

**INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICAN OFFICE**



**NINETEENTH MEETING OF AFI SATELLITE NETWORK
MANAGEMENT COMMITTEE (SNMC/19)**

FINAL REPORT

Accra, Ghana, 14-18 November 2011

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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Nineteenth Meeting of the AFI Satellite Network Management Committee (SNMC/19) was held at the Holiday Inn Hotel in Accra, Ghana from 14 to 18 November 2011, at the kind invitation of Ghana Civil Aviation Authority.

1.2 The meeting was opened by Mrs. **Dzifa Aku Attivor**, Deputy Minister for Transport of Ghana. She welcomed the participants and underlined that the safety of the air space depends on the integrity, maintenance and availability of numerous radio communication systems, as well as the expertise of the engineers, technical and air traffic personnel who manage, operate and maintain the facilities.

1.3 She noted that the establishment of AFISNET had greatly enhanced the dissemination of flight-related data within the West and Central African sub-region and urged the participants to consider how best to consolidate air navigation services among a small number of regionally organized centers to ensure the effective implementation of a seamless air space to deliver cost reduction. She wished the meeting successful deliberations and declared it opened.

2. Officer and Secretariat

2.1 The meeting elected as Chairman, Mr. **Prince Bismarck BOATENG** Director, Air Traffic Safety Engineering of Ghana Civil Aviation Authority.

2.2 Mr. **François-Xavier SALAMBANGA**, Regional Officer Communication Navigation and Surveillance ICAO Western and Central Africa Office, served as Secretary of the meeting and therefore prepared the working and information papers to be presented accordingly.

3. Attendance

3.1 The meeting was attended by Thirty Eight (38) participants from five (05) States (Egypt, Ghana, Mauritius, Nigeria, South Africa) and five (05) Regional Air Navigation Service Providers namely ASECNA, ATNS, GCAA, NAMA, Roberts FIR. Two (02) facilities suppliers, INEO-France and INSA-Spain, one (01) Airline Citylink Airline, the Ghana Revenue Authority (Customs), and a Satellite Service Provider, INTELSAT attended the meeting.

The list of participants is attached at **Appendix A** to this report.

4. Working Language

4.1 The meeting was conducted in the English language.

5. Agenda

5.1 The following Agenda was adopted:

Agenda Item 1: Follow up on SNMC/18 Conclusions

Agenda Item 2: Review of AFISNET operational and technical statistics of availability

2.1: *Review of AFISNET operational statistics of availability*

2.2: *Review of AFISNET technical statistics of availability*

Agenda Item 3: Review/Updating and upgrading of AFISNET nodes

Agenda Item 4: Implementation of Special AFIRAN meeting recommendations 6/18 and 6/19

Agenda Item 5: Review of the report of the of the Joint Technical Team

Agenda Item 6: AFISNET band width re-engineering and protection of C-Band for VSAT operation;

6.1 *AFISNET Bandwidth re-engineering*

6.2 *Protection of C band for CSAT operation*

Agenda Item 7: Review of the CNS/SG/4 conclusion related to AFISNET

Agenda Item 8: AFISNET integration with other AFI regional networks (CAFSAT, NAFISAT, SADC/2)

Agenda Item 9: ICAO Aviation System Block Upgrades (ASBU) concept and Required Communication Performance (RCP) for AFISNET

9.1 *ICAO Aviation System Block Upgrades*

9.2 *Required Communication Performance for AFISNET*

Agenda Item 10: Updating SNMC Form of Agreement.

Agenda Item 11: Any other business

6. Summary of Conclusions

Agenda Item 1: Follow up on SNMC/18 Conclusions

Conclusion 19/01: Implementation of SNMC/18 outstanding conclusions

That:

SNMC member States/Organizations are urged to implement SNMC/18 outstanding conclusions presented in **Appendix B** and pertaining to corrective actions to be undertaken in order to:

- a) Restore and stabilize the AFISNET reliability and availability as required;
- b) Improve maintenance coordination and monitoring procedures.

Conclusion 19/02: Maintenance Personnel exchange and Training

That:

SNMC States/Organizations should reinforce their bilateral and multilateral maintenance personnel exchange and training including language proficiency by developing short, medium and long term training plans taking into consideration the existing training capability in the Region.

Decision 19/03: Development of a training programme for maintenance personnel

That:

- a) The current SNMC coordinators (Ghana) coordinate the development before 31 December 2012, of a consolidated training programme for AFISNET maintenance personnel.
- b) This programme be based on the common facilities and the provision of ICAO Training Manual for Air Traffic Safety Electronics Personnel (ATSEP), Doc 7192-AN/857 Part E-2 version 2011
- c) ICAO WACAF Regional Office coordinate the organization of workshops and seminars by ground and space segment facilities industry;

Decision 19/04: Development of a calibration centre for AFISNET Test Equipments

That:

In accordance with Decision 18/02 of SNMC/18

- a) ASECNA host the calibration centre called upon by SNMC /18, conduct as Team leader of the technical Team feasibility studies including a cost benefit analysis to be validated by states/organizations and;
- b) ICAO continue to support the implementation process;

Decision 19/05: Follow up of the status of implementation of SNMC conclusions

That:

- a) States/Organizations nominate and transmit to the secretariat before 31 December 2011 Focal Points in charge of the quarterly reporting of the status of implementation of SNMC conclusions and decisions;
- b) The electronic media be used by Focal Points for data exchange and reporting to the acting SNMC coordinator

Agenda Item 2: Review of AFISNET operational and technical statistics of availability

Decision 19/06: Performance Data Collection Form (PDCF)

That:

In accordance with ICAO guidelines on Performance of Very Small Aperture Terminals and based on the draft conclusion of CNS/SG 4th meeting (*Conclusions 4/04, 4/06 and 4/12*) SNMC members States adopt the Performance Data Collection Form (PDCF) as attached in **Appendix D** in order to harmonize related performance measurement methodology within and between AFI satellite based aeronautical networks.

Conclusion 19/07: Four Levels Performance Assessment

That:

- a) SNMC Administrations/Organizations take advantage of the four levels Performance Assessment principle and develop a common network Performance Assessment system in order to ensure a common performance evaluation exercise and;
- b) ASECNA circulate its current model by the end of December 2011 and give any necessary assistance to SNMC members

Agenda Item 3: Review/Updating of AFISNET nodes

Conclusion 19/08: Upgrade of AFISNET nodes

That:

AFISNET States/Organizations pursue the upgrade of their AFISNET nodes to improve the availability and the reliability of the network in support to CNS/ATM provisions in line with the new ICAO ASBU concept

Agenda Item 4: Implementation of Special AFIRAN meeting recommendations 6/18 and 6/19: Audit of AFISNET

Conclusion 19/09: Terms of Reference Action Plan and Timescale of the Audit of AFISNET

That:

- a) The Action Plan and the Timescale of the AFISNET audit are adopted as per **Appendixes E**
- b) The Audit be conducted before the end of July 2012;
- c) ICAO continue to coordinate the implementation process of the audit

Conclusion 19/10: Funding mechanism for AFISNET audit

That:

- a) A State/Organization be appointed to pre-finance the audit cost in order to carry out the audit as soon as possible;
- b) States/Organizations make the necessary provision in their budgets to support the shared cost of the audit and pay their shared cost as soon as possible;
- c) ICAO coordinate the funding mechanism

Conclusion 19/11: Request for proposals

That:

- a) ASECNA draft the Request for Proposals document to be circulated amongst the Joint Technical Team for comments and finalization through E-exchanges;
- b) The Request for Proposals be launched on 1st February 2012

Conclusion 19/12: AFISNET Administrative Heads Meeting

That:

ICAO organize a high level meeting of AFISNET Administrative Heads before the end of January 2012 in order to validate and sign a MoU dealing with the different issues (sharing rule, funding, tender conditions, signing of the contract)

Agenda Item 6: AFISNET band width re-engineering and protection of C-Band for VSAT operation;

Conclusion 19/13: AFISNET Bandwidth re-engineering

That:

The Working Group on IBS carrier conversion established by SNMC 19 expedite its assignment and report to the coordinator with copy to the secretariat by end of February 2012

