

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



**TWENTY FOURTH MEETING OF THE AFI SATELLITE NETWORK
MANAGEMENT COMMITTEE (SNMC/24)**

FINAL REPORT

Abuja, Nigeria, 14-18 November 2016

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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Twenty-fourth Meeting of the AFI Satellite Network Management Committee (**AFISNET SNMC/24**) was held from the 14th to 18th November 2016 at the **NICON LUXURY HOTEL** located within the central district, Abuja, Nigeria at the kind invitation of the Nigerian Airspace Management Agency (**NAMA**).

1.2 The meeting was opened by Mr **Hadi Sirika**, Honourable Minister of State for Aviation, Nigeria. He was assisted by Engr. **Emmanuel O. Anassi**, acting Managing Director/ CEO, NAMA, Nigeria and Mr **Badara A. Tarawaley**, Secretary Executive of the Roberts FIR. Mr **Sirika** welcomed and thanked the participants to have positively responded to the invitation to the meeting. He reminded the meeting on the primary objective of AFISNET consisting on the creation of a safe and reliable aeronautical telecommunication backbone across the western and central African region to facilitate regional integration through the provision of a channel for seamless exchange of aeronautical, meteorological information and operational information as well as information on flight, Search and Rescue etc...

1.3 He noted the significant contribution of AFISNET to the enhancement of safety and efficiency of air navigation within and across the AFI Region and applauded the ongoing discussions on the feasibility of surveillance data sharing within the sub-region as a highly welcome initiative in development in consideration of the multiplicity of surveillance systems available within the sub-region with immense potentials for providing redundancy across neighboring FIRs.

1.4 He informed the meeting on ongoing projects being conducted by Nigeria in the aviation sector and ensured the meeting on the commitment of the government of Nigeria to provide the adequate desirable support to conduct the future work on the development of the network.

He expressed his confidence to the ability of the participants to come out with tangible proposals for the improvement of the network.

1.5 He wished the meeting successful deliberations and declared it opened.

2. Officer and Secretariat

2.1 The meeting elected Mr. **Engr Otitolaye Johnson A.**, Assistant General Manager Electronics and Communication, NAMA as Chairman.

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

3. Attendance

3.1 The meeting was attended by sixty eight (**68**) participants from four (**04**) Air Navigation Service Providers (***ASECNA-17 States, GCAA-Ghana, NAMA-Nigeria*** and ***the Roberts FIR-Guinea, Liberia, Sierra Leone***), the Nigerian Civil Aviation Authority (**NCAA**), and representatives of the satellite industry (**NIGCOMSAT**).

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 of the meeting

5.1 The following Agenda was adopted:

Agenda Item 1: Follow up Conclusions and Decisions of SNMC/23rd meeting

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

Agenda Item 3: Evaluation and Re-engineering of AFISNET (*Implementation of Special AFI/RAN meeting Recommendations 6/18*)

3.1 Review of the Conclusions & Decisions of the coordination technical meeting of the Joint Technical Team and follow up actions

3.2 Development of a project scheme for AFISNET re-engineering and modernization (Modalities for Funding, Procurement, and provision of satellite spectrum...)

3.3 Review & Update of the planning for the re-engineering and modernization of AFISNET

Agenda Item 4: APIRG new structural organization (*IIM/SG*) and mechanisms (*Project Approach*) and its impacts on the activities of the SNMC

Agenda Item 5: Interconnection and interoperability of AFISNET with its neighboring networks (CAFSAT, NAFISAT, SADC2)

Agenda Item 6: Evolutions on Satellite Technology;

Agenda Item 7: Preparation of the ITU World Radiocommunication Conference 2019 (WRC-19)

Agenda Item 8: Review of the Term of reference and Work Programme of SNMC

Agenda Item 9: Review of the Draft Conclusions/Decisions of SNMC/24

Agenda Item 10: Any other business

6. Summary of Conclusions and Decisions

The meeting adopted Fourteen (14) Conclusions and Five (05) Decisions and tasked SNMC members with specific actions.

Agenda Item 1: Follow up Conclusions and Decisions of SNMC/23rd meeting

Conclusion 24/01: *Implementation of SNMC outstanding Conclusions/Decisions*

That:

Concerned SNMC member States/Organizations are urged to implement the outstanding Conclusions/Decisions of SNMC previous meetings including those related to SNMC/23's as presented in **Appendix B** to this report.

Decision 24/02: *Follow up of SNMC Conclusions/Decisions*

That:

In order to ensure effective implementation of the outcome of the SNMC deliberations:

- a) The Secretariat circulate in a timely manner, amongst SNMC members, the table developed to summarize the SNMC Conclusions/Decisions;
- b) A Team composed with Focal Points appointed by SNMC member Organizations is established as attached in **Appendix C** with the mandate to follow up through E-mailings and teleconferences the status of implementation of SNMC Conclusions/Decisions and report to the current SNMC coordinating ANSP with copy to the Secretariat;

- c) The SNMC current coordinator quarterly assess the status of implementation of SNMC Conclusions/ Decisions and remind if necessary members to carry out their tasks.

