MEVA III service provider configured nodes of Panama and Bogota for the testing period with no cost for the REDDIG (64Kbits/seg maximum circuit). After the tests, the MEVA III provider will present a quotation for that service.

3.30 Likewise, Brazil started coordinations with the FAA for the migration of the Brasilia-Atlanta AFTN circuit to AMHS through the MEVA III/REDDIG II interconnection. The FAA is evaluating the proposed solution. In the same way, Peru will begin coordination with the FAA to migrate the Lima-Atlanta AFTN circuit to an AMHS circuit through the MEVA III/REDDIG II interconnection.

#### *Implementation of REDDIG II new services*

3.31 The Meeting took note about the implementation of new services currently implemented which are in operation in the REDDIG II such as the AMHS circuits Brasilia-Lima, Santiago-Lima, Brasilia-Georgetown and Brasilia-Paramaribo. Likewise, P1 connectivity tests have been conducted between Brasilia-Ezeiza, Brasilia-Montevideo, Brasilia-Bogotá, Ezeiza-Lima, Ezeiza-Santiago and Ezeiza-Montevideo.

3.32 Likewise, the Meeting was informed about the tests for the transport of the SITA “datalink ground air” service for the Oceanic ACC of Santiago from REDDIG II node of Santiago to Recife REDDIG II node were completed successfully.

### **REDDIG logistic aspects**

3.33 The Meeting took note about the logistical operations, mainly originated by failures in the node which include the remittance of equipment or spare parts from the REDDIG storage site, located in the ICAO SAM Regional Office in Lima, or from any other node, to the node requiring them, including coordination with the factories for the repair of the equipment, payment for any transportation and costs involved, as well as coordination and support to States for any import and export involved.

3.34 The Meeting was informed that since RCC/19, three (3) logistical operations were carried out. The summary of equipment failures and spare parts is shown in **Appendix J** (See Appendix K to the WP03). In the **Appendix K** (See Appendix L to the WP03) is presented the statistics pertaining to the amount of attentions provided to the network node, as well as their distribution as regards the type of equipment originating the attention since RCC/19 meeting. In the **Appendix L** (See Appendix M to the WP03) is presented the network availability chart since 2004, up to the end of 2016.

INITIAL ANALYSIS OF RISK THREATS

| THREATS   | IDENTIFIED   | CONSIDERATIONS   | PROPOSED ACTIONS   |
|---|--|--|--|
| INTERNAL TO THE REDDIG (satellite subnetwork and ground subnetwork) | LEVEL 3 MPLS ground subnetwork   | The ground network runs over VPN MPLS, provided by a provider, Level 3. The Administrator or users of REDDIG II do not manage the network devices, let alone the network itself, which is supposed to be meshed, and with QoS for prioritising the relevant packages.  | <ul style="list-style-type: none"> <li>* The service provider of the ground subnetwork (Level 3) should inform if security standard RFC 592 is being applied. (activity done)</li> <li>* NAT should be used in border routers of States between the REDDIG II node and the ground subnetwork of Level 3. Information could also be encrypted.</li> </ul>   |
|   | Remote access through the public internet to the REDDIG II by VPN.                   | In REDDIG II, the INEO & LEVEL 3 consortium has considered that each REDDIG II node must have a VPN interface installed for remote access to network equipment (routers, MODEMS, amplifiers) in case of failure or changes in configuration. At present, VPN is operational in the nodes of Brasilia, Ezeiza, and Manaus. VPN has been installed in Montevideo (Uruguay) and Guayaquil (Ecuador), but it is not operational yet. The INEO & Level 3 consortium is using this access to correct problems with the equipment at node level or changes in configuration, and will continue to do so until the network is delivered to the Project (RLA/03/901), which will occur following final acceptance of the network. This access will also be used during the warranty period (two years following final acceptance of the network). | <ul style="list-style-type: none"> <li>* Once the network is transferred to ICAO, VPN access will be manual upon request of the REDDIG Administrator. This will reduce hazards resulting from continuous connection of REDDIG II to public IP networks.</li> </ul>   |
|   | Human factors  | Great caution should be exercised during human intervention at the nodes, introduction of new software configuration settings, loading of information stored in the equipment, etc., to avoid potential viruses contained in CDs or memory sticks.   | <ul style="list-style-type: none"> <li>* Since tampering occurs through the network management system (NMS), the Whatsup Gold software antivirus should be constantly updated.</li> <li>* Once the network is fully managed by ICAO, all access passwords will be changed. It should be noted that, at that point, all network operators know the passwords of all REDDIG II nodes. Only the Network Administrator and the NCC staff that are duly authorised by the Administrator through the assignment of a login and password, will have access to the network. The management, configuration, and recording of activities will be the responsibility of the Network Administrator.</li> <li>* Personnel in charge of node maintenance will only have access to their own node, using a personal login and password assigned by the Administrator.</li> <li>* All networking equipment configuration activities will be recorded in a server, to which the Administrator will have access. All access and changes by authorised personnel will be recorded therein.</li> </ul> |
|   |  | Changes made by users to REDDIG networking equipment configuration settings, when such changes are not desirable or affect services.   | <ul style="list-style-type: none"> <li>* Automatic backup of all network equipment at predefined time settings, in order to keep the latest configuration in case of contingencies.</li> <li>* The group also considered the need for the NMS server to continuously record the configuration settings of the various pieces of equipment in order to keep track of previous versions, thus ensuring the possibility of going back to a previous version in case the new version presents any problem.</li> </ul>  |
| EXTERNAL TO THE REDDIG II   | External to the REDDIG, that is, at the level of users accessing the network         | This refers to REDDIG II users. The types of services that enter the REDDIG from the users' side are speech and data circuits, and are the most vulnerable in terms of network security.   | <ul style="list-style-type: none"> <li>* In order to identify potential hazards, a survey of circuit connections to REDDIG II input interfaces should be conducted. This survey would make it possible to determine if any circuits or services entering the network come from a public network.</li> <li>* Services and circuits should be interconnected through a border router rather than directly to REDDIG routers.</li> <li>* Border routers should have the appropriate firewalls.</li> <li>* Conduct a study of a standard firewall to be installed in all border routers so as to standardise the level of security in all points of access to the REDDIG nodes.</li> </ul>   |
| Other considerations  | The aspects to be considered are related to the protection of REDDIG II frequencies. | Other aspects to be considered in order to avoid risks to the REDDIG II.   | <ul style="list-style-type: none"> <li>* Prepare an inventory of licensed equipment (satellite frequency spectrum) in each node. *Registration of State licensed equipment locally and/or in the MIFR, reflected in a database (software).</li> <li>*Continuous monitoring and tracking of the radioelectric spectrum used in REDDIG nodes, in order to avoid causing, or being subject to, interference.</li> <li>*With the support of the ITU, exert control of interference threats, invoking ITU RR Article 45 CS and 15.1.</li> <li>*Work group duly trained in interference control and mitigation. *</li> <li>Implementation of security policies.</li> <li>* Keep the network topology duly updated and available.</li> </ul>  |
|   | Aspects to be considered for the implementation of an adequate security policy.      |  | <ul style="list-style-type: none"> <li>* Assign login and passwords to those responsible for each node, so as to limit and control the facilities granted for the management of networking devices of the network.</li> <li>*In principle, establish two groups: administrators with access to the whole network; and designated users with access solely to the equipment of their node.</li> <li>*Prevent forceful attempts to access the network through the establishment of time parameters for entering the respective code in the device.</li> </ul>  |

**Agenda Item 4: Work plan for year 2017**

4.1 Under this agenda item, two working papers were presented:

- WP/04 – *Activities foreseen for the period 2017* (Presented by the Secretariat).
- WP/07 – *Space-based ADS-B surveillance data and its distribution via REDDIG II* (Presented by AIREON).

**WORK PLAN FOR YEAR 2017**

4.2 The Meeting considered the following activities scheduled for 2017:

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

**REDDIG II TRAINING PROGRAMME**

4.3 The Meeting took note that the following training activities had been scheduled for 2017:

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

*Operation of the REDDIG II Advanced Course*

4.4 The Meeting took note that this course was addressed to the technical staff responsible for the operation and maintenance of the REDDIG station, which had previously attended the basic course. Among the aspects to be addressed, the course would emphasize the operation and management of the Skywan 1070/7000 modem, with a theoretical-practical description of the 'Line Up Manager' software, as well as 'troubleshooting' of the station components. **Appendix A** (see Appendix A to WP/04) presents the contents of this course.