Conclusion 19/14: Protection of C band for VSAT operation

That:

AFISNET States/Organizations

- a) Support the ongoing process undertaken by AFI/FMG and ICAO ACP/WG/F for the protection of the **3.4-4.2 GHz** VSAT downlink band, through a follow up and a lobbying towards their National Telecommunication Regulation Authority;
- b) Take the appropriate measures to participate in the World Radiocommunication Conference (WRC-12) to support ICAO position including the protection of the 3.4-4.2 GHz band in order to sustain the safe operation of AFI VSAT satellite networks
- c) ICAO ensure, for the preparation of WRC 12, the necessary coordination arrangements with the other regions operating C Band aeronautical VSATs Networks

Agenda Item 7: Review of the CNS/SG/4 conclusions related to AFISNET

Conclusion 19/15: Implementation of CNS/SG/4 conclusions related to AFISNET

That:

AFISNET States/Organizations endeavour to implement the conclusions and decisions of CNS/SG/4 related to AFISNET

Agenda Item 8: AFISNET integration with other AFI regional networks (CAFSAT, NAFISAT, SADC/2)

Conclusion 19/16: Integration of AFISNET with other AFI regional networks

That:

- a) AFISNET States/Organizations pursue their technical cooperation to ensure a seamless interconnection between AFISNET and its neighbouring networks (CAFSAT, NAFISAT, SADC/2);
- b) ASECNA and ATNS continue their collaboration to satisfy the operational requirements on Aeronautical Fixed Services in particular, the ATS/DS circuits aiming to ensure the coordination between Moroni and Victoria, Moroni and Dar Es Salam centers.

Agenda Item 9: ICAO Aviation System Block Upgrades concept and Required Communication Performance for AFISNET**Conclusion 19/17: ICAO Aviation System Block Upgrades concept and Required Communication Performance for AFISNET**

That:

In accordance with ICAO guidance material provided in the Global Air Navigation Plan (Doc 9750) and Manual on Required Performance (Doc 9869), AFISNET States/Organizations take advantage of ICAO Aviation System Block Upgrades and Required (ASBU) Communication Performance (RCP) concepts to continuously improve the network performance to sustain the current communication network (Block 0) in the frame of the future ATM systems requirements.

Agenda Item 10: Updating SNMC Form of Agreement.**Decision 19/18: Adoption of the SNMC Form of Agreement**

That:

The SNMC Terms of Reference and Form of Agreement are adopted as attached in Appendix G

Conclusion 19/19: MoUs between ASECNA and ATNS to cover network interconnectivity operation

That:

ATNS and ASECNA establish MoUs that will govern interconnected VSAT Networks operation and maintenance.

PART II: REPORT ON AGENDA ITEMS

Agenda Item 1: Follow up on SNMC/18 Conclusions

1.1 Under this agenda item the meeting reviewed the status of implementation of the SNMC /18 twenty one (21) Conclusions and Decisions. It was noted that some conclusions have been partially implemented while others need to be implemented. The status of implementation of SNMC/18 conclusions is presented in **Appendix B**. The following conclusion was formulated:

Conclusion 19/01: Implementation of SNMC/18 outstanding conclusions

That:

SNMC member States/Organizations are urged to implement SNMC/18 outstanding conclusions presented in **Appendix B** and pertaining to corrective actions to be undertaken in order to:

- a) Restore and stabilize the AFISNET reliability and availability as required;
- b) Improve maintenance coordination and monitoring procedures.

1.2 The meeting also reviewed the pace of implementation of maintenance and operational personnel exchange exercise called upon by the previous SNMC meetings. The meeting noted that some efforts have been made by all AFISNET core members in terms of planning but these efforts need to be reinforced. The meeting also noted that the existing training centers and structure in ASECNA, NAMA, Ghana and South Africa could be taken into consideration when planning the training courses. It was agreed on the need for AFISNET members to develop short, medium and long term training plans for their bilateral and multilateral maintenance personnel exchange and training including language proficiency. In this regard, the following conclusion was formulated:

Conclusion 19/02: Maintenance Personnel exchange and Training

That:

SNMC States/Organizations should reinforce their bilateral and multilateral maintenance personnel exchange and training including language proficiency by developing short, medium and long term training plans taking into consideration the existing training capability in the Region.

1.3 The meeting also examined the issue related to the training programme and noted the necessity for AFISNET members to be provided with a consolidated common training programme that may facilitate the update of the current maintenance personnel as well as the integration of the new maintenance personnel for the system maintenance. It was noted that to be efficient, this programme to be developed by the end of year 2012 under the coordination of GCAA, should be based on AFISNET common facilities and should refer to ICAO Training Manual for Air Traffic Safety Electronics Personnel (ATSEP), Doc 7192-AN/857 Part E-2version 2011.

1.4 The meeting requested ICAO WACAF Regional Office to organize with the collaboration of the ground and space segment facilities industry, workshops and seminars aiming to enhancing the competence of AFISNET maintenance personnel. The following conclusion was formulated:

Conclusion 19/03: Development of a training programme for maintenance personnel

That:

- d) The current SNMC coordinators (Ghana) coordinate the development before 31 December 2012, of a consolidated training programme for AFISNET maintenance personnel.
- e) This programme be based on the common facilities and the provision of ICAO Training Manual for Air Traffic Safety Electronics Personnel (ATSEP), Doc 7192-AN/857 Part E-2 version 2011
- f) ICAO WACAF Regional Office coordinate the organization of workshops and seminars by ground and space segment facilities industry;

1.5 The meeting also discussed the issue related to the development of a regional calibration center for AFISNET Test equipments and noted that **Decision 18/02 of SNMC/18: Need of a calibration center for AFISNET Test Equipments** was not fully implemented. ASECNA provided information to the meeting on a project carried on and aiming to consolidating the current calibration section established in the maintenance department of its HQs. It was noted that some of the AFISNET Test Equipments, namely Spectrum Analyzers can be currently calibrated in this structure.

1.6 The meeting encouraged ASECNA to pursue its efforts in conducting this activity, invited it to host the calibration Center and lead a SNMC Technical Team established and tasked to undertake feasibility studies including Cost Benefit Analysis to be submitted to SNMC members for validation.

The meeting invited ICAO WACAF Regional Office to support the implementation process. The following decision was formulated:

Decision 19/04: Development of a calibration center for AFISNET Test Equipments

That:

In accordance with Decision 18/02 of SNMC/18;

- a) ASECNA host the calibration centre called upon by SNMC /18, conduct as Team leader of the SNMC Technical Team, feasibility studies including a Cost Benefit analysis to be validated by states/organizations and;
- b) ICAO continue to support the implementation process.

1.7 The meeting discussed the slow pace of implementation of the conclusions of the previous meetings and noted that the follow up mechanism may not be appropriate. The meeting noted the need for each Administration to nominate Focal Points for the follow up and reporting of the status of implementation of the conclusions and decisions of SNMC meetings and encouraged members to widely use electronic media for data exchange and reporting. The following decision was formulated:

Decision 19/05: Follow up of the status of implementation of SNMC conclusions

That:

- c) States/Organizations nominate and transmit to the secretariat before 31 December 2011 Focal Points in charge of the quarterly reporting of the status of implementation of SNMC conclusions and decisions;
- d) The electronic media be used by Focal Points for data exchange and reporting to the acting SNMC coordinator

Agenda Item 2: Review of AFISNET operational and technical statistics of availability

2.1 Under this agenda item the meeting reviewed the operational and technical statistics of availability of the network presented by ASECNA, ATNS, GCAA and NAMA. The meeting recognized the progress made by States/Organizations in addressing some deficiencies. However the meeting noted some remaining dysfunctions as summarized up in **Appendix C** and agreed on the need to reinforce technical and operational co-operation between COM Centres. The meeting encouraged all SNMC COM centres to regularly exchange on information on the status of their Aeronautical Fixed Service circuits (AFTN & ATS DS) and make common analysis.

