INTERNATIONAL CIVIL AVIATION ORGANIZATION

**First Meeting of the Task Force of the APIRG
Integrated Regional Telecommunication Infrastructure**

(Pretoria, South Africa, 26-28 June 2013)

REPORT

Prepared by the Secretariat

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PART I – HISTORY OF THE MEETING

1. Introduction

1.1   The First Meeting of the APIRG Integrated Regional Telecommunication Infrastructure Task Force (IRTI/TF/1) was held in Pretoria, South Africa, from 26 to 28 June 2013, at the kind invitation of the Air Traffic and Navigation Services Company of South Africa (ATNS).

1.2   The meeting was held back to back with a Regional Workshop on the Aeronautical Telecommunication Network (ATN) Workshop (24-25 June 2013).

2. Objectives

2.1   The main objective of the meeting was to pursue the work done by the AFI Aeronautical VSAT Networks Managers towards the development of an AFI integrated aeronautical telecommunication infrastructure, in accordance with Decision 18/28 – *Establishment of a Task Force on the AFI Aeronautical VSAT Networks Regional Project -* of the Eighteenth Meeting of the AFI Planning and Implementation Regional Group (APIRG/18, Kampala, Uganda, 27-30 March 2012).

3. Attendance

3.1   The meeting was attended by 56 participants from 18 ICAO Contracting States and 03 international organizations (ASECNA, IATA and INTELSAT) and 01 representative from the industry. The list of participants is provided as Appendix A to this report.

4. Officers and Secretariat

4.1   Mr. Dumisani Sangweni from South Africa (ATNS) was elected Chairman of the Task Force, and Messrs. Simon Masike from Botswana (CAAB) and Odiba Padejoh from Nigeria (NAMA) were respectively elected as First and Second Vice-Chairpersons of the Task Force.

4.2   Mr. Prosper Zo'o Minto'o, Regional Technical Officer Communications, Navigation and Surveillance (RO/CNS) of ICAO Eastern and Southern Office, Nairobi, was the Secretary of the Task Force. He was assisted by Mr. Francois Xavier Salambanga, RO/CNS, from the ICAO Western and Central Office, Dakar.

5. Working language

5.2   The meeting was conducted in English and the meeting documentation was issued in this language.

6. Agenda

6.1   The following agenda was adopted by the meeting.

Agenda Item 1:   **Election of the Chairperson and Vice-Chairpersons of the Task Force**

Agenda Item 2:   **Adoption of Agenda and Review of the Terms of Reference of the Task Force as established by APIRG/18**

2.1 Adoption of Agenda

2.2 Review of the Terms of Reference of the Task Force as established by APIRG/18

Agenda Item 3:   **Review of AFS Operational Performance**

Agenda Item 4:   **Development of a Regional Project on an Integrated Aeronautical Telecommunication Infrastructure**

4.1 Technical issues

4.2 Administrative issues

4.3 Financial issues

Agenda Item 5:   **International Protection of the 3.4-4.2 GHz Band operated by Aeronautical VSAT networks**

Agenda Item 6:   **Future work programme of the Task Force**

Agenda Item 7:   **Any other business**

7. Summary of Conclusions and Decisions

7.1   The following conclusions and decisions were formulated by the Task Force

Number	Title
Draft Conclusion 1/01	*Harmonization of the collection of the statistics on the performance of the VSAT networks* **That:** a) **The Secretariat finalize the agreed Performance Data Collection Form (PDCF) for use by States/Air Navigation Services Providers (ANSPs) to harmonize the monitoring, collection and reporting of technical and operational data on aeronautical telecommunication networks' characteristics and performance, including end-user/end user performance statistical data as part of the best practices adopted by the APIRG under its Conclusion 18/25.** b) **States /Air Navigation Services Providers (ANSPs) should apply the four-level assessment model and make use of available software tools in order to increase accuracy of the collected and reported information.**