Conclusion 24/03: Operation and Maintenance of the AFISNET Website

That:

- a) As a matter of urgency SNMC members should establish communication mechanisms aiming to regularly providing GCAA with the relevant information they may wish to upload on the AFISNET Website (www.afisnetsnmc.org);
- b) GCAA kindly continue to afford hosting the AFISNET Website until it attains its financial autonomy through cost recovery of services to be delivered to external partners.

Decision 24/04: Autonomy of Funding for the SNMC Website

That:

In order to ensure the financial autonomy for hosting and maintaining the SNMC Website:

- a) A Study Committee composed of SNMC experts is set up as attached in **Appendix D**, with the task to identify opportunities for the marketing of the SNMC Website;
- b) The committee working under the leadership of GCAA may call for the assistance of any relevant expertise in the matter of website marketing and will submit its deliverable to SNMC/25 for formal approval;
- c) SNMC should appoint their representative in the Study Committee no later than **30/04/2017**

Conclusion 24/05: Development of E-learning

That:

In order to finalize the E-learning project document under development by ASECNA:

- a) Members should endeavor to identify relevant courses to be delivered by E-learning;
- b) In doing so they should also identify other potential candidates which may need to take benefit from the provision of the AFISNET common training manual approved by SNMC/22;
- c) ICAO is encouraged to support the SNMC E-learning initiative by providing guidance and facilitating technical assistance from the industry.

Conclusion 24/06: Satellite back up

That:

SNMC members continue the discussion with the industry in order to find a set of best available realistic and cost effective proposals aiming to ensure the back up of AFISNET, bearing in mind the critical safety of life and time sensitive constraints of the services supported by the network.

Conclusion 24/07: Regional Test Equipment calibration Centre

That:

In view of the benefits expected by the SNMC community and the tangible progress made in studies, training of experts and positive results of initial calibration activities:

- a) NAMA, who have not yet done so, is urged to forward to ASECNA, the list of potential test equipment candidate to be calibrated to enable expedite the finalization of the study;
- b) ASECNA is encouraged to complete the formal establishment of the Regional Test Equipment calibration Centre with regard to the Strategic Plan attached at **Appendix E**;
- c) ICAO continue to support the development of the Regional Test Equipment Calibration Center by facilitating various partnerships.

Agenda Item 2: Review of AFISNET operational and technical statistics of availability**Conclusion 24/08: Restoration of the AFS circuits****That:**

As a matter of urgency concerned SNMC members take the appropriate action to restore the failing AFS (ATS/DS-AFTN) circuits summarized in **Appendix F** to this report no later than **31/05/2017**.

Conclusion 24/09: Mitigation of missing Flight Plans**That:**

As a matter of high importance and urgency for safety insurance, and considering the methodology circulated by ASECNA:

- a) GCAA and Roberts FIR who have not yet done so, establish the multidisciplinary local investigation Groups composed of technical and operational personnel and including airlines representatives in order to take remedial measures to address the main causes of missing Flight Plans;
- b) NAMA, endeavor to ensure the effective functionality of the multidisciplinary local investigation Group already established;
- c) ASECNA is encouraged to assist SNMC members if needed;
- d) ANSPs should report on the actions conducted and the detailed results to SNMC/25

Conclusion 24/10: Mitigation of missing OPMETs**That:**

- a) SNMC members who are not in charge of the collection of national OPMETs namely, GCAA, NAMA and Roberts FIR, should establish and sign with the national Meteorological Agency a contract of service with requirements of Quality of Service (QoS) on OPMETS data availability, accuracy, transit time in order to provide their ACCs with relevant OPMETS row data.
- b) The dissemination of the OPMETS data collected by the Kano, Lagos and Accra centers to Niamey and by Roberts center to Dakar, should be continuously monitored in view to ensure the rate of availability agreed in the AFI Region;
- c) ASECNA should ensure the agreed level of availability of the transmission from Niamey to the regional OPMET Data Base of Dakar and from Dakar to the World area forecast Centers (WAFCs) of London.
- d) ICAO continue to support the actions for the mitigation of missing OPMETs through Workshops and seminars involving all stakeholders.

Agenda Item 3: Evaluation and Re-engineering of AFISNET (Implementation of Special AFI/RAN meeting Recommendations 6/18)***3.1 Review of the Conclusions & Decisions of the coordination technical meetings of the Joint Technical Team and follow up actions*****Decision 24/11: Endorsement of the Reports on the coordination technical meetings of the Joint Technical Team****That:**

The Reports on the Coordination Meeting for Surveillance Data sharing and implementation of AIDC along the Gulf of Guinea and on the Coordination Meeting for the finalization of the Action Plan for AFISNET modernization and re-engineering held in Lomé, Togo from 27th April to 4th May 2016 are approved and attached together with their amended Appendices.

3.2 Review & Update of the planning for the re-engineering and modernization of AFISNET

Conclusion 24/12: *Implementation of the updated Plans for short term trials on surveillance data sharing, AIDC and AMHS*

That:

- a) SNMC members endeavor to conduct, when possible, before the end of year 2016, the short term trials on surveillance data sharing and implementation of AIDC as proposed by the SNMC Joint Technical Team;
- b) They will take the opportunity to conduct where possible trials on AMHS interconnectivity as preamble to the implementation of the ATN ground component.