2.2 It was therefore agreed that formal arrangements and agreements are imperative to action on the maintenance process and for accurate recording and reporting. The meeting therefore decided to approve the **Performance Data Collection Form (PDCF)** attached in **Appendix D** as a common model of data collection.
The following decision was formulated:

Decision 19/06: Performance Data Collection Form (PDCF)

That:

In accordance with ICAO guidelines on Performance of Very Small Aperture Terminals and based on the draft conclusion of CNS/SG 4th meeting (*Conclusions 4/04, 4/06 and 4/12*) SNMC members States adopt the **Performance Data Collection Form (PDCF)** as attached in **Appendix D** in order to harmonize related performance measurement methodology within and between AFI satellite based aeronautical networks.

2.3 The meeting was provided by ASECNA with the results of the investigation on the network availability based on a four levels analysis principle. This principle that covers measurements on levels from RF to End User accesses and includes multiplexers and base band layers, presents the advantage of separating the main components of the links allowing a detailed investigation exercise that will lead to point out the exact end to end failing level. Based on this methodology, it was noted that the issues of interconnection with AFTN switches and VCSS should be properly addressed to ensure interoperability.

2.4 The meeting therefore agreed on the need to developing a common Network Performance Assessment System (NPAS) in order to ensure a common performance evaluation exercise. The meeting requested ASECNA to circulate its assessment model and give any necessary assistance to SNMC members. The following conclusion was formulated:

2.5

Conclusion 19/07: Four Levels Performance Assessment

That:

- c) SNMC Administrations/Organizations take advantage of the four levels Performance Assessment principle and develop a common Network Performance Assessment System (NPAS) in order to ensure a common performance evaluation exercise and;
- d) ASECNA circulate its current model by the end of December 2011 and give any necessary assistance to SNMC members

Agenda Item 3: Review/Updating of AFISNET nodes

3.1 Under this agenda item the meeting noted that since the implementation of AFISNET in the early years of 1990, the network is in continuous expansion and records up to day almost one hundred (100) nodes, supporting the various aeronautical telecommunications services. The meeting recognized the ongoing growth of the network to improve the aeronautical fixed service (AFTN, ATS/DS, AMHS, AIDC...), and mainly for the aeronautical mobile service (extended VHF coverage...), and Surveillance data exchanges as reported by ASECNA and NAMA.

3.2 The Secretariat briefed the meeting on the importance to update the coordinates of the nodes in WGS 84 format to prepare the integration of GNSS and Surveillance operation on the network that refer to WGS 84 coordinates.

It was recognized that the technical specification document developed for the Request for Proposals for the external audit of the network contains provision for the update of the nodes that may be completed.

The following conclusion was formulated:

Conclusion 19/08: Upgrade of AFISNET nodes

That:

AFISNET States/Organizations pursue the upgrade of their AFISNET nodes to improve the availability and the reliability of the network in support to CNS/ATM provisions in line with the new ICAO Aviation System Blocks Upgrades (ASBU) concept.

Agenda Item 4: Implementation of Special AFIRAN meeting recommendations 6/18 and 6/19:

A) *Implementation of Special AFIRAN meeting recommendations 6/18 (Audit of AFISNET)*

4.1 Under this agenda item the meeting was provided with the actions undertaken since APIRG/18 deliberations. The document on the technical study for the network re-engineering with focus on AFISNET topology, components, base-band, satellite access, and bandwidth optimization initiated by ASECNA has been E-mailed by the secretariat to organizations for consolidation prior to this meeting before the call for tenders process in the view of AFISNET external audit.

The meeting set up a Technical Group composed with the core members and ATNS tasked to examine and amend the proposals on Action Plan, Funding Mechanisms and Grant Chart drafted and presented by ASECNA. The final Action Plan and Timescale adopted by the meeting are presented in **Appendix E**.

4.2 Taking into consideration the mayor upcoming events planned on 2012 (WRC 2012, APIRG/18, 12th Air Navigation Conference ...) the meeting agreed that, as a matter of urgency, the Audit should be completed by the end of July 2012 and called upon ICAO to pursue the coordination of the audit process. The following conclusion was formulated:

Conclusion 19/09: Action Plan and Timescale of the Audit of AFISNET

That:

- a) The Action Plan and the Timescale of the AFISNET audit are adopted as per **Appendixes E**
- b) The Audit be conducted before the end of July 2012;
- c) ICAO continue to coordinate the implementation process of the audit

4.3 The funding mechanism for the external audit of AFISNET developed by the Technical Team was discussed and approved by the meeting. Among the proposed funding mechanisms it was agreed that each concerned State/Organization should make the necessary provision to support the shared cost of the Audit and pay its shared cost as soon as possible. However, due to the constraints on time scale to complete the audit, it should be advisable that a volunteer state/organization be appointed to pre-finance the audit cost in order to carry out the audit within the approved timescale. ICAO was called upon to coordinate the funding mechanism. The following conclusion was formulated:

Conclusion 19/10: Funding mechanism for AFISNET audit

That:

- a) A State/Organization be appointed to pre-finance the audit cost in order to carry out the audit as soon as possible;
- b) States/Organizations make the necessary provision in their budgets to support the shared cost of the audit and pay their shared cost as soon as possible;
- c) ICAO coordinate the funding mechanism

4.4 The meeting also examined the mechanism of Request for Proposals and concluded on the necessity to ensure a full transparency in the Request for Proposal process. It was proposed that:

- a) The Request for Proposals will be launched on 1st February 2012 and widely published by concerned Administration/Organizations to allow an equal competition between relevant tenders;
- b) The bids will be collected by ICAO WACAF Regional Office;
- c) The technical evaluation of the bids will be achieved in the ICAO WACAF Office (Dakar) by the Technical Team under ICAO coordination.

The meeting tasked ASECNA to draft the Request for Proposals document to be circulated amongst the Joint Technical Team for comments and finalization through E-exchanges.

The following conclusion was formulated:

Conclusion 19/11: Request for proposals

That:

- a) ASECNA draft the Request for Proposals document to be circulated amongst the Joint Technical Team for comments and finalization through E-exchanges;
- b) The Request for Proposals be launched on 1st February 2012

4.5 Under this agenda item the meeting also recognized that although the audit exercise was the implementation of Sp AFI RAN recommendation it needs to have the commitment at the highest level of SNMC members States/organizations and the provision of sufficient resources to fund all the evaluation process (Coordinating meetings, participation in the audit exercise, funding consultant fees...).

It was therefore proposed that ICAO as coordinator of the exercise organizes a high level meeting of AFISNET Administrative Heads before the end of January 2012 in order to validate and sign a MoU dealing with the different issues (sharing rule, funding, tender conditions, signing of the contract).

The following conclusion was formulated:

Conclusion 19/12: AFISNET Administrative Heads Meeting

That:

ICAO organize a high level meeting of AFISNET Administrative Heads before the end of January 2012 in order to validate and sign a MoU dealing with the different issues (sharing rule, funding, tender conditions, signing of the contract).

B) *Implementation of Special AFIRAN meeting recommendations 6/18*

4.6 Under this agenda item the Secretariat provided the meeting with the outcome of the first meeting of the AFI VSAT Managers held in Durban from 13 to 15 June 2011 in which the following AFISNET core members participated: ASECNA, NAMA, and Roberts FIR. It was noted that under its agenda item 4, the Durban meeting addressed issues pertaining to the sustainability of AFISNET and that AFISNET States/Administrations were called upon through conclusions 1/4, 1/5, 1/6 and 1/7 to:

- *establish common network management and control systems with shared responsibilities;*
- *harmonize their maintenance policies in order to enhance the availability and reliability of these networks;*
- *pursue their efforts in achieving fully modernized networks;*
- *establish formal arrangements for the efficient management of the interconnections implemented between the various aeronautical VSAT networks;*
- *ensure that sufficient resources are made available in order to:*
 - a) *continuously maintain an acceptable level of performance of these VSAT networks; and*
 - b) *achieve a high degree of interoperability with other AFI VSAT networks while transitioning towards an integrated ATN infrastructure.*

4.7 The meeting noted that the issues addressed are taken into consideration by AFISNET managing activities and are reflected in current or previous SNMC meetings' conclusions and decision.