Draft Conclusion 1/02	*Investigations on missing flight plans* **That States/Air Navigation Services Providers (ANSPs) should take due account of the performance of the aeronautical telecommunication infrastructure when conducting investigations on the critical issue of missing plans.**
Draft Conclusion 1/03	*ATN Implementation Plans and Implementation Status* **That the ICAO Regional Offices conduct a survey on States/Air Navigation Services Providers (ANSPs) plans to implement the elements of the Aeronautical Telecommunication Network (ATN), and the implementation status thereof.**
Draft Decision 1/04	*Technical Action Plan* **That the Technical Team of the Task Force pursue its work based on the action plan provided at Appendix B to this report, and prepare a progress report to be submitted to the next meeting of the APIRG Communications, Navigation and Surveillance (CNS) Sub-group (CNS/SG/5) (Nairobi, Kenya, 16-20 September 2013).**
Draft Decision 1/05	*Review of the AFI ATN Strategy and Architecture* **That the Task Force should review and update as necessary the AFI ATN Architecture Plan adopted by the APIRG/18 Meeting in order to reflect latest developments related to:** a) **Standards and Recommended Practices (SARPs) and relevant guidance material,** b) **Global Air Navigation Planning Framework,** c) **Aviation System Block Upgrades (ASBU) Methodology and associated Communications, Navigation and Surveillance (CNS), Information Management and Avionics Technology Roadmaps,** d) **Alignment of regional air navigation plans (ANPs) and regional supplementary procedures (SUPPs) in accordance with Recommendation 6/11 of the 12th Air Navigation Conference; and** e) **Status of implementation by States of the ATN infrastructure and supported applications.**
Draft Conclusion 1/06	*Conduct of Trials for ATN applications* **That States that have implemented ATN air-ground and ground-ground applications should conduct trials in accordance with the AFI ATN Architecture as amended, and report their results to the Task Force.**
Draft Decision 1/07	*Administrative/Legal Principles and recommendations* **That the Task Force endorse the administrative and legal principles and recommendations contained in Appendix C to this report.**
Draft Decision 1/08	*Coordination between Task Force Teams* **That the Task Force Technical, Administrative and Finance Teams should coordinate their activities to identify and exchange the relevant inputs/outputs to progress the work of the Task Force.**

Draft Conclusion 1/09	*Need for financial, operational and planning information* **That States / ANSPs provide necessary inputs regarding financial (historical and forecast revenue and related costs, interest cost, depreciation costs), operational (forecast, staffing levels, customer satisfaction, etc.) and planning (short, mid and long term master plan and business cases) data for comparison and bench marking.**
Draft Conclusion 1/10	*Protection of the C-band operated by AFI VSAT networks* **That States should report to their respective Telecommunication Authorities, the ICAO Regional Offices and the AFI Frequency Management Group Rapporteur all cases of interference being experienced in the operation of aeronautical VSAT networks to document the studies on possible technical and regulatory measures as called for under ITU WRC-12 Resolution 154, in order to support the existing and future FSS earth stations in the 3 400-4 200 MHz band used for satellite communications related to safe operation of aircraft and reliable distribution of meteorological information.**
Draft Decision 1/11	*Terms of reference, future work programme and composition of the Task Force* **That the terms of reference, future work programme and composition of the Task Force on the Development of an Integrated Regional Telecommunication Infrastructure be amended as proposed in Appendix D to this report.**
Draft Decision 1/12	*Re-establishment of an AFI ATN Task Force* *That the APIRG consider the re-establishment of an AFI ATN Task Force to address all aspects related to the implementation of the ICAO Aeronautical Telecommunication Network (ATN) in the AFI Region, including implementation of services and enabling infrastructures related to the applicable Aviation System Block Upgrade (ASBU) modules.*

PART II – REPORT ON AGENDA ITEMS

Report on Agenda Item 1:   Election of the Chairperson and Vice-Chairpersons of the Task Force

1.1   M. Dumisani Sangweni from South Africa (ATNS) was elected Chairman of the Task Force. Messrs. Simon Masike from Botswana (CAAB) and Odiba Padejoh from Nigeria (NAMA) were respectively elected as First and Second Vice-Chairpersons of the Task Force.