4.5 The Meeting approved the conduction of this course, which would last four days and would be delivered tentatively in Manaus, Brazil from 13 to 16 June 2017. Brazil would confirm the availability of Manaus as the venue for this course by mid April 2017. In case Manaus were not able to host the course, it would be held in Lima. For this event, the Meeting approved the granting of two fellowships for each REDDIG node, as well as simultaneous interpretation services.

*Course on IP networks, applied to the REDDIG*

4.6 The Meeting took note that this course was addressed to technical staff with IP network knowledge and responsible for the operation and maintenance of the REDDIG station. The content would be the same as the CISCO ICND 1 and ICND2 courses, but focusing on current REDDIG equipment and services, with virtual labs using “Packet Tracer”.

4.7 The Meeting approved the conduction of this course, which was foreseen to be delivered in five days from 16 to 20 October 2017. The REDDIG Administration would arrange for the course to be prepared and dictated by two attendees to both CISCO ICND 1 and ICND2 courses. The Meeting

approved the granting of one fellowship for each member State of project RLA/03/901 as well as simultaneous interpretation services. The course would tentatively be conducted in Manaus. In this regard, Brazil would inform by mid April 2017 about the possibility of conducting the course in Manaus; if this were not possible, it would be held in Lima.

*SKYWAN IDU 7000/1070 “Network Commission & Operation”*

4.8 The Meeting took note that this course, which was intended for NCC staff (Manaus and Ezeiza) and whose main objectives were the planning and setting of an entire SKYWAN network, the configuration of the relevant network management parameters, the monitoring and control of the relevant network operation parameters, and the sustainability of its service level (see course 8240 of NDSATCOM Appendix E to WP/03), had been postponed until 2018.

4.9 The delegate of Venezuela reported that to the date they have an only technical trained in the REDDIG being necessary the training of more people. On this respect, the administrator of the REDDIG urged the Aviation Administration of Venezuela that ensures the active participation in the courses to be held in 2017.

**REDDIG II OPERATIONS AND ANALYSIS OF THE IMPLEMENTATION OF NEW SERVICES**

4.10 The Meeting took note of the following 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*

4.11 The Meeting took note of pending activities to be performed during 2017 by INEO:

- Replacement of LNB in remaining REDDIG II nodes: Asuncion, 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 bandwidth (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.

4.12 The Meeting ratified that the FSAT (final acceptance test) of the REDDIG II would be carried out once all the aspects contemplated in the previous paragraph had been accomplished.

*Relocation of the Bogota node*

4.13 The Meeting took note that, as a result of the site inspection conducted on 19 and 20 February 2017, INEO would submit a new offer for the relocation of the Bogota node by the end of March 2017. The Aeronautical Administration of Colombia, upon receiving the offer, would proceed with the corresponding analysis and possible approval.

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

4.14 The Meeting recalled that Argentina had informed the RCC/19 Meeting that, due to the construction of a new control centre in Ezeiza, it would be necessary to install a new REDDIG II node and relocate the current node of Ezeiza to the Airport of Cordoba. Argentina requested the Secretariat to ask INEO to submit an economic proposal in this sense.

4.15 The Meeting also took note that, following the request of the Secretariat and after clarifying some installation aspects among Argentina, the REDDIG Administration and INEO, INEO had sent on 21 December 2016 an economic proposal for the installation of a new REDDIG node at the facilities where the new control centre and the Ezeiza control tower would operate.

4.16 The Meeting took note that the economic proposal included outdoor equipment and services, installation of services, documentation, and testing and delivery of equipment. In this regard, the Secretariat requested Argentina to give INEO commentary on the proposal so that INEO could send the economic proposal to the Technical Cooperation procurement section of ICAO in Montreal, in order to start the installation process of the new REDDIG II node through the current REDDIG II contract. **Appendix B** (see Appendix B to WP/04) to this agenda item contains the tentative timetable presented by INEO on 18 November 2016.

*Sixth Technical – Operational Meeting of the REDDIG II*

4.17 The Meeting took note that the Sixth Technical – Operational Meeting of the REDDIG II would be held tentatively in Manaus, Brazil, on 12 June 2017, one day before the Operation of REDDIG II Advanced Course. Two fellowships for each State and simultaneous interpretation services were foreseen for this event. If it were not possible to hold the course in Manaus, it would be held in Lima, Peru.

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

4.18 The Meeting took note that the implementation of new AMHS circuits was foreseen for 2017. **Appendix C** (see Appendix C to WP/04) presents a chart with the circuits to be implemented and the estimated implementation dates.

4.19 Furthermore, the Meeting took note that the exchange of radar data and AIDC were still pending (the latter already being implemented through the existing AFTN/AMHS circuits) as part of the ATM automation contained in the project regional planning. It was expected that the exchange of radar data between Argentina-Chile, Ecuador-Peru and Venezuela-Brazil would be completed.

4.20 Regarding the MEVAIII – REDDIG II interconnection, the Meeting took note that implementation of AMHS between Bogota-Panama, Lima-Atlanta, Brasilia-Atlanta and the exchange of radar data between Venezuela and Trinidad & Tobago was foreseen for 2017.

*New REDDIG Administrator*

4.21 The Meeting took note that the REDDIG Administrator, Mr. Luis Alejos, would be leaving his position on 30 June 2017 upon reaching his retirement date. In this sense, the Meeting acknowledged Mr. Alejos for his excellent work since 15 September 2003 and wished him all success in this new stage of his life.

4.22 Regarding the hiring of the new REDDIG II Administrator, the Meeting took note that, on 14 December 2016, the SAM Regional Office had sent a letter to the technical cooperation section in Montreal to begin the hiring process. To date, ICAO had not yet published the announcement to fill the vacancy.

4.23 The Meeting expressed its concern and urged ICAO to expedite the selection process in order to have the vacancy filled by early May 2017 to allow the new administrator to share functions with the current administrator for a period of two months and achieve a seamless transfer of duties. Otherwise, air navigation safety in the SAM Region would be affected, especially as concerns ATS speech communications between ATS units and data transfer (NOTAMs, flight plans, etc.). In this regard, the Meeting formulated the following conclusion:

**Conclusion RCC/20-4          Urgent selection of the new REDDIG Administrator**

That ICAO, in order to ensure the continued security of air navigation services through REDDIG II, expedite the process of selection of the new REDDIG II Administrator, to allow the new administrator to take office by early May 2017 and thus share duties with the current REDDIG II Administrator during a transition period until 30 June 2017 to ensure operational continuity.

**SPACE ADS-B SURVEILLANCE DATA AND ITS DISTRIBUTION THROUGH REDDIG II**

4.24 The Meeting was informed about the AIREON programme, the distribution of AIREON data, as shown in **Appendix D** (see WP/07) to this agenda item. This Appendix explains the composition of AIREON, the operation of space ADS-B, some considerations about space ADS-B surveillance data and its distribution through REDDIG II, including a diagram in this regard, and REDDIG II ADS-B surveillance data requirements.

4.25 In this sense, the Meeting considered that REDDIG II met the networking requirements for the distribution of space ADS-B surveillance data, such as availability, latency, multicasting, and segregation of surveillance data for each of the ANSPs connected thereto.

4.26 Upon analysing the connection settings between the space ADS-B data processing centre and REDDIG II through two geographically-redundant communication channels, the Meeting considered that the analysis of the *sun outage* effect would be taken into account when selecting the two geographical locations to be connected to REDDIG II, in such a way that only one of such locations would be affected.

4.27 Regarding bandwidth utilisation, the Meeting took note that ADS-B messages were small in terms of bytes, and that the link between AIREON and the ANSPs did not require much bandwidth.

4.28 In order to determine if the bandwidth available in the satellite and ground networks of REDDIG II would meet the space ADS-B bandwidth requirements in an environment in which all REDDIG II member States required space ADS-B services to support all route, approach, and terminal

area procedures at national level, the Meeting requested AIREON to provide the bandwidth requirements for such environment. In this sense, AIREON informed that it would have this requirement ready by mid May 2017, and would provide the information in the course of a teleconference with all the members and the Administration of REDDIG II on 16 May 2017. AIREON also noted that it would submit a working paper at the SAM IG/19 meeting containing full information about the distribution of space ADS-B data and estimated costs, so that a cost-benefit analysis could be performed at regional level.

**Agenda Item 5: Financial situation of the project and approval of the Budget**

**5.1** Under this Agenda Item, the Meeting took note of the expenses incurred by project RLA/03/901 and **the situation of cost-sharing contributions in 2016.**

***Summary of expenditures incurred by Project RLA/03/901 between 2003 and 2016***

5.2 Table # 1 shows the expenditures incurred by project RLA/03/901. The Project spent **USD 1,071,660** in 2016, and a total of **USD 12,520,337** from 2003 to 2016.