The meeting encouraged States/Organizations to pursue their effort to complete the implementation of conclusions 6/19 of SP AFI RAN meeting.

Agenda Item 5: Review of the report of the of the Joint Technical Team

5.1 Under this agenda item the meeting was reminded on the provision of the Joint Technical Team for the Network evaluation and re-engineering further to the internal assessment of the Network conducted on May 2010. The Joint Technical Team report contains 15 recommendations approved by SNMC/18 and whose follow up and implementation are required to continuously improve AFISNET performance. Since then, the Team has been assigned other tasks in particular those related to the development of the technical specifications for the Request for Proposals for the external audit as already addressed in agenda item 4.

The meeting recognized the positive role played by the Joint Technical Team under ICAO coordination and decided to extend its mandate till the completion of the audit.

Agenda Item 6: AFISNET band width re-engineering and protection of C-Band for VSAT operation

A) AFISNET band width re-engineering

6.1 Under this agenda item the Secretariat reminded the meeting on **Conclusion 17/10: IBS carriers bandwidth conversion** and **Conclusion 18/14: Conversion of IBS Band to lease band** of SNMC 17 and 18 meetings calling upon AFISNET States/Administration to make the necessary technical and financial arrangements with INTELSAT to ensure the conversion of the unused IBS band to leased band.

6.2 The meeting was provided with a presentation by INTELSAT on the detailed status of AFISNET band spectrum. It was agreed that this status needs to be supplemented by updated data from States/organizations.

Intelsat ensured the meeting that the conversion exercise was possible pending the provision of detailed status on the carriers. The meeting decided to establish a Working Group composed with a representative of each member as presented in **Appendix F** tasked to elaborate the Technical Document for the conversion of IBS carriers into leased band to be submitted to INTELSAT. It was agreed that the Working Group led by Ghana should expedite its assignment by end of February 2012.

The following Conclusion was formulated:

Conclusion 19/13: AFISNET Bandwidth re-engineering

That:

The Working Group on IBS carrier conversion established by SNMC 19 expedite its assignment and report to the coordinator with copy to the secretariat by end of February 2012.

6.3 Under this agenda item the meeting also discussed the issue related to the availability of Satellite Backup for the current aeronautical satellite VSAT networks which are supporting a service related to public safety of life. INTELSAT, the satellite service provider, reassured the meeting on the availability of various backup systems (Backup of satellite transponders, backup satellites...) including terrestrial fiber optic backbones.

It was recognized that due to the usage of this technology as a basic support to Aeronautical fixed service and VHF radio coverage with remote VSAT Stations, clear backup procedures should be developed to ensure the continuity or the easy and prompt start-up of Aeronautical Fixed and Mobile Services. The members were invited to provide INTELSAT with the service backup requirement for study.

6.4 The meeting was also informed that INTELSAT has the capability to provide Internet capacity on the network via its various Teleports. It was noted that the Roberts FIR is already provided on the satellite network with such capability that enables direct Internet connection avoiding the limitations encountered with local communication service providers. The meeting agreed on the necessity to conduct a study in the frame of the re-engineering, aiming to take advantage of this opportunity to establish Internet connections on the network in line with **Conclusion 16/15 of APIRG 16 (Aeronautical use of public internet for non time critical applications)** calling upon AFI States to consider the use of the public Internet for non-time critical applications in accordance with relevant provisions in ICAO Annexes 3, 10 and 15, and Doc 9855 (*Guidelines on the Use of the Public Internet for Aeronautical Applications*).

B) Protection of C-Band for VSAT operation

6.5 The secretariat provided the meeting with the summary up on the issue pertaining to the threat by International Mobile Telecommunication (IMT) on the downlink 3.4-4.2 GHz C-Band operated by VSATs Networks and the actions undertaken by the AFI Frequency Management Group (AFI/FMG) with the support by ICAO Aeronautical Communication Panel Working Group F (ACP WG F) and ICAO regional Offices WACAF and ESAF. The meeting was reminded that the C-Band was recognized as the best technology band range candidate to provide a weather insensitive signal radiation to carry both Aeronautical Fixed and Mobile Service as well as Aeronautical radionavigation and Surveillance services for this band is not subject to any significant attenuation by oxygen and by water vapour that are very dense in the tropical region.

6.6 The meeting was informed that some States agreed with footnotes on the usage of this band by IMT and deployment has started in some AFI region with potential occurrence of harmful interferences to the satellite downlink causing disruption to the provision of the CNS services by the satellite based backbone within the AFI region.

6.7 The meeting was reminded on the key role played by AFI States and AFI Air Navigation Service providers (Cameroun, Nigeria, Ghana, ASECNA, GCAA, NAMA...) and satellite manufacturers (Intelsat, Inmarsat..) under ICAO auspices during ITU World Radio Conference 2007 (WRC 07), that led to prevent allocation on a primary basis of this band to IMTs and the formulation of ITU **Recommendation 724 WRC 07** calling upon administrations, in particular in developing countries and in countries with remote and rural areas to recognize the importance of VSAT operations to the modernization of civil aviation telecommunications systems.

6.8 The meeting was informed that the ACP WG F 25th meeting established a small group which developed a draft resolution to be submitted to ITU World Radio Conference on 2015 by African Telecommunication Union (ATU). In this regard, ASECNA as Rapporteur of AFI/FMG reported the outcome of the last recent ATU meeting in Geneva that agreed on the draft resolution.

6.9 In this regard it was agreed that AFI Civil Aviation Authorities should make the necessary arrangement with their National Telecommunication Regulation Authorities for the formal submission of the draft resolution to ATU.

The following conclusion was formulated:

Conclusion 19/14: Protection of C band for VSAT operation

That:

AFISNET States/Organizations

- a) Support the ongoing process undertaken by AFI/FMG and ICAO ACP/WG/F for the protection of the 3.4-4.2 GHz VSAT downlink band, through a follow up and a lobbying towards their National Telecommunication Regulation Authority;
- b) Take the appropriate measures to participate in the World Radiocommunication Conference (WRC-12) to support ICAO position including the protection of the 3.4-4.2 GHz band in order to sustain the safe operation of AFI VSAT satellite networks

c) ICAO ensure, for the preparation of WRC 12, the necessary coordination arrangements with the other regions operating C Band aeronautical VSATs Networks

Agenda Item 7: Review of the CNS/SG/4 conclusions related to AFISNET

7.1 Under this agenda item the meeting was presented with the outcome of the fourth meeting of the APIRG communication Navigation and Surveillance Sub Group (CNS/SG/4) amongst which:

- a) Two (02) decisions dealing respectively with the development of a contingency plan for AFI VSAT networks operated satellites and the establishment of a Task Force for the development of a regional project aimed to enhancing the overall performance of AFI aeronautical VSAT;
- b) Eight (08) conclusions addressing issues related to the best practices for AFI VSAT networks implementation, operation and maintenance, the implementation of AFISNET network's management and control systems, the modernization of AFISNET network, the establishment of interconnections between aeronautical VSAT networks.

7.2 The meeting concluded that these relevant conclusions/decisions are in line with SNMC work programme and encouraged States and Organizations to implement them. The following conclusion was formulated:

Conclusion 19/15: Implementation of CNS/SG/4 conclusions related to AFISNET

That:

AFISNET States/Organizations endeavour to implement the conclusions and decisions of CNS/SG/4 related to AFISNET

Agenda Item 8: AFISNET integration with other AFI regional networks (CAFSAT, NAFISAT, SADC/2)

8.1 Under this agenda item the meeting reviewed the status of the interconnection between AFISNET and its neighbouring Networks. The meeting noted the efforts undertaken by AFISNET members to expedite the implementation of the previous SNMC meeting in regard to the interconnection of nodes for the achievement of AFI planned circuits for the provision of aeronautical fixed service.

8.2 It was noted that the interconnection between Kinshasa and Brazzaville was completed thanks to the collaboration between ASECNA and ATNS as well as the interconnection between Accra and Luanda although the performance of this link need to be improved.