Report on Agenda Item 2:   Adoption of Agenda and Review of the Terms of Reference of the Task Force

2.1 Adoption of Agenda

2.1.1   The meeting's Agenda was adopted as provided under Paragraph 6.1 of the Introduction to this report.

2.2 Review of the Terms of Reference of the Task Force

2.2.1   Under this agenda item, the meeting reviewed the terms of reference of the Task Force as established by the Eighteenth Meeting of the AFI Planning and Regional Implementation Group (APIRG/18) under its Decision 18/28, which reads as follows:

DECISION 18/28:   ESTABLISHMENT OF A TASK FORCE FOR THE AFI AERONAUTICAL VSAT NETWORKS REGIONAL PROJECT

That a Task Force be established to address issues related to the development of a regional project aimed to enhance the overall performance of AFI aeronautical VSAT networks, and converge towards a consolidated regional ATN infrastructure, with the terms of reference shown at Appendix 3.4H to the (APIRG/18) report.

2.2.2 The meeting noted that APIRG/18 Meeting acknowledged the need for a coordinated regional plan for the migration of the AFI AFS infrastructure towards an integrated regional/interregional digital communication network as a multinational facility/service (AFI/7, Conclusion 10/6c)**.** APIRG/18 Meeting also requested the Task Force to monitor and take advantages of lessons learnt from other ICAO regions in implementing integrated regional communications networks.

Report on Agenda Item 3:   Review of Aeronautical Fixed Service (AFS) Operational Performance

3.1   Under this agenda item, the Secretariat presented the meeting with statistical data for aeronautical fixed telecommunication network (AFTN) circuits' availability rates recorded by Johannesburg Main AFTN Centre for January, February, March and April 2013. It was noted that the concerned AFTN main and tributary circuits had been operating satisfactorily, meeting/exceeding the minimum requirement of 97% during this period.

3.2	ASECNA presented the status of implementation of AFS requirements in its Member States as well as a comparative analysis of end-to-end performance of its managed aeronautical fixed telecommunication network (AFTN) main and tributary circuits (and air traffic services direct speech (ATS/DS) circuits achieved in 2012 and 2013.

Use of Performance Data Collection Forms

3.3	The meeting recalled that, as part of its work on the harmonization of implementation activities relating to the use of VSAT networks, and pursuant to Conclusion 5/17 of the ALLPIRG/5 meeting, ICAO had developed minimum performance targets for VSAT networks in support of aeronautical ground-ground communications. These minimum performance targets were endorsed by ICAO SP AFI RAN (2008).

3.4	As a follow-up and in order to assess the performance of Aeronautical Fixed Services (AFS) supported by VSAT networks, APIRG/18 Meeting agreed to a monitoring four level methodology (Space Segment, Radiofrequency Equipment, Multiplexers/Interfaces, User Equipment) based on the use by Air Navigation Service Providers (ANSPs) of the Performance Data Collection Forms (PDCFs) endorsed by APIRG. The Secretariat was requested to finalize these forms and circulate them to the States and entities charged with the planning and implementation of VSAT networks in order to harmonize the related performance measurement methodology between ICAO regions.

3.5	States/ANSPs which have not yet done so were requested to review the PDCFs and send their comments (if any) to the ICAO Regional Offices for finalization by the Secretariat prior to operational use by 1 September 2013 (tentatively).

3.6	The following draft Conclusion was formulated:

Draft Conclusion 1/01	*Harmonization of the collection of the statistics on the performance of the VSAT networks* **That;** a) **The Secretariat finalize the agreed Performance Data Collection Form (PDCF) for use by States/Air Navigation Services Providers (ANSPs) to harmonize the monitoring, collection and reporting of technical and operational data on aeronautical telecommunication networks' characteristics and performance, including end-user/end user performance statistical data as part of the best practices adopted by the APIRG under its Conclusion 18/25.** b) **States /Air Navigation Services Providers (ANSPs) should apply the four-level assessment model and make use of available software tools in order to increase accuracy of the collected and reported information.**

Investigations on missing flight plans

3.7   The meeting was presented with a study conducted by ASECNA on missing flight plans in 12 ATS centres from August 2012 to April 2013, as a follow up to APIRG Conclusions 18/17 and 18/18. Out of a total of 49594 flights which had been monitored during this period, 41887 flight plans (84%) were received and 7707 flight plans (16%) were missing. The analysis showed the breakdown of received/missing flight plans according to ICAO regions, ATS centres and air operators. Of the missing flight plans, 61.09% were not sent to appropriate ATS units due to lack of knowledge of airspace structure/ATS responsibilities, 38.57% were not investigated due to lack of information from ATS centres, and 0.34% were not filed by operators.

