



INTERNATIONAL CIVIL AVIATION ORGANIZATION

WESTERN AND CENTRAL AFRICA OFFICE

Twenty First Meeting of the AFI Satellite Network Management Committee (SNMC/21)
(Conakry, Guinea, 16-20 December 2013)

Agenda Item 3: Implementation of Special AFIRAN meeting recommendations 6/19

Planning, implementation and operation of very small aperture terminal (VSAT) networks in the AFI Region

(Presented by the secretariat)

SUMMARY

The purpose of this paper is to analyze the status of implementation of AFI/RAN

Conclusion 6/19: Planning, implementation and operation of very small aperture terminal (VSAT) networks in the AFI Region that calls for regular meetings of all AFI networks managers

Reference:

Report of SP AFI RAN Meeting

Report on of the First Meeting of the AFI Integrated Regional Telecommunication Infrastructure (IRTI/TF/1)

Action by the meeting in paragraph 3**1. Introduction**

1.1 The AFI RAN meeting held in Durban, South Africa from 24 to 29 November 2008 formulated **Conclusion 6/19: Planning, implementation and operation of very small aperture terminal (VSAT) networks in the AFI Region** that calls for regular meetings of all AFI networks managers and reads as follows:

Conclusion 6/19: Planning, implementation and operation of very small aperture terminal (VSAT) networks in the AFI Region:

That

all entities involved with planning, implementation and operation of very small aperture Terminal (VSAT) networks in the AFI Region hold regular joint meetings under the auspices of ICAO regional offices for the purpose of harmonization and eventual realization of a seamless AFI communication network supporting all present and future communications, navigation, and Surveillance (CNS) Systems

1.2 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). The meeting was attended by 56 participants from 18 ICAO Contracting States and 03 international organizations and 01 representative from the industry.

1.3 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).

2. Discussion

The meeting deliberated under 7 agenda items as detailed below.

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

2.1.1 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.

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

2.2.1 The agenda adopted by the meeting is provided at **Appendix A** to this working paper.

Review of the Terms of Reference of the Task Force

2.2.2 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.

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

2.3.1 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.

2.3.2 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

2.3.3 The meeting recalled that, in order to assess the performance of Aeronautical Fixed Services (AFS) supported by VSAT networks, APIRG/18 Meeting had agreed to a four level monitoring 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.

2.3.4 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) (Draft Conclusion 1/01).

Investigations on missing flight plans

2.3.5 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.

2.3.8 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). (Draft Conclusion 1/02).

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

2.4.1 Technical issues

Status of implementation of Best Practices

2.4.1.1 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.

2.4.1.2 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.

2.4.1.3 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)

2.4.1.4 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.

2.4.1.5 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

2.4.1.6 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

2.4.1.7 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 Addis Ababa AMHS system 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.

Development of an IP-based VSAT network in South America

2.4.1.8 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

2.4.1.9 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 draft Conclusions 1/03, 1/05 and 1/06 and draft Decision 1/04. The action plan of the Task Force Technical Team is provided at **Appendix C** to this working paper.

2.4.2 Administrative issues

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

2.4.2.2 Under this agenda item, 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.

2.4.2.3 The Task Force reviewed the initial work of its Administrative Team, and formulated draft Decision 1/07. The administrative and legal principles adopted by the Task Force are provided at **Appendix D** to this working paper.

2.4.3 Financial issues

2.4.3.1 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 draft Decision 1/08 and draft Conclusion 1/09.

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

2.5.1 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.*

2.5.2 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*).

2.5.3 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. (Draft Conclusion 1/10).

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

2.6.1 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 E** to this working paper (Draft Decision 1/11).

2.7 Report on Agenda Item 7: Any other business

2.7.1 Under this agenda item, 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 (Draft Decision 1/12).

The Final Report on of the First Meeting of the AFI Integrated Regional Telecommunication Infrastructure (IRTI/TF/1) can be downloaded at: <http://www.icao.int/ESAF/Pages/meetings.aspx>

3. Conclusion

The meeting is invited to:

- a) Take note of the above information
- b) Encourage States/Organizations to:
 - ✓ Implement the Conclusion/Decisions derived from the outcome of the meetings of the Task Force for the AFI Aeronautical VSAT Networks Regional Project;
 - ✓ Pursue their effort to actively participate in the future activities of the Task Force