8.3 The secretariat provided the meeting with the outcome of the first meeting of the CAFSAT Network Management Committee (CNMC/1) amongst which the following established a link between AFISNET and CAFSAT monitoring operation and maintenance models as well as committed CAFSAT members States to participate in the coordinating management activities on VSAT Networks within the Region:

- **Conclusion 1/02:** *Development of CAFSAT Earth Stations Performance Data Collection Form (PDCF) and Decision 1/02:* Utilization of provisional templates for the collection of the Performance data statistic of CAFSAT nodes;
- **Decision 1/03:** *Representation of CAFSAT members states to the AFI VSAT Managers meetings and Conclusion 1/04:* Participation in the first AFI VSAT Managers Meeting Durban, South Africa, 13-15 June 2011;

8.4 The meeting also discussed the issue related to new of ATS/DS circuits needed for the coordination in accordance with the requirements derived from the organization of the space managed by Moroni, Victoria and Dar Es Salam centres. It was agreed to take advantage of the existing AFISNET node in Moroni and NAFISAT nodes in Dar Es Slam and Victoria to establish the ATS/DS Moroni/Dar Es Salam and Moroni/Victoria links in satisfaction to coordination needs within the sub region.

The following conclusion was formulated:

Conclusion 19/16: Integration of AFISNET with other AFI regional networks

That:

- c) AFISNET States/Organizations pursue their technical cooperation to ensure a seamless interconnection between AFISNET and its neighbouring networks (CAFSAT, NAFISAT, SADC/2);
- d) ASECNA and ATNS continue their collaboration to satisfy the operational requirements on Aeronautical Fixed Services in particular, the ATS/DS circuits aiming to ensure the coordination between Moroni and Victoria, Moroni and Dar Es Salam centers.

Agenda Item 9: ICAO Aviation System Block Upgrades concept and Required Communication Performance for AFISNET

A) ICAO Aviation System Block Upgrades (ASBU) concept

9.1 Under this agenda item the secretariat briefed the meeting with a presentation on **ICAO Aviation System Block Upgrades concept**. The meeting was informed on the outcome of the Global Air Navigation Industry Symposium (**GANIS**) held in ICAO HQs from 20 to 23 September 2011 and the impact of the new concept on the requirements on AFISNET. It was agreed that the first step is to focus the attention on the reinforcement of the network availability and capability as part of **ASBU Block 0** (the current system) of the upgrade exercise.

B) Required Communication Performance for AFISNET

9.2 Under this agenda item, the secretariat reminded the meeting on Conclusion 18/ of SNMC/18 and Conclusion 17/ of APIRG/17 meetings.

A presentation on RCP concept linked to RNP was provided to the meeting.

9.3 It was recognized that the extended VHF coverage for Aeronautical mobile service operation as well as the ongoing implementation of CPDLC require that the implementation of RCP be properly addressed in the AFI region.
The following conclusion was formulated:

Conclusion 19/17: ICAO Aviation System Block Upgrades concept and Required Communication Performance for AFISNET

That:

In accordance with ICAO guidance material provided in the Global Air Navigation Plan (Doc 9750) and the Manual on Required Performance (Doc 9869), AFISNET States/Organizations take advantage of ICAO Aviation System Block Upgrades and Required (ASBU) Communication Performance (RCP) concepts to continuously improve the network performance to sustain the current communication network (**Block 0**) in the frame of the future ATM systems requirements.

Agenda Item 10: Updating SNMC Form of Agreement

10.1 Under this agenda item, the meeting was presented the consolidated Term of Reference and Form of Agreement of SNMC circulated by the secretariat among SNMC members as requested by Conclusion 18/18 (*Form of agreement and Terms of Reference of SNMC*) of SNMC 18.

The meeting adopted the final document as presented in **Appendix G**.
The following decision was formulated:

Decision 19/18: Adoption of the SNMC Form of Agreement

That:

The SNMC Terms of Reference and Form of Agreement are adopted as attached in **Appendix G**.

10.2 The meeting also discussed issues related to the interconnection exercise in particular those dealing with the bilateral and multilateral agreements to cover networks interconnectivity operation such as bandwidth cost sharing. It was agreed that ATNS and ASECNA should conclude the necessary Memorandum of Understanding (MoU) aiming to managing the interconnectivity between AFISNET, NAFISAT and SADC/2.

The following conclusion was formulated:

Conclusion 19/19: MoUs between ASECNA and ATNS to cover networks interconnectivity operation

That:

ATNS and ASECNA establish MoUs that will govern interconnected VSAT Networks operation and maintenance.

Agenda Item 11: Any other business**A) Upcoming events**

11.1 Under this agenda item the secretariat briefed the meeting on the upcoming mayor events (*ITU WRC 2012; APIRG/18 preceded by the relevant Tasks Forces of CNS/SG; Workshop on ASBU Methodology; ANC12th, Regular meetings by Regional Offices to be held...*) and encouraged members to participate in the preparation and the holding of these meetings.

B) SNMC Next Meeting

11.2 Since its inception, SNMC meetings were hosted by States/Organizations successively without any formal schedule. In view of the continuous development of its work programme, SNMC/18 agreed on the schedule of future meetings over the next six (06) years presented in **Appendix H**.

11.3 Based on this the meeting welcomed the offer of Nigeria to host the next SNMC/20 meeting. The secretariat will coordinate with Nigeria on the precise venue and dates, and SNMC members will be notified in due course.

11.4 The meeting expressed its gratitude to Ghana Civil Aviation Authority for the assistance and the arrangement undertaken to facilitate the entry and safe stay of the delegates in Ghana as well as the facilities deployed during the meeting.

APPENDIX A

Nineteenth meeting of the AFI Satellite Network Management Committee (SNMC/19)
(Accra, Ghana, 14–18 November 2011)

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Appendix B

Nineteenth meeting of the AFI Satellite Network Management Committee (SNMC/19)
(Accra, Ghana, 14–18 November 2011)

Status of Implementation of the Conclusions of SNMC/ 18 Meeting

Conclusions	Implementation Status	Remarks
<p>Conclusion 18/01: Implementation of SNMC/17 outstanding conclusions</p> <p>That:</p> <p>SNMC member States/Organizations are urged to implement SNMC/17 outstanding conclusions presented in Appendix B and pertaining to corrective actions to be undertaken in order to:</p> <p>c) Restore and stabilize AFISNET reliability and availability as required;</p> <p>d) Improve maintenance coordination and monitoring procedures.</p>	<p>a) Still valid</p> <p>b) Still valid</p>	<p>States/Organizations reported on recent and current developments</p>
<p>Conclusion 18/02: Maintenance Personnel exchange and Training</p> <p>That:</p> <p>SNMC States/Organizations reinforce maintenance personnel exchange and training including language proficiency and develop a maintenance personnel training programme based on the common facilities by the end of December 2010 and ICAO coordinates the finalization of this programme.</p>	<p>Still valid</p>	<p>GCAA: A plan to be achieved before the end of the year</p> <p>ASECNA: Personnel exchange between Niger, Chad, Benin with Nigeria</p> <p>NAMA: Planning</p> <p>Roberts FIR: Exchange with Cote d'Ivoire Senegal and Mali. Encourages to go beyond neighbors</p> <p>ATNS: Working closely with ASECNA for the interconnection between Brazzaville and Kinshasa.</p> <p>A training school available for both technical and language training</p>
<p>Conclusion 18/03: Follow up on the status of implementation of SNMC conclusions</p> <p>That:</p> <p>1. SNMC member States forward, quarterly, to the current coordinating State/Organization the status of implementation of SNMC meeting</p>	<p>Still valid</p>	<p>ASECNA reported difficulties of coordination; no formal document received from members</p> <p>Nomination of Focal Points for follow up and Periodic report</p>