5.3 Table # 2 contains a bar chart with the distribution of project expenditures by year, as well as a pie chart showing the percentage of implementation of each budget component.

***Status of cost sharing contributions***

5.4 The Meeting took note of the status of the cost-sharing contributions listed in Table # 3. To date, the total contributions amount to **USD 14,428,832**. Subtracting the costs of **USD 12,520,337**, there is a positive balance of **USD 1,908,495**.

5.5 With regard to the pending contributions, note was taken that Suriname reported having been made a deposit of USD 80,000 on March 2017, as part of their pending contributions as detailed in follow-up to Conclusion 19/1 (Appendix to Agenda Item 2). In this sense the Secretariat will confirm the deposit with ICAO headquarters. The above indicated Tables 1, 2 and 3 are shown in **Appendix A**.

5.6 Afterward, the Meeting was reminded that revision S to the project RLA/03/901 is in force until year 2018. In addition, as established in the project document it has duration of 5 years, renewable for equal terms. Therefore, in view of the administrative time the arrangements of an extension of the project takes and in order to ensure the proper uninterrupted functioning of the REDDIG, it was proposed to start arrangements for the extension of the project until December 31, 2023.

5.7 In this sense the Meeting took note on the proposal for budget extension until 31 December 2023 in review "S" to the regional project RLA/03/901; that includes the updating of actual expenditures incurred in 2016 and rectifies the deposit made by Paraguay in 2013 for the relocation of an antenna; other contributions, which was now placing it in the contributions of Paraguay to simplify the tracking of the formulas and project costs. In this regard, the Meeting adopted the following conclusion:

**Conclusion RCC/20-5 Extension of Project RLA/03/901**

Review S to the Project RLA/03/901 is approved with budgeted extension until 31 December 2023, which is presented as **Appendix A**.

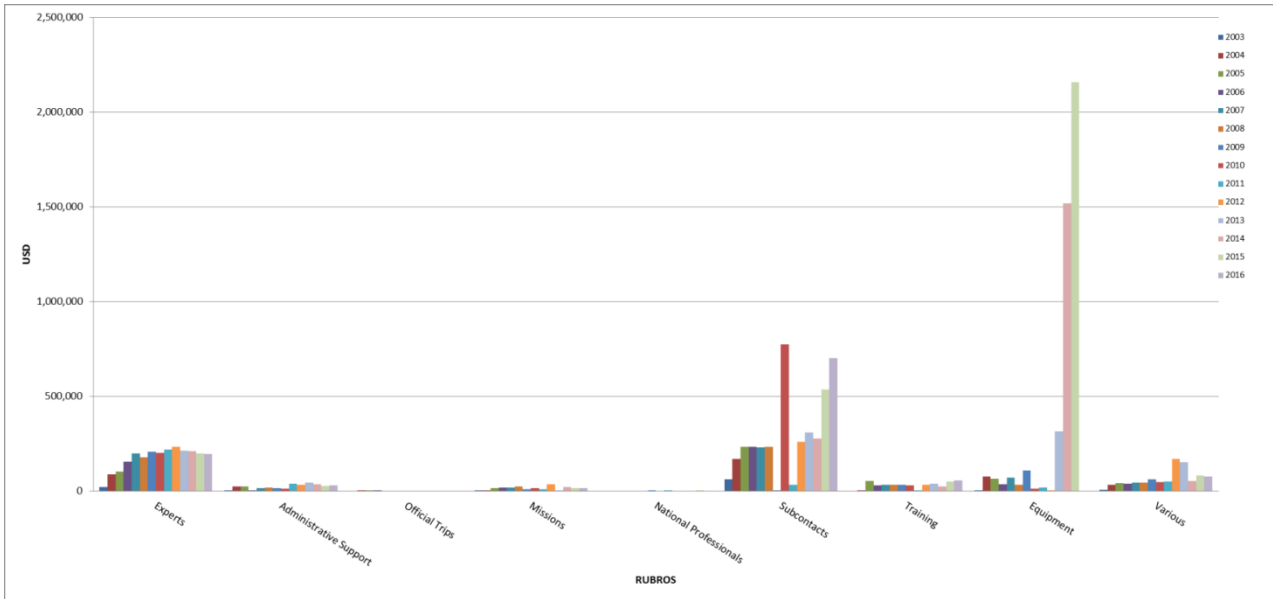
That, the ICAO South American Regional Office takes pertaining actions that allows the approval of the review to project RLA/03/901 by ICAO headquarters, for its subsequent submission to the REDDIG member States.

## APPENDIX A

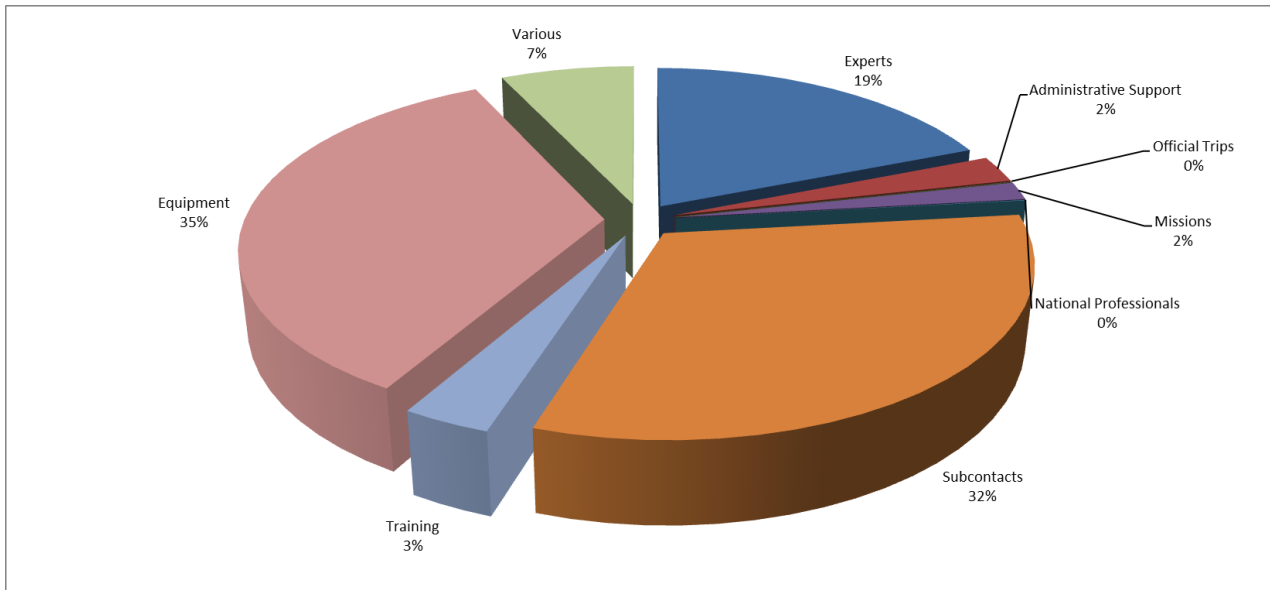
Table # 1 - Detailed breakdown of expenditures up to 31 December 2016