Appendix A

First Meeting of the Integrated Regional Telecommunication Infrastructure Task Force (IRTI/TF/1), Pretoria, South Africa, 26-28 June 2013

Agenda

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

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

Appendix B

First Meeting of the Integrated Regional Telecommunication Infrastructure Task Force (IRTI/TF/1), Pretoria, South Africa, 26-28 June 2013

Conclusions and Decisions

Number	Title
Draft Conclusion 1/01	<p><i>Harmonization of the collection of the statistics on the performance of the VSAT networks</i></p> <p>That:</p> <p>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.</p> <p>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.</p>
Draft Conclusion 1/02	<p><i>Investigations on missing flight plans</i></p> <p>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.</p>
Draft Conclusion 1/03	<p><i>ATN Implementation Plans and Implementation Status</i></p> <p>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.</p>
Draft Decision 1/04	<p><i>Technical Action Plan</i></p> <p>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).</p>
Draft Decision 1/05	<p><i>Review of the AFI ATN Strategy and Architecture</i></p> <p>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:</p> <p>a) Standards and Recommended Practices (SARPs) and relevant guidance material,</p> <p>b) Global Air Navigation Planning Framework,</p> <p>c) Aviation System Block Upgrades (ASBU) Methodology and associated Communications, Navigation and Surveillance (CNS), Information Management and Avionics Technology Roadmaps,</p> <p>d) Alignment of regional air navigation plans (ANPs) and regional supplementary procedures (SUPPs) in accordance with Recommendation</p>

	6/11 of the 12 th Air Navigation Conference; and e) Status of implementation by States of the ATN infrastructure and supported applications.
Draft Conclusion 1/06	<i>Conduct of Trials for ATN applications</i> 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	<i>Administrative/Legal Principles and recommendations</i> That the Task Force endorse the administrative and legal principles and recommendations contained in Appendix C to this report.
Draft Decision 1/08	<i>Coordination between Task Force Teams</i> 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	<i>Need for financial, operational and planning information</i> 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	<i>Protection of the C-band operated by AFI VSAT networks</i> 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	<i>Terms of reference, future work programme and composition of the Task Force</i> 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	<i>Re-establishment of an AFI ATN Task Force</i> 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.

Appendix C

FIRST MEETING OF THE TASK FORCE ON THE INTEGRATED REGIONAL TELECOMMUNICATION INFRASTRUCTURE PROJECT (Pretoria, South Africa, 26-28 June 2013)

Report of Technical Workgroup

- 1) Background of Work completed by the Technical Group of the AFI Aeronautical VSAT Managers (Douala, Cameroon, 28 February – 01 March 2012)
 - a) Design of ATN Overlay Architecture:
 - i) Based on the architecture design of original ATN Task Force
 - ii) Circuits were inserted to ensure at least two interconnections between adjacent networks
 - iii) Additional circuits included to provide further redundancy
 - iv) The result are shown in Appendix 3.4H to APIRG/18 report.
 - b) The technical solution for the ATN overlay network was based on the following fundamental criteria:
 - i) All four networks (AFISNET, CAFSAT, SADC, and NAFISAT) have made substantial investment in existing infrastructure, which must be retained and utilized.
 - ii) Three of the networks operate on the same satellite i.e. IS 1002 which will ensure seamless operation
 - iii) A single satellite access method is proposed for the technical solution to ensure interoperability
 - iv) Although the ATN network will mainly support IP based applications, legacy protocols must continue to be supported
 - v) The overlay network must be secure, i.e. independent of terrestrial services, etc.
 - c) The cost estimates calculated by the Technical Group are therefore based on the above criteria. The cost furthermore include the following line items:
 - i) RF Outdoor Equipment (SSPA where required)
 - ii) Indoor Unit
 - iii) Modem/Frame Relay Access Device
 - iv) Equipment Rack and Miscellaneous
 - v) Un-interrupted Power Supply (UPS)
 - vi) Spare Equipment
 - vii) Site Installation, Integration and Commissioning
 - viii) Engineering, Project Management and Training
 - ix) Packing, Freight and Insurance
 - x) Duties and Taxes
 - d) The cost estimates of the proposed solution are shown in the table 1 below: The estimates are based on the following spares options:
 - i) Option 1: Total centralized maintenance, i.e. one set per network
 - ii) Option 2: Total decentralized maintenance, i.e. one set per VSAT node
 - iii) Option 3: Hybrid consisting of:
 - (1) Decentralised maintenance for CAFSAT & NAFISAT
 - (2) Centralized maintenance for SADC and NAFISAT
 - iv) Table 1 below is a summary of the initial cost calculations for the AFI ATN overlay network