3.8   The meeting noted the mitigation measures implemented by ASECNA through use of collective addresses for Brazzaville, Dakar and Niamey centres as published in Aeronautical Information Circulars (AICs) Nos.02/A/13/FC and 03/A/GO, which were also communicated to the ICAO Regional Offices and airspace users (IATA).

3.9   The meeting formulated the following draft Conclusion:

Draft Conclusion 1/02	*Investigations on missing flight plans* **That States/Air Navigation Services Providers (ANSPs) should take due account of the performance of the aeronautical telecommunication infrastructure when conducting investigations on the critical issue of missing plans.**

Report on Agenda Item 4:   Development of a Regional Project on an Integrated Aeronautical Telecommunication Infrastructure

4.1   Technical issues

Status of implementation of Best Practices

4.1.1   The Task Force reviewed the status of implementation of the agreed best practices as prepared by the Secretariat, and identified the challenges facing the development of an AFI integrated regional telecommunication infrastructure.

4.1.2   The meeting recalled that APIRG/18 Meeting (March 2012) noted that the funding arrangements concluded between the participating States and the Network Provider to cover the cost of equipment, installation, maintenance, space segment and administration of the SADC VSAT/2 and NAFISAT network would be terminated in 2014 and 2015 respectively; and therefore called upon the participating States to establish administrative and funding arrangements in a timely manner in order to ensure that AFS requirements continue to be met (APIRG/18 Conclusion 18/27 refers). It noted that the concerned States had taken the necessary steps to ensure the sustainability of these networks. It also noted that an on-going project on the audit and re-engineering AFISNET network under the coordination of ICAO.

4.1.3   With respect to the space segment, the meeting noted with appreciation a presentation by Intelsat on Civil Aviation satellite capacity usage, challenges, C-band (3.4-4.2 GHz) spectrum risks and protection, Intelsat global infrastructure and Intelsat new capacity/new generation of satellites.

Alignment of Regional Air Navigation Plans (ANPs) and Supplementary Procedures (SUPPs)

4.1.4   The meeting was informed that the ICAO 12th Air Navigation Conference formulated *Recommendation 6/11 "Alignment of air navigation plans and regional supplementary procedures"* that will allow to proceed to formulate the corresponding proposals for amendments with this changes to ANPs/SUPPs that will benefit States, PIRGs and the ICAO Secretariat, in particular in support of the Aviation System Block Upgrade (ASBU) methodology. Without changing the accreditation of ICAO regional offices to States, the proposals will integrate within each of the PIRGs the responsibilities for development and upkeep of ANPs and SUPPs for their respective air navigation regions.

4.1.5   The meeting particularly noted that the transfer of Algiers, Cairo, Canarias, Casablanca, Khartoum, Tripoli and Tunis FIR(s) from the AFI ANP to the EUR and MID ANPs will align the areas of applicability of these ANPs and SUPPs. This issue was referred to the Technical Team of the Task Force for further consideration.

ATN implementation in ASECNA member States

4.1.6   The meeting noted ASECNA plans to modernize its managed Communications centres including AMHS implementation in 2014 at Dakar, Brazzaville, Niamey, Ndjamena, Antananarivo, Cotonou, Lome, Ouagadougou, Bamako and Nouakchott centres, as well as at EAMAC Training Institution in Niamey.