<p>conclusions for compilation and reporting to all stakeholders; and</p> <p>2. ICAO continues to support States/organizations bilateral arrangements for their implementation.</p>		
<p><u>Conclusion 18/04: Improvement of Operational availability of AFISNET</u></p> <p>That:</p> <p>SNMC member States/organizations endeavor to clear out all the pending identified AFS deficiencies by the end of year 2010.</p>	<p>Partially implemented</p>	<p>States/Organizations reported on recent and current developments:</p> <p>ASECNA: Improved situation see WPs/15A, 15AA & 15B</p> <p>NAMA: Work on progress see WP/16</p> <p>GCAA: Kano Accra ATS/DS Outstanding deficiencies to be cleared out during year 2012 Deadline to be set up</p> <p>Roberts: Robert/Abidjan link to operate to ensure redundancy</p> <p>ALL: Side meetings to be held for coordination to be undertaken during the meeting</p>
<p><u>Conclusion 18/05: AFISNET earth station Performance Data Collection Form</u></p> <p>That:</p> <p>ASECNA and Ghana CAA develop and submit an Earth Stations Performance Data Collection Form (PDCF) to facilitate collection of stations availability data, taking into consideration the most sensitive components of the network.</p>	<p>Completed</p>	<p>CNS/SG has adopted the draft PDCF</p> <p>SNMC/19 adopted the PDCF</p>
<p><u>Conclusion 18/06: Updating AFISNET nodes</u></p> <p>That:</p> <p>States/Organizations update their nodes list with their coordinates, the frequency plan and report to ICAO not later than 15 July 2010 and for ICAO to circulate a consolidated file to the stakeholders.</p>	<p>Completed</p>	

<p><u>Conclusion 18/07: Implementation of Conclusion 6/19 of SP AFI RAN</u></p> <p>That:</p> <p>a) SNMC members States/Organizations participate in the AFI VSAT managers meeting called for by Conclusion 6/19 of the SP AFI RAN meeting on the basis of representative (s) from each SNMC members Sate/Organization (ie: NAMA, GCAA, Roberts FIR, ASECNA);</p> <p>b) ICAO regional Offices (WACAF and ESAF) initiate suitable arrangements for the venue of the first meeting during which the Terms of Reference and frequency of meetings will be defined;</p> <p>c) APIRG indicates the body to which reports of these global meetings will be addressed.</p>	<p>Completed</p> <p>Completed</p>	<p>Meetings held in Durban with participation of NAMA, Roberts & ASECNA from AFISNET</p>
<p><u>Decision 18/01: Adoption of the Report of the first meeting of the Joint Technical Evaluation and Re-engineering Team</u></p> <p>That;</p> <p>The Conclusions of the first meeting of the Joint Technical Evaluation and Re-engineering Team be adopted as presented in Appendix C.</p>	<p>Completed</p>	
<p><u>Conclusion 18/08: Implementation of the recommendations of the Joint Technical Team for AFISNET Evaluation and Re-engineering</u></p> <p>That:</p> <p>States/Organizations have urged to implement the recommendations of the report of the AFISNET Joint Technical Evaluation and Re-engineering Team as presented in Appendix D by focusing their efforts on the following items:</p> <p>a) Clearing current malfunctions;</p> <p>b) Upgrade of Multiplexers;</p> <p>c) Upgrade of Automatic Messages Switching Systems</p> <p>d) Upgrade of VCSS</p>	<p>Partially implemented with ongoing actions</p>	<p>Technical Specifications document completed and to be adopted by this meeting</p>

<p>e) Redundancy of modems and multiplexers</p> <p>f) Calibration of test equipments</p>		
<p><u>Conclusion 18/09: Sharing of technical data</u></p> <p>That:</p> <p>All Administrations/Organizations send relevant technical data on current and intended Automatic Messages Switching and Voice Communication Switching Systems upgrades to ICAO WACAF Office for tabulation and further remittance to administration for their study.</p>	<p>Still Valid</p>	<p>PDCF to be adopted filled up and periodically circulated</p>
<p><u>Conclusion 18/10: Continuity of AFTN Service</u></p> <p>That:</p> <p>When upgrading/replacing Automatic Messages Switching Systems, Administrations/Organizations should consider backward integration with existing messages switches with the emerging technology (AMHS) in order to ensure the continuity of AFTN service within the transition (AFTN/AMHS) time.</p>	<p>Still valid</p>	<p>Considered by AMHS Task Force</p> <p>Some states are on the progress to purchase AMHS;</p> <p>Backward compatibility to be ensured</p> <p>Ghana: in the implementation process</p> <p>NAMA: NAMA has purchased 2 AMHS with installation in progress.</p>
<p><u>Conclusion 18/11: ATS-Voice Numbering Plan</u></p> <p>That:</p> <p>When upgrading/replacing Voice Communication Switching Systems Administrations/Organizations should take into consideration the need of an ATS-Voice numbering plan for AFL.</p>	<p>Still valid</p>	<p>Technical information to be circulated by ICAO</p>
<p><u>Decision 18/02: Need of a calibration center for AFISNET Test Equipments</u></p> <p>That:</p>	<p>Not implemented Still valid</p>	<p>ASECNA volunteer to host the center</p> <p>Study to be done on 2012</p> <p>Task added to the joint technical mandate under ASECNA lead.</p>

<p>A common calibration center for test equipments should be established in the WACAF region for the benefit of members States/Organizations as well as external client.</p>		
<p>Conclusion 18/12: AFISNET Maintenance Human Factors</p> <p>That:</p> <p>AFISNET Administrations /Organizations provide AFISNET maintenance structures with adequate personnel with appropriate training:</p> <ul style="list-style-type: none"> a) Training workshops should be performed in partnership with industry (Satellite Service Providers, facilities vendors....) in order to take benefit from their expertise in the current and emerging technologies; b) Training should be in line with ICAO ATSEPS recommended programme followed by licensing of qualified personnel. 	<p>Not implemented Still valid</p>	<p>ASECNA: Example of training for la Reunion, GCAA and NAMA when installing new modems</p> <p>ASECNA provided with a training VSAT in its training school of Niamey</p> <p>ATNS: Installing a training platform for SADC2 and NAFISAT maintenance Personnel</p> <p>ALL: Training aspect to be addressed by the external audit</p>
<p>Decision 18/03: Updating the mandate of the Joint Technical Evaluation and Re-engineering Team</p> <p>That:</p> <p>The Joint Technical Evaluation and Re-engineering Team should pursue the task assigned to it by SNMC/17 and complete the study for AFISNET re-engineering by the end of October 2010.</p> <p>This study will focus on the following items taking into consideration advantages/disadvantages, cost-effectiveness, reliability and safety risks aspects:</p> <ul style="list-style-type: none"> a) AFISNET topology; b) AFISNET components; c) AFISNET base band and satellite access; and 	<p>Completed</p>	

<p>d) AFISNET bandwidth optimization.</p> <p>Meanwhile, States/organizations should take the urgent appropriate actions to clear out the pending current deficiencies before the end of year 2010.</p>		
<p>Conclusion 18/13: Conversion of IBS Band to leased band</p> <p>That:</p> <p>States/organizations pursue and complete the implementation of conclusion of SNMC17/10 by adopting the following process:</p> <ul style="list-style-type: none"> a) IBS carrier status of stations be forwarded to ASECNA for compilation and transmission to INTELSAT; and b) A Technical/financial meeting be held by SNMC members with INTELSAT to ensure the conversion of IBS band to a leased band. 	<p>Not implemented Still valid</p>	<p>Intelsat to report on the possibility of conversion</p>
<p>Conclusion 18/14: Implementation of CNS/SG/3 draft conclusions related to AFISNET</p> <p>That:</p> <p>SNMC members States/Organizations are urged to implement the draft conclusions of CNS/SG/3 related to AFISNET as presented in Appendix E;</p> <p>When updating the current deficiencies status for submission to APIRG/17, ICAO deletes the operating Accra/ Luanda link from the list of AFS deficiencies.</p>	<p>Partially implemented</p>	<p>Ghana: Accra/Luanda link established with current dysfunctions</p> <p>Ghana to coordinate with Angola to restore the link</p> <p>ATNS to assist</p>
<p>Conclusion 18/15: Interconnection between AFISNET with neighboring Networks</p> <p>That:</p> <p>The concerned States/Organizations are urged to complete the interconnection exercise of AFISNET with neighboring networks, in particular ASECNA, to take the appropriate actions in coordination with RVA (DRC) in order to realize the interconnection between the following nodes by the end of year 2010:</p> <ul style="list-style-type: none"> a) Brazzaville/Kinshasa 	<p>Partially implemented with ongoing actions</p>	<ul style="list-style-type: none"> a) Brazzaville and Kinshasa implemented on September; b) Bangui/Gbadolite under discussion between ASECNA and DRC RVA