Table 1

Cost Comparison of VSAT Solutions for an AFI ATN Network - IDU in 1+1 Configuration					
Region →	NAFISAT Region	SADC Region	AFISNET Region	CAFSAT Region	Total Cost for AFI ATN Network
Excluding Spares Options					
Option D (TDMA) IDU7000	\$ 560,685.91	\$ 610,341.82	\$ 631,273.03	\$ 604,376.50	\$ 2,406,677.26
Including Option 1 Spares					
Option D (TDMA) IDU7000	\$ 583,615.91	\$ 671,671.82	\$ 692,603.03	\$ 627,306.50	\$ 2,575,197.26
Including Option 2 Spares					
Option D (TDMA) IDU7000	\$ 755,865.91	\$ 920,721.82	\$ 1,016,313.03	\$ 767,026.50	\$ 3,459,927.26
Including Option 3 Spares					
Option D (TDMA) IDU7000	\$ 593,215.91	\$ 662,071.82	\$ 1,016,313.03	\$ 767,026.50	\$ 3,038,627.26

2) Way Forward of Technical Group of Integrated Regional Telecommunication Infrastructure Task Force

The following topics must be addressed by the Technical Group and timelines proposed:

- a) Revise and Provide input to Financial and Administrative Groups:
 - i) Revisit the calculations shown in table 4.1 above, done for the recommended technical solution, as well as costing for the maintenance options, and submit to Financial & Administrative groups – Target date: **August 2013**
- b) Revision of the AFI ATN routing architecture
 - i) The AFI ATN routing architecture must be revised to include circuits between Addis Ababa and Cairo/Johannesburg. As part of the process ATNS will discuss the implementation of the AMHS circuits and the conducting of trials with Eritrea
 - ii) Revise the AFI ATN architecture, taking into account the re-alignment of the NAFISAT ANPs and SUPPs to the EUR and MID Regions – **ongoing**
- c) Complete work in respect of maintenance options
 - i) This is still not completed and will be addressed by Technical Group – Target date: **November 2013**
- d) Review and update the status of implementation of the best practices as adopted by the APIRG/18 Meeting
 - i) Initial analyses to be revisited by the Technical Group and report drafted – Target date: **November 2013**
- e) Conduct a gap analysis against agreed best practices for networks
 - i) Initial analyses to be revisited by Technical Group and a report drafted
 - ii) Backup of satellite services: Technical discussions to be conducted with Intelsat to finalise calculations of backup options. It is foreseen that additional cost will have to be incurred that is not included in the initial cost calculation for the ATN Overlay – Target Date: **November 2013**
- f) Develop a convergence plan with priorities and timelines to close identified gaps & other work for technical group
 - i) Align timelines with the timelines proposed in the AMHS Task Force:
 - (1) 2012 to 2014 – National deployment – domestic AMHS

- (2) 2013 – 2015 - Regional deployment – AFI States will implement MTA to MTA, AMHS connections using TCP/IP via established AFI networks
 - (3) 2014 – 2018 – Inter-regional deployment – ATN/IPS connections
- g) Alignment of Regional Air Navigation Plans & Supplementary Procedures:
- i) Analyse the possible impact of the alignment of ANPs and SUPPs on its work
 - ii) Agree on the way forward for the development of an integrated regional telecommunication infrastructure for the Africa-Indian Ocean Region:
 - iii) Amendment proposal for AFI Regional Air Navigation Plan as appropriate
- Architecture will have to be revised taking into account the re-alignment of the NAFISAT states, refer to paragraph 2 b) above
- 3) Timelines for Technical Group
- a) The timelines based on the target dates as proposed are shown in the Gantt chart below:

ID	Task Name	Duration	Start	Finish	Timeline																									
					2014				2015				2016				2017				2018				2019					
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1		
1	Time Frame for Technical Team	1437 days?	Fri 13-06-28	Mon 18-12-31																										
2	Revisit cost estimates & Provide input to Financial & Admin. Groups	46 days	Mon 13-07-01	Mon 13-09-02																										
3	Revise AFIATN Routing Architecture	110 days	Mon 13-07-01	Sat 13-11-30																										
4	Complete work i.r.o. maintenance options	110 days	Mon 13-07-01	Sat 13-11-30																										
5	Review and update the status of implementation of the best practices as adopted	110 days	Mon 13-07-01	Sat 13-11-30																										
6	Conduct a gap analysis against agreed best practices for networks	110 days	Mon 13-07-01	Sat 13-11-30																										
7	Develop a convergence plan with priorities and timelines to close ider	1437 days?	Fri 13-06-28	Mon 18-12-31																										
8	2012 to 2014 – National deployment	393 days?	Mon 13-07-01	Wed 14-12-31																										
9	2013 – 2015 - Regional deployment	655 days?	Fri 13-06-28	Thu 15-12-31																										
10	2014 – 2018 – Inter-regional deployment	1304 days?	Wed 14-01-01	Mon 18-12-31																										
11	Analyze possible impact of the alignment of ANPs and SUPPs on its work	284 days	Mon 13-07-01	Thu 14-07-31																										

Appendix D

FIRST MEETING OF THE TASK FORCE ON THE INTEGRATED REGIONAL TELECOMMUNICATION INFRASTRUCTURE PROJECT (Pretoria, South Africa, 26-28 June 2013)

Administrative Work group Decisions

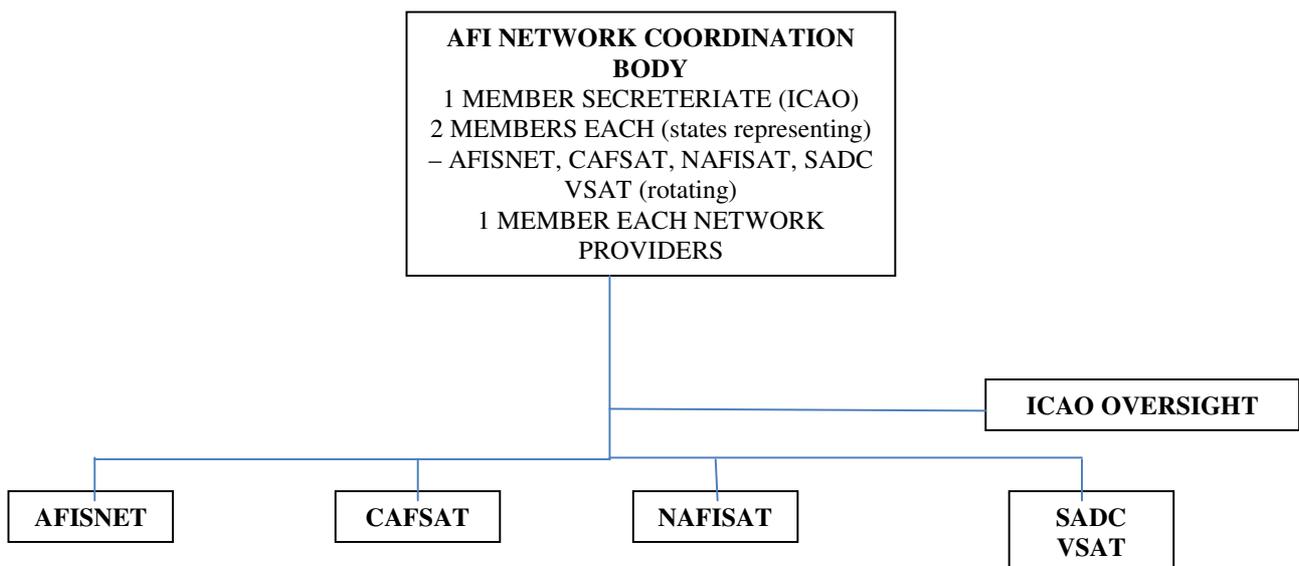
a) Oversight Model

Type of Agreement – *International treaty or administrative agreement*

- Administrative agreements as are currently in place

Institutional framework – *Organization to set up, fund, maintain and operate Network*

- Keep the current structures that manage the various networks. Include an overall co-ordination body made up of representatives from the various network management groups, 2 members each that will rotate, 1 member from the secretariat (ICAO or AFCAC to be determined).



Funding Mechanism – *The costs involved are shared among the participating states in a fair and equitable manner*

- As currently decided by each body.
- Each body will financially support the costs related to the coordination body equally.