ATN implementation by Ethiopia

4.1.7   Ethiopia provided informed the meeting on CNS/ATM projects developed by the Ethiopian Civil Aviation Authority (ECAA) since 2009, including the implementation through an ICAO Technical Cooperation Project of an ATS Message Handling System (AMHS) in Addis Ababa, meeting all the performance criteria (availability, reliability, capacity, alternate routing) established for AFI ATN backbone centres. Ethiopia indicated that the AMHS system implemented at Addis Ababa could contribute to further enhancements to AFI ATN Architecture, and accordingly requested the Task Force to amend the AFI ATN Architecture by including Johannesburg, Addis Ababa and Cairo as trunk backbone route and/or other backbone connections as they come on board. This issue was referred to the Technical Team of the Task Force for further consideration, as reflected in Appendix B to this report.

Development of an IP-based VSAT network in South America

4.1.8   In line with APIRG/18 recommendation to the Task Force to monitor and take advantages of lessons learnt from other ICAO regions' experiences in implementing integrated regional communications networks, a presentation was made to the meeting on behalf of DGCA, France on

the evolution of the South American network (REDDIG) toward an aeronautical IP-based VSAT network, including related safety analysis, technologies, security and management system.

Review of the Work of the Technical Team

4.1.9   In accordance with the terms of reference assigned to the Task Force, the meeting established a Technical Team to address technical issues. The Task Force reviewed the initial work of the Technical Team, and formulated the following draft Conclusions and Decision:

Draft Conclusion 1/03	*ATN Implementation Plans and Implementation Status* **That the ICAO Regional Offices conduct a survey on States/Air Navigation Services Providers (ANSPs) plans to implement the elements of the Aeronautical Telecommunication Network (ATN), and the implementation status thereof.**
Draft Decision 1/04	*Technical Action Plan* **That the Technical Team of the Task Force pursue its work based on the action plan provided at Appendix B to this report, and prepare a progress report to be submitted to the next meeting of the APIRG Communications, Navigation and Surveillance (CNS) Sub-group (CNS/SG/5) (Nairobi, Kenya, 16-19 September 2013).**
Draft Decision 1/05	*Review of the AFI ATN Strategy and Architecture* **That the Task Force should review and update as necessary the AFI ATN Architecture Plan adopted by the APIRG/18 Meeting in order to reflect latest developments related to:** a) **Standards and Recommended Practices (SARPs) and relevant guidance material;** b) **Global Air Navigation Planning Framework;** c) **Aviation System Block Upgrades (ASBU) Methodology and associated Communications, Navigation and Surveillance (CNS), Information Management and Avionics Technology Roadmaps;** d) **Alignment of regional air navigation plans (ANPs) and regional supplementary procedures (SUPPs) in accordance with Recommendation 6/11 of the 12th Air Navigation Conference; and** e) **Status of implementation by States of the ATN infrastructure and supported applications.**

Draft Conclusion 1/06	*Conduct of Trials for ATN applications* **That States that have implemented ATN air-ground and ground-ground applications should conduct trials in accordance with the AFI ATN Architecture as amended, and report their results to the Task Force.**

4.2 Administrative issues

Review of the Work of the Administrative issues

4.2.1   In accordance with the terms of reference assigned to the Task Force, the meeting established an Administrative Team.

4.2.2   The meeting was presented with a comparative analysis carried out by Kenya on oversight model, States' commitment, legal and governance issues and maintenance. This analysis was referred to the Administrative Team.

4.2.3   The Task Force reviewed the initial work of its Administrative Team, and formulated the following draft Decision:

Draft Decision 1/07	*Administrative/Legal Principles and recommendations* **That the Task Force endorse the administrative and legal principles and recommendations contained in Appendix C to this report.**

4.3 Financial issues

Review of the Work of the Finance Team

4.3.1   In accordance with the terms of reference assigned to the Task Force, the meeting established a Financial Team. The Task Force reviewed the initial work of its Financial Team and formulated the following draft Decision and draft Conclusion:

Draft Decision 1/08	*Coordination between Task Force Teams* **That the Task Force Technical, Administrative and Finance Teams should coordinate their activities to identify and exchange the relevant inputs/outputs to progress the work of the Task Force.**
Draft Conclusion 1/09	*Need for financial, operational and planning information* **That States/ANSPs provide necessary inputs regarding financial (historical**

and forecast revenue and related costs, interest cost, depreciation costs), operational (forecast, staffing levels, customer satisfaction, etc.) and planning (short, mid and long term master plan and business cases) data for comparison and bench marking.