| CONCEPTO                                       | 2003          | 2004           | 2005           | 2006           | 2007           | 2008           | 2009           | 2010           | 2011           | 2012           | 2013             | 2014             | 2015             | 2016             | TOTAL             |
|--|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|------------------|------------------|-------------------|
| <b>BL 11 Expertos</b>                          |               |                |                |                |                |                |                |                |                |                |                  |                  |                  |                  |                   |
| Administrador REDDIG                           | 22,359        | 93,953         | 101,296        | 156,503        | 197,784        | 177,449        | 207,289        | 201,030        | 209,250        | 232,544        | 212,112          | 211,011          | 197,473          | 194,720          | 2,414,773         |
| Consultores                                    |               | -6,303         |                |                |                | 1,499          |                |                | 9,200          | 0              | 0                | 0                |                  |                  | 4,396             |
| <b>BL 13 Apoyo Administrativo</b>              |               |                |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 0                 |
| 13-01 Secretaria bilingüe                      | 354           | 12,185         | 12,551         |                | 15,968         | 11,471         | 16,497         | 14,066         | 19,086         | 19,443         | 17,183           | 17,571           | 15,864           | 19,991           | 192,230           |
| 13-02 Técnico REDDIG                           |               | 12,000         | 12,108         | 711            |                |                |                |                |                |                |                  |                  |                  |                  | 24,819            |
| 13-04 Secretaria bilingüe (liquidación)        |               |                |                |                |                | 7,516          |                |                |                |                |                  |                  |                  |                  | 7,516             |
| 13-05 Asistente administrativo y financiero    |               |                |                |                |                |                |                |                | 10,670         | 12,831         | 15,508           | 9,254            | 11,366           | 11,046           | 70,675            |
| 13-06 Auxiliar de Tecnología de la información |               |                |                |                |                |                |                |                | 8,931          | 107            | 11,425           | 7,798            |                  |                  | 28,261            |
| <b>BL 15 Viajes Oficiales</b>                  |               | 321            | 925            | 499            |                |                |                |                |                | 0              | 0                | 0                |                  |                  | 1,745             |
| <b>BL 16 Misiones</b>                          | 3,504         | 4,110          | 16,732         | 18,642         | 18,357         | 25,718         | 10,615         | 14,110         | 10,250         | 36,747         | 5,075            | 20,306           | 15,372           | 15,115           | 214,653           |
| <b>BL 17 Profesionales Nacionales</b>          |               |                |                |                |                |                | 2,080          |                | 961            |                |                  | 0                | 1,769            |                  | 4,810             |
| <b>BL 20 Subcontratos</b>                      |               |                |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 20                |
| 21-01 Pan Am sat (P.O. 40670)                  |               |                |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 0                 |
| 21-01 P.O. 30473(1 Oct 2003 a 31 Dic 2003)     | 62,727        |                |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 62,727            |
| 21-01 P.O. 40670 ( 1 Ene 2005 a 31 Dic 2008)   |               | 168,849        | 231,264        | 231,264        | 231,264        | 231,264        |                |                |                |                |                  |                  |                  |                  | 1,093,905         |
| 21-01 Alquiler 2009-2011                       |               |                |                |                |                |                |                | 462,528        |                |                |                  |                  |                  |                  | 462,528           |
| 21-01 Alquiler 2012-2014                       |               |                |                |                |                |                |                |                |                | 233,826        | 231,264          | 231,264          |                  |                  | 696,354           |
| 21-01 Alquiler 2015-2018                       |               |                |                |                |                |                |                |                |                |                |                  |                  | 465,111          | 231,264          | 696,375           |
| 21-02 Network Access                           |               |                |                |                |                |                |                |                | 32,831         | 24,650         | 77,518           | 45,039           | 69,486           | 61,797           | 311,321           |
| 21-07 MEVA/REDDIG No Recurrente                |               |                |                |                |                |                |                | 75,071         |                |                |                  | 0                |                  | 404,564          | 479,635           |
| 21-98 Seguro de responsabilidad profesional    |               | 845            | 1,156          | 3,469          |                | 1,156          | 1,156          | 2,161          |                | 0              | 0                | 0                |                  | 2,738            | 12,681            |
| <b>BL 39 Instrucción</b>                       |               | 3,014          | 53,862         | 30,553         | 34,044         | 32,852         | 34,413         | 35,842         | 5,130          | 33,591         | 38,422           | 23,731           | 50,770           | 54,872           | 431,095           |
| <b>45-01 Repuestos</b>                         |               | -12,752        | 59,541         | 36,311         | 71,637         | 33,997         | 108,509        | 12,507         | 2,896          | 635            | 2,307            | 5,057            |                  |                  | 320,645           |
| <b>45-02 Equipo de Oficina</b>                 | 82            | 0              | 2,083          | -30            | 0              | 0              | 0              | 0              | 3,402          | 757            | 4,421            | 0                | 1,820            |                  | 12,535            |
| 45-03 Operación / Mantenimiento Equipos Of     |               | 1,716          |                |                |                |                |                | 0              | 2,009          |                | 0                |                  |                  |                  | 3,725             |
| 45-03 PO 50522 VIASAT Reparación Modem SYGC    |               |                | 1,603          |                |                |                |                |                |                |                |                  |                  |                  |                  | 1,603             |
| 45-03 CB LIMA                                  |               |                | 179            |                |                |                |                |                |                |                |                  |                  |                  |                  | 179               |
| 45-04 Transferencia del NCC de SPIM a SBMN     |               |                |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 0                 |
| 45-04 P.O. 040694 VIASAT                       |               | 8,250          |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 8,250             |
| 45-04 P.O. 040687 MEMOTEC                      |               | 4,250          |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 4,250             |
| 45-05 Extensión del contrato SEEE (P.O. 40489) |               | 50,000         |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 50,000            |
| 45-06 Red de respaldo SEEE (P.O. 04090)        |               | 24,820         |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 24,820            |
| 45-09 Equipo para interconexión MEVA-REDDIG    |               |                |                |                |                |                |                |                | 9,439          |                |                  |                  |                  |                  | 9,439             |
| 45-10 Adquisición REDDIG II                    |               |                |                |                |                |                |                |                |                |                | 285,455          | 1,518,534        | 2,156,081        |                  | 3,960,070         |
| 45-98 Seguro de responsabilidad profesional    |               | 444            | 284            | 246            |                | 130            | 1,109          | 0              |                | 0              | 0                | 0                |                  |                  | 2,213             |
| <b>50 VARIOS</b>                               |               |                |                |                |                |                |                |                |                |                |                  |                  |                  |                  | 0                 |
| 53-01 Gastos varios                            | 643           | 4,726          | 4,475          | 1,150          | 8,688          | 4,632          | 3,703          | 9,157          | 13,351         | 11,518         | 29,889           | 10,698           | 13,592           | 11,471           | 127,693           |
| 53-02 Cargos PNUD                              |               | 118            | 505            | 337            |                |                | 3,318          |                |                |                | 0                |                  |                  |                  | 4,278             |
| 55.01 Costos administrativos                   | 6,439         | 28,795         | 35,817         | 37,372         | 34,601         | 39,503         | 55,621         | 33,357         | 36,539         | 157,229        | 140,757          | 41,566           | 68,460           | 64,082           | 780,138           |
| <b>TOTAL</b>                                   | <b>96,108</b> | <b>399,341</b> | <b>534,381</b> | <b>517,027</b> | <b>612,343</b> | <b>567,187</b> | <b>444,309</b> | <b>859,829</b> | <b>373,945</b> | <b>763,878</b> | <b>1,071,336</b> | <b>2,141,829</b> | <b>3,067,164</b> | <b>1,071,660</b> | <b>12,520,337</b> |

**Table # 2**  
**Distribution of project expenditures per year**



**Percentage of implementation by each budget component**



**Table # 3 - Status of cost-sharing contributions to Project RLA/03/901**

RESUMEN DE LA SITUACIÓN DE LAS CONTRIBUCIONES AL PROYECTO RLA/03/901  
(en dólares de los EE.UU.)