Oversight body – *Defines nature of organization to implement and manage facility*

- Strategic oversight will lie with the coordination body

Alignment of technology, rollout, requirements, services etc.

- Safety and technical oversight (audit function) will lie within the ICAO structures.
- Operational administrative, technical and safety oversight will continue as currently run within each network setup.

Mandate of Oversight body – *Ensure set up, operation, maintenance, expansion and funding*

- Ensure set up, operation, maintenance, expansion and funding as per the current network body structures of AFISNET, CAFSAT, NAFISAT and SADC VSAT
- The safety and technical audit function is mandated to ICAO to be carried out against applicable SARPS, regional plans and APIRG requirements

Mandate of Network provider – *Functions and supporting services*

- As currently mandated by the governing bodies of the AFISNET, CAFSAT, NAFISAT and SADC VSAT.
- Implement, operate, maintain the network and ensure present and future performance in line with strategic objectives and oversight body requirements

Any delegated ANSP aspects – *Information on expected consequences on the overall AFI air navigation system or any part thereof*

- Provision of aeronautical ground to ground interconnection services on behalf of states

Handling of Pre-implementation costs – *Determination of the costs attributed should be in a manner acceptable to all the participating states*

- States are responsible for costs within the current structures of AFISNET, CAFSAT, NAFISAT and SADC VSAT.

Cost Determination – *Format of annual costs, i.e. Capex, operational, maintenance, administrative overheads, depreciation and/or amortization and per-implementation*

- All expenses

Cost sharing – *Each state to assume responsibility for its share of the costs involved (partnership with users)*

- States are responsible for costs within the current structures of AFISNET, CAFSAT, NAFISAT and SADC VSAT.

Cost Recovery mechanism – *To be “multinationally” financed or refinanced by a state, group of states or by an agency as established under the authority of an agreement by states*

- Cost recovery is managed within the current structures of AFISNET, CAFSAT, NAFISAT and SADC VSAT.

Budget Approval – *Proper financial control will require costs and revenues to be estimated in advance*

- Budget approval is handled within the current structures of AFISNET, CAFSAT, NAFISAT and SADC VSAT.

Financial audit and taxation – *Addressed in the context of the overall operations*

- Managed within the current structures of AFISNET, CAFSAT, NAFISAT and SADC VSAT.
- It is however recommended that all bodies are audited by an external audit body annually and taxation is handled as per the requirements of the state.

Any other issues –

- None

b) States' Commitment

Financial, Managerial and other contracting aspects –

- There are currently agreements in place within the AFISNET, CAFSAT, NAFISAT and SADC VSAT structures that should continue, however the agreements that are in place should ensure that the following elements are defined:
 - Objective
 - Obligations of the parties
 - Definition and description of the network and services
 - Establishment, operation and maintenance of the network
 - Legal, financial and other responsibilities and liabilities
- Proposed Coordinating body requires:
 - Terms of reference / mandate
 - Objective
 - Defined membership
 - Tenure
 - Obligations of the parties
 - Legal, financial and other responsibilities and liabilities

C, D and E) Legal, Governance and Financial Issues

Managerial and other contracting aspects should be included as listed:

- Governing bodies and decision making arrangements
- Organisation and staffing
- Consultation
- Pre-implementation considerations
- Cost Determination
- Cost sharing
- Recovery of costs from users
- Budgeting
- Authority to approve the budget
- Financial auditing
- Taxation and other government levies
- Procedures for settlement of disputes
- Accessions, withdrawals, amendments to and termination of agreement
- Any other relevant business

Maintenance

The aspect of maintenance across all networks should be managed as part of the individual contracts with the applicable service providers in terms of the agreements in place in the AFISNET, CAFSAT, NAFISAT and SADC VSAT agreements as amended when necessary. This should include but not be limited to:

- Service level agreement
- Support plan

Participating members of the administrative group

- Botswana, Cameroon, Egypt, Ethiopia, Kenya (chairman), Libya, Mozambique, Nigeria, Seychelles, South Africa, Sudan and Zambia

END

Appendix E

FIRST MEETING OF THE TASK FORCE ON THE INTEGRATED REGIONAL TELECOMMUNICATION INFRASTRUCTURE PROJECT

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

Task Force on the Development of a Regional Project on an AFI Integrated Aeronautical Telecommunication Infrastructure

PROPOSED REVISED TERMS OF REFERENCE

1. Vision

- a) Improve the contribution of the aeronautical telecommunication infrastructure in addressing safety endeavours in the AFI Region.
- b) Enhance Air Navigation Safety, Capacity and Efficiency through elimination of deficiencies associated with AFI aeronautical infrastructure.