Report on Agenda Item 5:   International Protection of the 3.4-4.2 GHz Band operated by Aeronautical VSAT networks

5.1   Under this agenda item, the meeting noted that APIRG/18 Meeting had considered the critical role of VSAT technology in the provision of all air navigation services in the AFI region and other ICAO regions, and recalled Recommendation 724 of the International Telecommunication Union (ITU) World Radiocommunication Conference 2007 (WRC-2007) - *Use by civil aviation of frequency allocations on a primary basis to the fixed-satellite service*.

5.2   APIRG/18 Meeting had noted further work that was carried out through the AFI Frequency Management Group (FMG), regional workshops, WRC-12 preparatory meetings and the Aeronautical Communications Panel (ACP) Working Group on Frequency Spectrum issues, towards an international protection of the C-band (3.400-4.200 MHz) and the synergy developed between ICAO, regional organizations (ASECNA, ATU and IATA) and AFI States in preparation for, and at ITU WRC-12, which contributed to Resolution 154 (WRC-12) *(Conclusion 18/30)*.

5.3   The meeting was presented with the draft ICAO position for the ITU WRC-15, with emphasis on the protection of the Frequency Band 3.4-4.2 GHz operated by aeronautical VSAT networks.

5.4   The following draft Conclusion was formulated:

Draft Conclusion 1/10	*Protection of the C-band operated by AFI VSAT networks* **That States should report to their respective Telecommunication Authorities, the ICAO Regional Offices and the AFI Frequency Management Group Rapporteur all cases of interference being experienced in the operation of aeronautical VSAT networks to document the studies on possible technical and regulatory measures as called for under ITU WRC-12 Resolution 154, in order to support the existing and future FSS earth stations in the 3 400-4 200 MHz band used for satellite communications related to safe operation of aircraft and reliable distribution of meteorological information.**

Report on Agenda Item 6:   Future work programme of the Task Force

6.1   Under this Agenda item, based on its deliberations on the previous agenda items, the meeting reviewed the future work programme of the Task Force, and formulated amendment proposals concerning its terms of reference, work programme and composition as shown at **Appendix D** to this report.

6.2   The following draft Decision was formulated:

Draft Decision 1/11	*Terms of reference, future work programme and composition of the Task Force* **That the terms of reference, future work programme and composition of the Task Force on the Development of an Integrated Regional Telecommunication Infrastructure be amended as proposed in Appendix D to the report.**

Report on Agenda Item 7:   Any other business

7.1   It was recalled that a Regional Workshop on ATN took place on 24-25 June 2013. Most of the participants attended the workshop. The workshop provided updated information on global provisions and developments pertaining to ATN as a key enabler to the implementation of the Global ATM Operational Concept's components and the Aviation System Block Upgrades (ASBU) Concept as well as Communications, Navigation, Surveillance, Information Management and Avionics Technology Roadmaps as endorsed by the 12th Air Navigation Conference (Montreal, Canada, 19-30 November 2012) and being introduced in the Global Air Navigation Plan (Doc 9750) and Regional Air Navigation Plans.

7.2   The meeting noted that issues related to ATN applications and enabling infrastructures were being dealt with by several bodies without proper coordination. It particularly recalled that the APIRG had previously established an AFI ATN Planning Task Force covering all aspects of ATN. The AFI ATN Planning Task had held two meetings in May 2002 and April 2005 respectively, and reported its work to APIRG/14 in June 2003 and to APIRG/15 in September 2005.

7.3   The following draft Decision was formulated:

Draft Decision 1/12	*Re-establishment of an AFI ATN Task Force* **That the APIRG consider the re-establishment of an AFI ATN Task Force to address all aspects related to the implementation of the ICAO Aeronautical Telecommunication Network (ATN) in the AFI Region, including implementation of services and enabling infrastructures related to the applicable Aviation System Block Upgrade (ASBU) modules.**

PART III – APPENDICES