6-Mar-17

|                    | 2003-2009        |                  | 1 Julio 2010   |                | 1 Julio 2011   |                  | 1 Julio 2012     |                  | 1 Julio 2013     |                  | 1 Julio 2014     |                  | 1 Julio 2015   |                | 1 Julio 2016   |                | 1 Julio 2017   |               | Totales (hasta 2016) |                   |                  |
|--------------------|------------------|------------------|----------------|----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------------|-------------------|------------------|
|                    | Cuota            | Pagado           | Cuota          | Pagado         | Cuota          | Pagado           | Cuota            | Pagado           | Cuota            | Pagado           | Cuota            | Pagado           | Cuota          | Pagado         | Cuota          | Pagado         | Cuota          | Pagado        | Cuotas               | Pagado            | Deben            |
| Argentina          | 394,826          | 396,125          | 86,201         | 0              | 82,500         | 167,402          | 363,218          | 0                | 123,934          | 487,132          | 73,193           | 0                | 49,025         | 0              | 41,052         | 73,193         | 61,453         |               | 1,275,402            | 1,123,852         | 151,550          |
| Bolivia            | 231,198          | 231,198          | 48,039         | 48,039         | 43,924         | 43,924           | 324,355          | 43,105           | 74,603           | 344,060          | 63,265           | 63,265           | 52,959         | 52,959         | 45,776         | 45,776         | 39,874         |               | 923,993              | 872,326           | 51,667           |
| Brasil             | 647,488          | 647,373          | 137,644        | 142,700        | 148,003        | 148,003          | 993,893          | 993,893          | 193,683          | 235,239          | 193,683          | 147,186          | 150,145        | 150,672        | 128,044        | 128,044        | 168,503        |               | 2,761,086            | 2,593,110         | 167,976          |
| Chile              | 266,223          | 266,223          | 1,000          | 1,000          | 45,000         | 45,000           | 44,791           | 44,791           | 346,919          | 354,930          | 59,361           | 52,360           | 51,603         | 50,593         | 44,496         | 44,496         | 34,401         | 8,000         | 893,794              | 867,393           | 26,401           |
| Colombia           | 343,804          | 343,804          | 0              | 0              | 67,201         | 67,201           | 346,822          | 412,394          | 65,572           | 0                | 73,166           | 73,166           | 60,388         | 60,388         | 46,842         | 46,842         | 46,425         |               | 1,050,220            | 1,003,795         | 46,425           |
| Ecuador            | 222,167          | 222,167          | 35,000         | 35,000         | 35,000         | 35,000           | 328,951          | 328,951          | 63,882           | 65,598           | 63,882           | 62,116           | 58,880         | 58,880         | 51,992         | 0              | 41,861         |               | 901,615              | 807,712           | 93,903           |
| Francia            | 215,539          | 215,529          | 24,092         | 24,092         | 42,203         | 42,178           | 323,622          | 323,572          | 62,981           | 0                | 62,981           | 62,951           | 51,677         | 114,683        | 44,716         | 44,776         | 33,725         |               | 861,536              | 827,781           | 33,755           |
| Guyana             | 180,957          | 156,838          | 30,000         | 43,870         | 30,000         | 63,148           | 314,398          | 328,347          | 57,193           | 21,696           | 57,193           | 57,173           | 60,077         | 66,041         | 53,755         | 58,555         | 39,512         |               | 823,085              | 795,669           | 27,416           |
| Paraguay           | 225,685          | 225,685          | 47,056         | 0              | 40,162         | 87,148           | 323,098          | 41,848           | 68,543           | 349,658          | 60,562           | 0                | 47,266         | 0              | 42,589         | 107,978        | 42,589         | 42,589        | 897,550              | 854,906           | 42,644           |
| Peru               | 343,305          | 343,305          | 78,271         | 0              | 77,000         | 155,271          | 349,287          | 349,287          | 76,474           | 76,474           | 76,474           | 0                | 58,961         | 58,961         | 50,614         | 127,088        | 59,719         |               | 1,170,105            | 1,110,386         | 59,719           |
| Suriname           | 188,377          | 107,198          | 30,000         | 0              | 30,000         | 111,164          | 318,461          | 29,983           | 62,017           | 281,233          | 60,407           | 0                | 58,183         | 0              | 51,392         | 80,000         | 37,947         |               | 836,784              | 609,577           | 227,207          |
| Uruguay            | 301,446          | 290,239          | 30,000         | 29,970         | 30,000         | 29,971           | 325,269          | 333,134          | 63,551           | 66,541           | 63,551           | 63,516           | 57,836         | 58,240         | 51,911         | 51,869         | 42,684         |               | 966,248              | 923,481           | 42,767           |
| Venezuela          | 325,151          | 325,151          | 88,967         | 88,967         | 80,000         | 80,000           | 368,283          | 87,033           | 85,800           | 382,230          | 85,800           | 70,580           | 56,119         | 56,119         | 43,626         | 43,626         | 56,530         |               | 1,190,276            | 1,133,706         | 56,570           |
| Trinidad y Tabago  | 147,467          | 147,447          | 30,000         | 29,980         | 30,000         | 0                | 318,571          | 318,528          | 45,913           | 91,605           | 63,355           | 47,731           | 52,454         | 52,454         | 45,584         | 45,584         | 29,289         |               | 762,633              | 733,329           | 29,304           |
| COCESNA            | 0                | 0                | 46,000         | 0              | 19,193         | 65,145           | 19,193           | 19,178           | 19,193           | 19,178           | 19,193           | 19,185           | 49,124         | 0              | 19,193         | 49,124         | 19,193         |               | 210,282              | 171,810           | 38,472           |
| <b>Sub-Totales</b> | <b>4,033,633</b> | <b>3,918,282</b> | <b>712,270</b> | <b>443,618</b> | <b>800,186</b> | <b>1,140,555</b> | <b>5,062,212</b> | <b>3,654,044</b> | <b>1,410,258</b> | <b>2,775,574</b> | <b>1,076,066</b> | <b>719,229</b>   | <b>914,697</b> | <b>779,991</b> | <b>761,582</b> | <b>946,951</b> | <b>753,705</b> | <b>50,589</b> | <b>15,524,609</b>    | <b>14,428,832</b> | <b>1,095,777</b> |
| Intereses          | 59,772           | 59,772           | 785            | 785            | 468            | 468              | 2,776            | 2,776            | 6,760            | 6,760            | 6,620            | 6,620            | 6,537          | 6,537          | 0              | 0              |                |               | 83,718               | 83,718            |                  |
| Otros aportes      | -75              | -75              | -15            | -15            | 379            | 379              | -164             | -164             | 84,807           | 84,807           | 354,341          | 354,341          | 107            | 107            | 0              | 0              |                |               | 439,380              | 439,380           |                  |
| <b>Sub-Totales</b> | <b>59,697</b>    | <b>59,697</b>    | <b>770</b>     | <b>770</b>     | <b>847</b>     | <b>847</b>       | <b>2,612</b>     | <b>2,612</b>     | <b>91,567</b>    | <b>91,567</b>    | <b>360,961</b>   | <b>360,961</b>   | <b>6,644</b>   | <b>6,644</b>   | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>      | <b>523,098</b>       | <b>523,098</b>    |                  |
| <b>Totales</b>     | <b>4,093,330</b> | <b>3,977,979</b> | <b>713,040</b> | <b>444,388</b> | <b>801,033</b> | <b>1,141,402</b> | <b>5,064,824</b> | <b>3,656,656</b> | <b>1,501,825</b> | <b>2,867,141</b> | <b>1,437,027</b> | <b>1,080,190</b> | <b>921,341</b> | <b>786,635</b> | <b>761,582</b> | <b>946,951</b> | <b>753,705</b> | <b>50,589</b> | <b>16,047,707</b>    | <b>14,951,930</b> | <b>1,095,777</b> |

**NOTE: Some differences between the amount deposited by the States and that shown by ICAO are due to transaction costs or exchange rates.**

**Agenda Item 6: Annual project evaluation**

6.1 Under this Agenda Item, the Meeting took note on the information submitted in WP/06 regarding the Project appraisal documents, namely:

- a) Project status as of 31 December of each year and management and result indicators (WP/06, Appendix A);
- b) Project monitoring and control, work plan for year 2017 (WP/06, Appendix B); and,
- c) Survey on management and result indicators (WP/06, Appendix C).

6.2 The survey on management and result indicator for 2016 was completed by Argentina, Brazil, Chile, Guyana, French Guiana (France), Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela whose comments and ratings show an average of 4.4 on a maximum of 5 set in the average scale. The score indicates that “project objectives were achieved in all cases” with respect to the working plan executed in 2016. The consolidated information is shown as **Appendix** to this Agenda Item.

6.3 Among comments on the assessment of project objectives and management, were highlighted the need to improve the network security and ensure the REDDIG Administration continuousness in view of the delay in appointing new Administrator.

6.4 On the other hand, it was noted that an identified problem remained is the difficulty of customs times of each State. In addition it was proposed to improve quality control at the time of installation, be with prior training or information for the staff of the State on the pertinent points to look out during installation.