2. Objectives

- a) Develop a sustainable and integrated/interoperable regional IP-based Data Communication Network primarily based on VSAT Technology to provide effective aeronautical telecommunications services in AFI region;
- b) Upgrade technical capabilities of existing VSAT networks to comply with the ICAO SARPs and guidance material, user requirements and global best practices;
- c) Ensure financial sustainability of the networks through equitable and fair allocation of costs to States and users;
- d) Create harmonious and seamless administrative oversight framework for the networks;
- e) Ensure States' commitment to this initiative;
- f) Develop the AFI ATN Strategy and Implementation Plan; and
- g) Apply appropriate cost-effective technologies aligned with the Global Air Navigation Plan (Doc 9750) Aviation System Block Upgrades (ASBU) Methodology and associated technology roadmaps for communications, navigation and surveillance (CNS), information management (IM) and avionics.

3. Deliverables

The deliverables expected from the Task Force include:

3.1. Technical:

Purpose of the multinational air navigation facility/service and its operational and technical justifications.

This should include the overall plan and targets for the development and the establishment of

the facility/service.

The likely implications if any, on regulations, working routines, equipment, premises and maintenance should be included. Information on the expected consequences on the overall AFI air navigation system or any part thereof should also be included.

Deliverables

- a) *Detailed gap analysis based on ICAO SARPs and guidance material, user requirements and global best practices;*
- b) *Architectural requirements;*
- c) *Recommendations for a road-map, to be implemented by States; and*
- d) *Maintenance.*

Need for an amendment to the AFI Regional Air Navigation Plan.

Assess the need if the establishment of a multinational facility/service will necessitate an amendment to the AFI Regional Air Navigation Plan, to be carried out in accordance with established procedures.

Deliverable

Amendment proposals to the Air Navigation Plan as appropriate.

Composition of the Technical Team:

- Egypt, Botswana, Mozambique, Nigeria, Rwanda, France/Reunion, South Africa (**Team Leader**), Swaziland, Tanzania, Uganda, ASECNA, Roberts FIR, IATA,

3.2. Financial

Financial implications and cost-effectiveness.

Related information should include estimates of the total costs of the multinational facility/service covering, as required, research and development, implementation, operation and maintenance, administration, and capital costs. how all costs incurred prior to the operational phase will be financed; assessing savings which may accrue from the implementation of the facility/service and comparing these savings to the total cost estimates; proposals as to how cost shares of States participating in the provision of the project are to be determined. Also, assessment needs to be provided on impact on users from charges for the facility/service concerned.

Financial aspects

The participation of States in the provision of a multinational facility/service is based on the assumption that any State having supported and agreed to the implementation of such a facility/service and making use of it should also shoulder its respective share of the costs involved.

Deliverables

- a) *Cost estimates;*
- b) *Funding (project teams and integrated network model);*

- | |
|---------------------------------------------------------------------------------------------------------------|
| <p>c) <i>Cost recovery methods (cost sharing amongst states, billing); and</i>
d) <i>Maintenance.</i></p> |
|---------------------------------------------------------------------------------------------------------------|

Composition of the Financial Team:

- South Africa, France, Kenya, Uganda, ASECNA (**Team Leader**), IATA

3.3 Administrative/Legal:

<p>Managerial implications and other contractual aspects</p>

<p>The participating States would need to formalize in an agreement the terms under which the multinational facility/service is to be provided. A primary aim of the agreement should be to ensure that the costs involved are shared among the participating States in a fair and equitable manner.</p>

<p><i>Deliverables</i></p>

- | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>a) <i>Oversight model;</i>
b) <i>States' commitment;</i>
c) <i>Legal issues; Governance;</i>
d) <i>Maintenance; and</i>
e) <i>Draft agreement(s)</i></p> |
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Composition of the Administrative/Legal Team:

- Egypt, Namibia, Kenya (**Team Leader**), South Africa Tanzania, ASECNA, IATA,

-END-