<p>b) Bangui/G'Badolite</p> <p>c) ICAO WACAF supports the bilateral arrangements between ASECNA and RVA.</p>		
<p><u>Conclusion18/16: RCP for AFISNET</u></p> <p>That:</p> <p>SNMC members take the advantage of RCP requirements stated in ICAO Doc 9869 to improve the provision of VSAT based Aeronautical Mobile Services and ensure the availability of AFISNET hubs and remote VHF stations accordingly.</p>	<p>Not implemented Still valid</p>	<p>To be included in ASBU implementation process</p>
<p><u>Conclusion18/17: Form of agreement and Terms of Reference of AFISNET</u></p> <p>That:</p> <p>The Form of Agreement and the Terms of Reference of AFISNET be circulated by SNMC secretariat as soon as possible;</p> <p>States/Organizations forward their comments and remarks not later than 3 September 2010;</p> <p>ICAO compiles and forwards the amended Form of Agreement and Terms of Reference of the SNMC to be signed by the end of December 2010.</p>	<p>Completed</p>	<p>Document circulated and consolidated</p> <p>Submitted to the approval of this current meeting</p>
<p><u>Conclusion18/18: Audit of AFISNET.</u></p> <p>That:</p> <p>In the framework of the implementation of SP AFIRAN conclusion 6/18 and to consolidate the recommendations within the report of the Joint Technical Evaluation and Re-engineering Team, an AFISNET global audit be conducted in this regards.</p> <p>a) ASECNA is to circulate a draft Terms of Reference for the Audit not later than end of September 2010;</p> <p>b) SNMC members are to update the draft report and forward to ICAO; and</p> <p>c) ICAO is to compile and finalize the Terms of Reference for a call for Tenders.</p>	<p>a) Completed</p> <p>a) Completed</p> <p>b) Completed</p>	<p>Call for tenders process to be submitted to SNMC Administrative Head</p>

APPENDIX C

**Nineteenth meeting of the AFI Satellite Network Management Committee (SNMC/19)
(Accra, Ghana, 14–18 November 2011)**

Outstanding deficiencies on AFISNET (AFISNET AFS circuits to be stabilized)

- 1. Accra/Kano, Accra/Sao Tomé, Accra/Luanda**
- 2. Antanarivo/Johannesburg**
- 3. Brazzaville/Johannesburg, Brazzaville/Kinshasa, Brazzaville/Luanda, Brazzaville Sao Tomé**
- 4. Douala/Lagos, Douala/Kano, Douala/Lagos**
- 5. Kano/Brazzaville, Kano/Niamey,**
- 6. Lagos/Accra ; Lagos/Cotonou**
- 7. Libreville/Lagos, Libreville/Kano**
- 8. Maiduguri/N'Djamena,**
- 9. N'Djamena/Kano ; N'Djamena/Tripoli**
- 10. Niamey/Kano, Niamey/Brazzaville**
- 11. Ouagadougou/Bamako**

APPENDIX D

Nineteenth meeting of the AFI Satellite Network Management Committee (SNMC/19)
(Accra, Ghana, 14–18 November 2011)

Performance Data Collection Form

A-Global Static parameters

Center

Date

Parameters	Values	Remarks
Fixed Parameters		
Intelsat link Name	IS 901 @°E	
Transponder Number	36/36	
Satellite Earth Station Coordinates	LONG = ddd, mm O/E LAT = dd, mm N/S	Under WGS 84 Format
	AZ = ddd, mm O/E EL = dd, mm N/S	
Antenna Type and Sizem	
Antenna Gain	Tx : ...dBi Rx : ...dBi	
SSPA type	X W	
Up Converter Frequency	MHz	
Down Converter Frequency	MHz	
B-Global Dynamic parameters		
EIRP		
G/T		
C/N0		
BER		
MTBF		
MTTR		
Parameter for Carrier Performance		

Carrier failure rate		
C/N0		
BER		

APPENDIX E

**Nineteenth meeting of the AFI Satellite Network Management Committee (SNMC/19)
(Accra, Ghana, 14–18 November 2011)**

ACTION PLAN FOR THE EXTERNAL AUDIT OF AFISNET

N°	TASKS	ACTORS	Date	REMARKS
1.	Validation of the Terms of reference	SNMC 19	17/11/ 2011	In order to keep the objective of the first quarter of 2012, the Terms was validated during SNMC/19 meeting
2.	Validation of the funding mechanism	MEMBER STATES	17/11/ 2011	Individual Administrations/organization to fund
3.	Validation of the Planning - Gantt Chart	MEMBERS STATES		
4.	Drafting and approval of the tender and contract document	Technical Team under ICAO WACAF Supervision	21/11/11-20/01/12	Core Member States with ASECNA in lead to draft the document. Approval by the JTC (Joint Technical Committee) .
5.	Request for proposals	- AFISNET core members under the coordination of ICAO	1/2/12-15/3/12	Each state to advertise the call for tender in its country
6.	Opening and evaluation of the Proposals	Joint technical team ICAO –	15/3/12-22/3/12	The evaluation to be carried out by the joint technical team in DAKAR at ICAO WACAF(one week)
7.	Award, negotiation and signing of the contract	ICAO on behalf of member States	2 weeks after evaluation (23/3-6/4/12)	Date may be adjusted to accommodate APIRG meeting
8.	Implementation of the Audit and supervision of the contract		23/4/-_22/7/12	

APPENDIX F

Nineteenth meeting of the AFI Satellite Network Management Committee (SNMC/19)
(Accra, Ghana, 14–18 November 2011)

WORKING GROUP FOR THE CONVERSION OF IBS CARRIERS

Organisation	Name	Function	Phone & E-Mails
ASECNA	Mingo Aladjou SIBITANG	Chargé d'Activités Exploitation des Télécommunications	+221 77 493 68 67 sibitangd@hotmail.com
ATNS	Leon NELL	System Engineer	+27 119 61 02 29 leonn@atns.co.za
GCAA	Samuel Auxwell MENSAH	Senior Supervisor	+233 277 41 07 23 mauxwell@yahoo.com
NAMA	Ahmad IBRAHIM	Assistant General Manager	+234 80 58 94 70 30 ahmadibrahim19@yahoo.com
Roberts FIR	Moses KARBIA	Technician	m +231 646 72 53 moses_karbia@yahoo.com

APPENDIX G

Nineteenth meeting of the AFI Satellite Network Management Committee (SNMC/19)
(Accra, Ghana, 14–18 November 2011)

FORM OF AGREEMENT OF AFI SATELLITE NETWORK MANAGEMENT COMMITTEE
(SNMC)

ARTICLE 1: The AFI Satellite Network Management Committee (SNMC) is composed of the following core members:

- Nigeria Airspace Management Agency (**NAMA**);
- Agence pour la Sécurité de la navigation Aérienne en Afrique et à Madagascar (**ASECNA**);
- Ghana Civil Aviation Authority (**GCAA**);
- Roberts FIR;
- International Civil Aviation Organization (**ICAO**).

The Administrations mentioned above must be represented at the Director level in their own organizations.

Observers are listed in the Terms of Reference of SNMC and may comprise:

- Air Navigation Service Providers;
- Satcom Facilities Providers;
- Satellite Spectrum Providers;
- International Organization (ATU, ITU, SITA.);
- Airlines Association (**IATA**);
- Satcom Facilities Maintenance Personnel Association (**IFATSEA**).

ARTICLE 2: The SNMC will meet once every year or more frequently if required by the members, at one of the network centers and the working languages will be English and French.