**APPENDIX**

**3. SURVEY ON MANAGEMENT AND OUTPUTS INDICATORS**

**Section I: Evaluation of current project**

**Section II: Assessment of compliance with objectives**

**Section III: Evaluation of implementation and delivery of services by ICAO**

**Section IV: Lessons learned**

|     |  |
|-----|--|
| 5.0 | Exceptional results beyond project requirements              |
| 4.5 | Exceeds requirements   |
| 4.0 | Project objectives were achieved in all cases                |
| 3.5 | Most of the project's objectives were achieved               |
| 3.0 | Some quality results were achieved and implemented           |
| 2.5 | Some quality results were achieved but are not implementable |
| 2.0 | Some results were achieved with little impact and quality    |
| 1.5 | Below the expected results                                   |
| 1.0 | Well below the expected results                              |

|       |     |
|-------|-----|
| Total | 4.4 |
|-------|-----|

**3. SURVEY ON MANAGEMENT AND OUTPUTS INDICATORS**  
**I. EVALUATION OF CURRENT PROJECT**

| <b>1.-Project objectives</b>   |  | <b>Evaluation</b> |
|--|--|-------------------|
| <b>Do you think the project's objectives are set correctly according to the development priorities of your State in relation to the National Air Navigation Plan to serve the reality of civil aviation?</b> |  |                   |
| ARG  |  | 4                 |
| BRA  |  | 4                 |
| CHI  | Yes, the objectives of the project are in accordance to the PNNA.  | 4.5               |
| FRA  | Yes, the project fits correctly our objectives.  | 4                 |
| GUY  |  | 4                 |
| PAR  | The objectives of the project are set correctly according to the priorities of our State regarding the National Air Navigation Plan. | 4.5               |
| PER  |  | 4                 |
| SUR  |  | 4                 |
| T&T  | Yes it is.   | 4.5               |
| URU  |  | 4                 |
| VEN  |  | 4                 |
| <b>AVERAGE</b>   |  | <b>4.1</b>        |

| <b>2.- Support at regional and global level</b>  |   | <b>Evaluation</b> |
|--|---|-------------------|
| <b>Do you think that the project responds and supports your administration with the commitments of the Regional and Global Air Navigation Plans?</b> |   |                   |
| ARG  |   | 4                 |
| BRA  |   | 5                 |
| CHI  | Yes, the project responds and supports the commitments of our administration before the PNA, Regionally and Globally. | 5                 |
| FRA  | Yes.  | 4.5               |
| GUY  |   | 4.5               |
| PAR  | The project strongly supports the compromise of our State before the Regional and Global Air Navigation Plan.         | 4.5               |
| PER  |   | 4.5               |
| SUR  |   | 4                 |
| T&T  | Yes.  | 4.5               |
| URU  |   | 4                 |
| VEN  |   | 4.5               |
| <b>AVERAGE</b>   |   | <b>4.5</b>        |

| <b>3.-Comments of the State(s)</b>                               |  | <b>Evaluation</b> |
|--|--|-------------------|
| <b>Do you have any comments on the direction of the project?</b> |  |                   |
| ARG  |  |                   |
| BRA  | Worried about the continuation of the REDDIG administration with the selection of the new administrator.           |                   |
| CHI  | The direction of the project satisfies and is in accordance with the settled objectives.                           | 4.5               |
| FRA  | No.  | 4.5               |
| GUY  |  |                   |
| PAR  | The Direction of the Project is fully committed with the objectives of the Project and promotes the participation. | 4.5               |
| PER  |  |                   |
| SUR  |  |                   |
| T&T  |  | 4.5               |
| URU  |  | 5                 |
| VEN  |  |                   |
| <b>AVERAGE</b>   |  | <b>4.6</b>        |

| 4.-Strategy and vision   |  | Evaluation |
|--|--|------------|
| Do you consider that the project meets your institution's strategy and vision that has at long term? |  |            |
| ARG  |  | 4.5        |
| BRA  |  | 5          |
| CHI  | Yes, considering that the mission of our institution aims to be an intelligence public service, of excellence and environment responsibility that contributes to the safety, sustainable and effective development of the air activity in the country. | 4.5        |
| FRA  | Yes.   | 4.5        |
| GUY  |  | 4.5        |
| PAR  | Fully answer the requirements of our State.  | 4.5        |
| PER  |  | 4.5        |
| SUR  |  | 4.5        |
| T&T  | Yes.   | 4.5        |
| URU  |  | 4          |
| VEN  |  | 4.5        |
| <b>AVERAGE</b>   |  | <b>4.5</b> |

| 5.-Project quality  |  | Evaluation |
|---|--|------------|
| What opinion deserves you the content of this project to achieve the expected objectives? |  |            |
| ARG   |  | 4.5        |
| BRA   |  | 4          |
| CHI   | Is appropriate and cover the required to achieve the objectives.           | 5          |
| FRA   | The security aspects need to be more developed but we are on the good way. | 4          |
| GUY   |  | 4          |
| PAR   | The content of the Project is totally in accordance with the objectives.   | 4.5        |
| PER   |  | 4.5        |
| SUR   |  | 4.5        |
| T&T   |  | 4.5        |
| URU   |  | 4          |
| VEN   |  | 4          |
| <b>AVERAGE</b>  |  | <b>4.3</b> |

| 6- Project resources   |                            | Evaluation |
|--|----------------------------|------------|
| Do you consider that the financial, physical and human resources agreed to achieve the objectives established in the project document are appropriate? |                            |            |
| ARG  |                            | 4          |
| BRA  |                            | 4.5        |
| CHI  | Yes, they are appropriate. | 4.5        |
| FRA  | Yes.                       | 4          |
| GUY  |                            | 4.5        |
| PAR  | Yes.                       | 4.5        |
| PER  |                            | 4          |
| SUR  |                            | 4.5        |
| T&T  |                            | 4          |
| URU  |                            | 4          |
| VEN  |                            | 4.5        |
| <b>AVERAGE</b>   |                            | <b>4.3</b> |

| <b>7.-Project participants</b>   |   | <b>Evaluation</b> |
|--|---|-------------------|
| <b>Do you consider that all parties that should be involved in the project are present? If it is not so, who should be involved?</b> |   |                   |
| ARG  |   | 4                 |
| BRA  |   | 4.5               |
| CHI  | Yes.  | 5                 |
| FRA  | Yes.  | 4                 |
| GUY  |   | 4                 |
| PAR  | Yes.  | 4.5               |
| PER  |   | 4.5               |
| SUR  |   | 4.5               |
| T&T  | The project has a wider diversity of participants and this augers well going forward. | 4.5               |
| URU  |   | 4                 |
| VEN  |   | 4.5               |
| <b>AVERAGE</b>   |   | <b>4.4</b>        |

| <b>8.-Project effectiveness</b>  |      | <b>Evaluation</b> |
|--|------|-------------------|
| <b>Is the project effective in costs compared to similar programs or projects?</b> |      |                   |
| ARG  |      | 4                 |
| BRA  |      | 4.5               |
| CHI  | Yes. | 4.5               |
| FRA  |      | 4                 |
| GUY  |      | 4.5               |
| PAR  | Yes. | 4                 |
| PER  |      | 4.5               |
| SUR  |      | 4                 |
| T&T  | Yes. | 4.5               |
| URU  |      | 4.5               |
| VEN  |      | 4.5               |
| <b>AVERAGE</b>   |      | <b>4.3</b>        |

| <b>9.-Modification of project objectives</b>  |  |
|---|--|
| <b>What modifications to the objectives and scope of the project would you propose?</b> |  |
| ARG   |  |
| BRA   | Increase the security of the network (cyber) |
| CHI   | None.  |
| FRA   | Increase security of the network.            |
| GUY   |  |
| PAR   | No. None.                                    |
| PER   |  |
| SUR   |  |
| T&T   |  |
| URU   |  |
| VEN   |  |

| <b>10.-Other information</b>  |   |
|---|---|
| <b>Please provide any other information that may support or clarify your perception of the current project scope.</b> |   |
| ARG   | It would be appropriate to discuss issues such as the regional directory, paradigm shifts regarding the routing of traffic, keep with the idea to count with the qualified and skilled technicians. |
| BRA   |   |
| CHI   | None.   |
| FRA   |   |
| GUY   |   |
| PAR   |   |
| PER   |   |
| SUR   |   |
| T&T   |   |
| URU   |   |
| VEN   |   |

**3. SURVEY ON MANAGEMENT AND OUTPUTS INDICATORS**  
**II. ASSESSMENT OF OBJECTIVES COMPLIANCE**

| <b>1.-Project objectives</b>   |  | <b>Evaluatio</b> |
|--|--|------------------|
| <b>In terms of project management by ICAO, do you think that project objectives are being met?</b> |  | <b>n</b>         |
| ARG  |  | 4.5              |
| BRA  |  | 4.5              |
| CHI  | Yes. And they are being done with a lot of professionalism and excelente management. | 4.5              |
| FRA  | Yes.   | 4.5              |
| GUY  |  | 5                |
| PAR  | Yes.   | 4.5              |
| PER  |  | 4.5              |
| SUR  |  | 5                |
| T&T  | Yes.   | 4.5              |
| URU  |  | 4.5              |
| VEN  |  | 4.5              |
| <b>AVERAGE</b>   |  | <b>4.6</b>       |

| <b>2.- Project Schedule</b>  |                             | <b>Evaluatio</b> |
|--|-----------------------------|------------------|
| <b>In terms of project management by ICAO, do you think that project objectives are being met?</b> |                             | <b>n</b>         |
| ARG  |                             | 4                |
| BRA  |                             | 4                |
| CHI  | Yes.                        | 4.5              |
| FRA  | Yes.                        | 4.5              |
| GUY  |                             | 4.5              |
| PAR  |                             | 4.5              |
| PER  |                             | 4                |
| SUR  |                             | 4.5              |
| T&T  | Yes, despite some setbacks. | 4                |
| URU  |                             | 4                |
| VEN  |                             | 4                |
| <b>AVERAGE</b>   |                             | <b>4.2</b>       |

| <b>3.-Use of resources</b>  |      | <b>Evaluatio</b> |
|---|------|------------------|
| <b>Do you consider that in meeting the objectives are being used, or have been used, resources efficiently?</b> |      | <b>n</b>         |
| ARG   |      | 4                |
| BRA   |      | 5                |
| CHI   | Yes. | 4.5              |
| FRA   | Yes. | 4                |
| GUY   |      | 4.5              |
| PAR   | Yes. | 4                |
| PER   |      | 4.5              |
| SUR   |      | 4.5              |
| T&T   | Yes. | 4.5              |
| URU   |      | 4                |
| VEN   |      | 4.5              |
| <b>AVERAGE</b>  |      | <b>4.4</b>       |

| <b>4.- Project cost</b>   |                              | <b>Evaluation</b> |
|---|------------------------------|-------------------|
| <b>Do you consider that in meeting the objectives are being used, or have been used, resources efficiently?</b> |                              | <b>n</b>          |
| ARG   |                              | 4                 |
| BRA   |                              | 4.5               |
| CHI   | Yes, they had been adequate. | 4.5               |
| FRA   | Yes.                         | 4                 |
| GUY   |                              | 4.5               |
| PAR   | Yes.                         | 4                 |
| PER   |                              | 4.5               |
| SUR   |                              | 4.5               |
| T&T   | Yes.                         | 4.5               |
| URU   |                              | 4.5               |
| VEN   |                              | 4.5               |
| <b>AVERAGE</b>  |                              | <b>4.4</b>        |

| <b>5.-Major achievements</b>  |  | <b>Evaluation</b> |
|---|--|-------------------|
| <b>What are the main achievements of the project in relation to the expected results?</b> |  | <b>n</b>          |
| ARG   |  | 4.5               |
| BRA   |  | 5                 |
| CHI   | The implementation of the REDDIG II, specially the high availability of the network and empowerment of new services. | 4.5               |
| FRA   | The availability.  | 4.5               |
| GUY   |  | 4.5               |
| PAR   | The availability, the qualified technical group and the customer satisfaction.                                       | 4.5               |
| PER   |  | 4.5               |
| SUR   |  | 4.5               |
| T&T   |  | 4.5               |
| URU   |  | 4.5               |
| VEN   |  | 4.5               |
| <b>AVERAGE</b>  |  | <b>4.5</b>        |

| <b>6.-Major problems and their resolution</b>  |   | <b>Evaluation</b> |
|--|---|-------------------|
| <b>What are the main problems affecting the achievement of the expected results and how should they be resolved?</b> |   | <b>n</b>          |
| ARG  | Even though the objectives are reached, the logistics issues still remains as a challenge. Also, highlight the contractor (consortium) presents inconvenience to serve for the resolution of a problem into an opportunity. |                   |
| BRA  | The time that takes OACI to solve the continuation of the network administrator change.   |                   |
| CHI  | The difference of the administrative processes in each country.   | 4                 |
| FRA  | The different languages could be a problem to solve some problems.  | 4                 |
| GUY  |   |                   |
| PAR  | The delays that have took place in some time regarding the customs management by the different States.  | 4                 |
| PER  |   |                   |
| SUR  |   |                   |
| T&T  | There are a few technical setbacks but these are being resolved as time goes by.  | 4                 |
| URU  |   |                   |
| VEN  | Delay in the shipment of spare parts with the provider (customs).   |                   |
| T&T  |   |                   |
| <b>AVERAGE</b>   |   | <b>4.0</b>        |

| <b>7.- Other comments</b>   |  |
|---|--|
| <b>Please include other comments related to the compliance of project objectives.</b> |  |
| ARG   |  |
| BRA   |  |
| CHI   | The objectives have been reached with profesionalism and dedication. |
| FRA   |  |
| GUY   |  |
| PAR   | None.  |
| PER   |  |
| SUR   |  |
| T&T   |  |
| URU   |  |
| VEN   |  |

| <b>8.- Risks</b>  |   |
|---|---|
| <b>What new events that could happen, would probably affect the achievement of project outputs? What do you recommend to respond to these events?</b> |   |
| ARG   |   |
| BRA   |   |
| CHI   | Vulnerabilities from the network safety point of view that connects to the REDDIG and the renovation of the personnel, at ICAO and State level. |
| FRA   |   |

|     |  |
|-----|--|
| GUY |  |
| PAR | Regarding the Terrestrial network of the REDDIG II, analyse and keep the working group that studies the safety aspects of the network. |
| PER |  |
| SUR |  |
| T&T |  |
| URU |  |
| VEN |  |

| <b>9.-Other information</b>  |       |
|--|-------|
| <b>Please provide any other information that may support or clarify your assessment regarding compliance with the objectives of the project.</b> |       |
| ARG  |       |
| BRA  |       |
| CHI  |       |
| FRA  |       |
| GUY  |       |
| PAR  | None. |
| PER  |       |
| SUR  |       |
| T&T  |       |
| URU  |       |
| VEN  |       |

**3. SURVEY ON MANAGEMENT AND OUTPUTS INDICATORS**  
**III. EVALUATION OF PROJECT IMPLEMENTATION AND PROVISION OF SERVICES BY ICAO**

| <b>1.-Decision making</b>   |                         | <b>Evaluation</b> |
|---|-------------------------|-------------------|
| <b>Do you think that the decision-making process within the project is appropriate?</b> |                         |                   |
| ARG   |                         | 4.5               |
| BRA   |                         | 4.5               |
| CHI   | Yes, it is appropriate. | 4.5               |
| FRA   | Yes.                    | 4.5               |
| GUY   |                         | 4.5               |
| PAR   | Yes.                    | 4.5               |
| PER   |                         | 4.5               |
| SUR   |                         | 4.5               |
| T&T   |                         | 4.5               |
| URU   |                         | 4.5               |
| VEN   |                         | 4.5               |
| <b>AVERAGE</b>  |                         | <b>4.5</b>        |

| <b>2.-Product quality</b>   |                         | <b>Evaluation</b> |
|---|-------------------------|-------------------|
| <b>Do you think that the quality of products elaborated is appropriate?</b> |                         |                   |
| ARG   |                         | 4.5               |
| BRA   |                         | 5                 |
| CHI   | Yes, it is appropriate. | 4.5               |
| FRA   | Yes.                    | 4.5               |
| GUY   |                         | 4.5               |
| PAR   | Yes.                    | 4.5               |
| PER   |                         | 4.5               |
| SUR   |                         | 4.5               |
| T&T   | Yes they are.           | 4.5               |
| URU   |                         | 4.5               |
| VEN   |                         | 4.5               |
| <b>AVERAGE</b>  |                         | <b>4.5</b>        |

| <b>3.-Orientation</b>   |                           | <b>Evaluation</b> |
|---|---------------------------|-------------------|
| <b>Do you think that there is compliance with guidance towards achieving the project outputs?</b> |                           |                   |
| ARG   |                           | 4                 |
| BRA   |                           | 4.5               |
| CHI   | Yes, there is compliance. | 4.5               |
| FRA   | Yes.                      | 4                 |
| GUY   |                           | 4.5               |
| PAR   | Yes.                      | 4.5               |
| PER   |                           | 4.5               |
| SUR   |                           | 4.5               |
| T&T   | Yes.                      | 4.5               |
| URU   |                           | 4                 |
| VEN   |                           | 4.5               |
| <b>AVERAGE</b>  |                           | <b>4.4</b>        |

| <b>4.-Organization and prioritization</b>  |                       | <b>Evaluation</b> |
|--|-----------------------|-------------------|
| <b>Do you think the organization and prioritization within the project is appropriate?</b> |                       |                   |
| ARG  |                       | 4                 |
| BRA  |                       | 5                 |
| CHI  | Yes, its appropriate. | 4.5               |
| FRA  | Yes.                  | 4                 |
| GUY  |                       | 4.5               |
| PAR  | Yes.                  | 4.5               |
| PER  |                       | 4.5               |
| SUR  |                       | 4.5               |
| T&T  | Yes absolutely.       | 4.5               |
| URU  |                       | 4                 |
| VEN  |                       | 4.5               |
| <b>AVERAGE</b>   |                       | <b>4.4</b>        |