ARTICLE 3 :

- (i) SNMC coordinating activities shall be handled by a Coordinator nominated by the State/Organization which hosts the SNMC meeting for the given year;
- (ii) The Coordinator shall be responsible for :
 - a) Liaising with the various administrations for the efficient operation of the network
 - b) Liaising with the equipment and the satellite providers as the need may arise
 - c) Undertaking such other action as may be deemed necessary

- d) Ensure the implementation of the objectives of the SNMC
- e) Act as an arbitrator among members

ARTICLE 4 : The SNMC members manage the following stations :

- **For NIGERIA:** Kano, Lagos, Maiduguri, Jos, Ilorin, Port Harcourt, Sokoto, Abuja
- **For GHANA:** Accra with VSAT nodes in Lome, Niamtougou, Cotonou and Sao Tome
- **For ASECNA:** Abidjan, Bangui, Brazzaville, Cotonou, Dakar, Douala Libreville, Lome, N'djamena, Niamey and Ouagadougou
- **For ROBERTS FIR:** Roberts

This list is not exhaustive and may be modified according to the operational needs and extensions of the network.

ARTICLE 5 : The SNMC's objectives are as follow:

- Ensure the complete implementation of **AFISNET**
- Verify that the earth stations of the network meet aeronautical telecommunication required performance-criteria
- Harmonize reporting methodology procedures
- Judge the necessity of and redeployment of the technical assistance
- Encourage cooperation, in various fields, between network centers, e.g., training, spare parts exchange, and fault location/repairs
- Study, and where feasible, undertake the extension of the network to other African countries within member states respective FIRs.
- Propose network integration and interoperability with other African aeronautical telecommunications networks
- Liaison and planning with satellite telecommunications service providers.

ARTICLE 6 : SNMC members may have technical experts accompanying them to meetings. These experts will be chosen according to their experience and

competencies in various civil aviation related fields: aeronautical telecommunications, air traffic control, meteorology, etc...

ARTICLE 7 : The SNMC Terms of Reference completes this present Form of Agreement as guidelines for SNMC Work Programmes.

ARTICLE 8 : The SNMC is not financially autonomous. Each Administration shall make adequate financial provision based on its participation in the committee's activities.

ARTICLE 9 : This agreement becomes effective from the date of signature by all Administrations.

ARTICLE 10 : In case legal disagreements arise due to the execution of the present protocol, members will be expected to seek a friendly settlement amongst themselves.

Name /Organization	Signature	Date
For NAMA		5
For ASECNA		5
For GCAA		5
For ROBERTS FIR		5
For ICAO (WACAF)		5

**TERMS OF REFERENCE OF THE SATTELITE NETWORK
MANAGEMENT COMMITTEE (SNMC)**

1. Mandate of the Satellite Network Management Committee

- 1.1 Decide on the network concept and topology in accordance with the relevant ATM operation requirements and based on ICAO SARPs and guidance materials.
- 1.2 Ensure the continued operation of the AFISNET network, meeting the CNS/ATM plan requirements of the AFI /MID /EUR Regions while taking into consideration CNS/ATM plans of adjacent regions, and including approval of deployment plans and/or extension plans.
- 1.3 Decide on type and levels of service to be provided, and monitor the performance of the Network providers (facilities and leased band) to ensure that service delivery meets the Required Service Performance Level (RSPL) and the Required Communication Performance criteria previously pre-determined when applicable, in accordance with the Manual of Required Communication Performance (RCP Doc. 9869).
- 1.4 Ensure that participating States/Organizations provide statistics on the Network Performance, and investigate service delivery complaints from users.
- 1.5 Review and take the appropriate actions to clear the service dysfunctions within the RSPL /RCP defined criteria in line with ATM PBN and SMS requirements.
- 1.6 Monitor the harmonization of the implementation of facilities and services and, where necessary, ensure interregional connectivity, taking due account of cost/benefit analysis, business case development and financing issues:
 - Study the extension of the network to other countries.
 - Propose the network integration and interoperability with other neighboring networks
- 1.7 Monitor and harmonize the Network maintenance operation and management by defining a cooperation methodology between network centers with regard to:
 - Maintenance personnel team training and exchange, redeployment if necessary of a technical assistance team or personnel;
 - spare parts exchange, fault location/repairs, and turnaround time
 - Development and modernization of AFISNET after a Joint Technical Evaluation and Re-engineering team assessment.

- 1.8 Review and adopt the annual follow up on the meeting conclusions and update the future work programme.
- 1.9 The report of the Satellite Network Management Committee is to be addressed to SNMC members States/organizations

2. Composition and organization of the Committee

2.1 Members

The Satellite Network Management Committee (SNMC) is composed of member States/Organizations hosting/operating AFISNET nodes namely:

- **NAMA (Nigeria)**
- **ASECNA (17 membres States)**
- **Roberts FIRs (Liberia, Sierra Leone, Guinea)**
- **GCAA (Ghana)**

2.2 Observers

Observers as composed below can participate in SNMC meetings when invited but shall have no voting rights:

- Air Navigation Service Providers (**ATNS-South Africa, ENANA-Angola, ENNA-Algeria, DCA-Mauritius FIR; GCAA-The Gambia, - ENASA-Sao Tome & Principe, AENA-Spain, DGAC-France, RVA-DRC...**);
- AFISNET SatCom Facilities Providers;
- Satellite Spectrum Providers (e.g. **INTELSAT**);
- National Frequency Regulators;
- Airline Associations (**IATA**);
- Maintenance Personnel Association (**IFATSEA**);
- Neighboring Networks Committees (**CAFSAT, NAFISAT& SADC/2...**).
- Air navigation equipment manufacturers.
- Search & Rescue agencies.

- 2.3 The Chair of the Committee shall be elected from among the Committee members every year. The chairman will normally be from the host organization for the given year. The chairman's mandate shall not exceed one year, unless under exceptional conditions, no meeting takes place the following year. In that case, the Chairman shall have his mandate extended by default until the next SNMC meeting is held.

- 2.4 ICAO shall be the Secretary of the Committee.
- 2.5 To ensure that the Committee functions optimally, the designated representatives of Air Navigation Service Providers should have experience in the provision of air navigation infrastructure and services. Advisors may accompany the member organization's Representative.

3. Participation of International Organizations

Apart from those listed in paragraph 2, the Committee may invite representatives of appropriate regional and international organizations (ATU, ITU, EUROCONTROL, SITA,...) to attend meetings in the capacity of observer.

4. Establishment and Dissolution of Contributory Bodies

- 4.1 In order to assist in its work, the Committee may establish bodies, e.g. task forces, charged with preparatory work on specific issues. Representation on such contributory bodies should be by specialists in the fields concerned and who are familiar with the issues under consideration.
- 4.2 The establishment and work of contributory bodies shall be governed by the following provisions:
- a) A contributory body shall only be formed when it has been clearly identified that it is likely to make a substantial contribution to the resolution of an issue in question.
 - b) A contributory body shall be given clear and concise terms of reference describing its task and an expected target date for its completion.
 - c) The composition of a contributory body shall be such that, although intended to be as small as possible, all participating States and any organization deemed to be able to make valid contributions shall be given an opportunity to participate in it.
 - d) A contributory body shall be dissolved as soon as it has either completed its assigned task or it has become apparent that work on the subject in question cannot be usefully continued.

5. Working arrangements

- 5.1 The Committee's ordinary meetings will be hosted by one of the member States/Organizations and held at least once a year;
- 5.2 The Committee can hold, in case of absolute necessity, extraordinary meetings to clear out urgent problems that may be a threat to the service provided by the network;
- 5.3 Invitation letters to meetings will be issued by the Secretariat in coordination with the hosting State/Organization.
- 5.4 Decisions shall be reached by consensus.
- 5.3 Two-thirds of members shall constitute a quorum and, where a quorum is not achieved, decisions will be reached through correspondence under the coordination of the Chairman.

**Nineteenth meeting of the AFI Satellite Network Management Committee (SNMC/19)
(Accra, Ghana, 14–18 November 2011)**

APPENDIX H

Template for SNMC future venue

SNMC Meeting	Year	Hosting State/Organization	Remarks
SNMC/19	2011	Ghana	Completed
SNMC/20	2012	Nigeria	
SNMC/21	2013	Roberts FIR	
SNMC/22	2014	ASECNA	
SNMC/23	2015	Ghana	
SNMC/24	2016	Nigeria	
SNMC/25	2017	Roberts FIR	