| <b>5.-Change management</b>  |                            | <b>Evaluation</b> |
|--|----------------------------|-------------------|
| <b>Do you think that the management of change and degree of flexibility in managing the project are appropriate?</b> |                            |                   |
| ARG  |                            | 4.5               |
| BRA  |                            | 4                 |
| CHI  | Yes, they are appropriate. | 4.5               |
| FRA  | Yes.                       | 4                 |
| GUY  |                            | 4.5               |
| PAR  | Yes.                       | 4.5               |
| PER  |                            | 4.5               |
| SUR  |                            | 4.5               |
| T&T  | Yes absolutely.            | 4.5               |
| URU  |                            | 4                 |
| VEN  |                            | 4                 |
| <b>AVERAGE</b>   |                            | <b>4.3</b>        |

| <b>6.-Service to the State</b>  |  | <b>Evaluation</b> |
|---|--|-------------------|
| <b>Do you think that the service provided to your State is appropriate?</b> |  |                   |
| ARG   |  | 4                 |
| BRA   |  | 4.5               |
| CHI   | Yes, its appropriate.                                    | 4.5               |
| FRA   | Yes except the lack of confiance regarding the security. | 3.5               |
| GUY   |  | 4.5               |
| PAR   | Yes.   | 4.5               |
| PER   |  | 4.5               |
| SUR   |  | 5                 |
| T&T   | Yes.   | 4.5               |
| URU   |  | 4                 |
| VEN   |  | 4                 |
| <b>AVERAGE</b>  |  | <b>4.3</b>        |

| <b>7.-Communication</b>   |                       | <b>Evaluación</b> |
|---|-----------------------|-------------------|
| <b>Do you think that the level of communication within and outside the project is adequate?</b> |                       |                   |
| ARG   |                       | 4                 |
| BRA   |                       | 4.5               |
| CHI   | Yes, its appropriate. | 4.5               |
| FRA   | Yes.                  | 4                 |
| GUY   |                       | 4.5               |
| PAR   | Yes.                  | 5                 |
| PER   |                       | 4.5               |
| SUR   |                       | 4.5               |
| T&T   | Yes, it is.           | 4.5               |
| URU   |                       | 4                 |
| VEN   |                       | 4.5               |
| <b>AVERAGE</b>  |                       | <b>4.4</b>        |

| <b>8.-Conflicts</b>   |  | <b>Evaluation</b> |
|---|--|-------------------|
| <b>Do you believe that conflict management is adequate?</b> |  |                   |
| ARG   |  | 4                 |
| BRA   |  | 5                 |
| CHI   | Yes, it is appropriate.                        | 4.5               |
| FRA   | Yes.   | 4                 |
| GUY   |  | 4.5               |
| PAR   | Yes.   | 5                 |
| PER   |  | 4.5               |
| SUR   |  | 4.5               |
| T&T   | There has been no evidence of conflict really. | 4.5               |
| URU   |  | 4.5               |
| VEN   |  | 5                 |
| <b>AVERAGE</b>  |  | <b>4.5</b>        |

| <b>9.-Use of resources</b>   |                         | <b>Evaluation</b> |
|--|-------------------------|-------------------|
| <b>Do you think that project resources are being used efficiently to produce the expected results?</b> |                         |                   |
| ARG  |                         | 4                 |
| BRA  |                         | 4.5               |
| CHI  | Yes, they are relevant. | 4.5               |
| FRA  | Yes.                    | 4                 |
| GUY  |                         | 4.5               |
| PAR  | Yes.                    | 5                 |
| PER  |                         | 4.5               |
| SUR  |                         | 4.5               |
| T&T  | Yes they are.           | 4.5               |
| URU  |                         | 4.5               |
| VEN  |                         | 4.5               |
| <b>AVERAGE</b>   |                         | <b>4.5</b>        |

| <b>10.-Relevance of mechanisms</b>  |                         | <b>Evaluation</b> |
|---|-------------------------|-------------------|
| <b>Do you think that management mechanisms of the project are relevant?</b> |                         |                   |
| ARG   |                         | 4                 |
| BRA   |                         | 4                 |
| CHI   | Yes, they are relevant. | 4.5               |
| FRA   | Yes.                    | 4                 |
| GUY   |                         | 4.5               |
| PAR   | Yes.                    | 4.5               |
| PER   |                         | 4.5               |
| SUR   |                         | 4.5               |
| T&T   | Yes.                    | 4.5               |
| URU   |                         | 4                 |
| VEN   |                         | 4.5               |
| <b>AVERAGE</b>  |                         | <b>4.3</b>        |

| <b>11.-Opportunity to work plans</b>  |            | <b>Evaluation</b> |
|---|------------|-------------------|
| <b>On the basis of its work plan, how would you rate the degree of opportunity of the project as regards the achievement of products, outputs and delivery of inputs?</b> |            |                   |
| ARG   |            | 4.5               |
| BRA   |            | 5                 |
| CHI   | Very good. | 4.5               |
| FRA   | Good.      | 4                 |
| GUY   |            | 4.5               |
| PAR   |            | 4.5               |
| PER   |            | 4.5               |
| SUR   |            | 4.5               |
| T&T   |            | 4.5               |
| URU   |            | 4                 |
| VEN   |            | 4                 |
| <b>AVERAGE</b>  |            | <b>4.4</b>        |

| <b>12.-Orientation</b>   |                | <b>Evaluation</b> |
|--|----------------|-------------------|
| <b>Do you consider that the activities and products developed through the project are in line with ICAO directives, regional offices and air navigation plans?</b> |                |                   |
| ARG  |                | 4.5               |
| BRA  |                | 5                 |
| CHI  | Yes, they are. | 4.5               |
| FRA  | Yes.           | 4                 |
| GUY  |                | 4.5               |
| PAR  | Yes.           | 4.5               |
| PER  |                | 4.5               |
| SUR  |                | 4.5               |
| T&T  | Yes.           | 4.5               |
| URU  |                | 4                 |
| VEN  |                | 4.5               |
| <b>AVERAGE</b>   |                | <b>4.5</b>        |

| <b>13.-Other information</b>   |              |
|--|--------------|
| <b>Please provide any other information that may support or clarify your assessment on products and services provided through the project.</b> |              |
| ARG  |              |
| BRA  |              |
| CHI  |              |
| FRA  | No comments. |
| GUY  |              |
| PAR  | None.        |
| PER  |              |
| SUR  |              |
| T&T  |              |
| URU  |              |
| VEN  |              |

**3. SURVEY ON MANAGEMENT AND OUTPUTS INDICATORS  
IV. LESSONS LEARNED**

| <b>1.-Positive lessons learned from the project.</b>  |  |
|---|--|
| <b>Provide a brief description of the positive lessons learned from project implementation.</b> |  |
| ARG   | It continuous to be highlighted the possibility to work with the personnel of other States reaching integration results more than satisfactories. The possibility of an exchange of experiences has contributed to solve services inconvenients between States. The acquired experiences and the possibility of keep integrating diferente systems among States. |
| BRA   |  |
| CHI   | Possibility to activate the participation of representatives of each administration.   |
| FRA   | The cooperation between states and the reddig amdinistrators.  |
| GUY   |  |
| PAR   | The good communication through the use of teleconferences for the management of situations and coordinations to solve problems.  |
| PER   |  |
| SUR   |  |
| T&T   | Teamwork has been excellent.   |
| URU   |  |
| VEN   |  |

| <b>2.-Opportunities for improvement.</b>   |   |
|--|---|
| <b>Provide a brief description of the improvement oportunities identified during project implementation.</b> |   |
| ARG  |   |
| BRA  | Caution with the cyber security.  |
| CHI  |   |
| FRA  | No comments.  |
| GUY  |   |
| PAR  | The constant training to have a prepared and efficient technical staff to solve problems. |
| PER  |   |
| SUR  |   |
| T&T  | Quality control during the installation stage could be improved.                          |
| URU  |   |
| VEN  |   |

| <b>3.- Strategy to implement the improvement oportunities identified.</b>   |   |
|---|---|
| <b>Provide a brief description of the strategy that you would propose to implement the improvement oportunities identified.</b> |   |
| ARG   |   |
| BRA   |   |
| CHI   |   |
| FRA   |   |
| GUY   |   |
| PAR   | Keep the used stratey, cause it was sophisticated wwith the experience acquired during the Project.                             |
| PER   |   |
| SUR   |   |
| T&T   | Perhaps, prior training or information to inform State´s personnel on the pertinent points to look out for during installation. |
| URU   |   |
| VEN   |   |

**Agenda Item 7:        Other matters**

Nil.