Decision 24/13: *Finalization of the Technical Specifications for AFISNET re-engineering and modernization*

That:

Based on the tasks carried out by the Joint Technical Team:

- a) The detailed Technical Specifications for AFISNET re-engineering and modernization should be finalized in consideration of the draft developed by ASECNA and presented to the JTE;
- b) SNMC members endeavor to develop their contribution in accordance with the Action Plan and tasks distribution agreed by the Lomé meeting as attached at **Appendix H** and forward to ASECNA for compilation no later than **31/01/2017**;
- c) ASECNA should finalize the detailed Technical Specification with the assistance of the Secretariat if necessary no later than **20 /03/2017**.

3.3 Development of a project scheme for AFISNET re-engineering and modernization (Modalities for Funding, Procurement, and provision of satellite spectrum...)

Conclusion 24/14: *Development of a project scheme for AFISNET re-engineering and modernization*

That:

- a) SNMC Members provide no later than **15 December 2016** the Secretariat with their contribution for the finalization of the draft Project Scheme for AFISNET re-engineering and modernization aiming to ensuring the relevance and consistency of the AFISNET Re-engineering exercise.
- b) The Secretariat consolidate and finalize the Project Scheme for AFISNET re-engineering and modernization to be included in the Request for Proposals document before **31 December 2016**.

Agenda Item 4: *APIRG new structural organization (IIM/SG) and mechanisms (Project Approach) and its impacts on the activities of the SNMC*

Conclusion 24/15: *Consideration of the APIRG new structural organization (APCC, IIM/SG) and mechanisms (Project Approach) for the future workprogramme of SNMC*

That:

In order to enable seamless improvement of Air Navigation Service, SNMC Members:

- a) Actively attend the forthcoming meetings of the APIRG Information and Infrastructure Sub Group (IIM/SG);
- b) Include the Re-engineering and modernization of AFISNET exercise in the framework of the APIRG Project Approach mechanisms;

- c) Identify regional/sub regional additional Communication projects in relation with AFISNET to be conducted in this framework.

Agenda Item 5: Interconnection and interoperability of AFISNET with its neighboring networks (CAFSAT, NAFISAT, SADC2)

Conclusion 24/16: Interconnection and interoperability of AFISNET with its neighboring networks

That:

In order to ensure the continuous provision of aeronautical communication service:

- a) The interconnection and interoperability of AFISNET with its neighboring networks should be pursued in a balanced manner with respect to the current architecture and topology of the network
- b) The expansion of AFISNET beyond the AFI Region should be finalized with the aim of providing a robust infrastructure to sustain the implementation of the global Aeronautical Telecommunication Network components (AIDC, AMHS).

Agenda Item 6: Evolutions on Satellite Technology;

Conclusion 24/17: Follow up satellite emerging technology

That:

When modernizing the network, SNMC members should follow up the evolution of the emerging satellite technology and take advantage of the satellite capacity available in Africa as possible spectrum solution, bearing in mind the necessity to continuously meet the Standards and Recommended Practices and guidelines governing the provision of aeronautical communication in the AFI Region.

Agenda Item 7: Preparation of the ITU World Radiocommunication Conference 2019 (WRC-19)

Conclusion 24/18: Preparation of the ITU World Radiocommunication Conference 2019 (RC-19)

That:

SNMC Members should endeavor to undertake adequate actions aimed at ensuring the protection of the C-Band operated by AFISNET. They will inter alia:

- a) Participate when feasible in the various preparatory activities for WRC-19 organized at the national, sub regional and international levels;
- b) Provide in a timely manner their contribution to the forthcoming draft ICAO Position for WRC-19;
- c) Take into account the forthcoming final ICAO position for WRC-19 to conduct the Collaborative Decision Making (CDM) with the stakeholders involved in the usage of aeronautical spectrum, in particular CAAs and National Telecommunication Regulators;
- d) Consider the identified stakes and challenges on the FSS band when conducting the re-engineering exercise of AFISNET.

Agenda Item 8: Review of the Term of reference and Work Programme of SNMC

Decision 24/19: Adoption of the Term of reference and Work Programme of SNMC

That:

The Term of Reference and Form of Agreement and Work Programme of SNMC are adopted as attached at **Appendix I** and may be further amended as necessary.

Agenda Item 9: Review of the Draft Conclusions/Decisions of SNMC/24

Agenda Item 10: Any other business

PART II: REPORT ON AGENDA ITEMS

Agenda Item 1: Follow up Conclusions and Decisions of SNMC/23

1.1 Under this agenda item the meeting reviewed the status of implementation of Fourteen (14) Conclusions and Five (05) Decision of the SNMC /23 meeting held in Accra, Ghana, from **15 to 19 February 2015**.

1.2 It was noted that some conclusions have been partially implemented while others need to be implemented. The status of implementation of SNMC/23 conclusions/decisions is presented in **Appendix B**.

The following conclusion was formulated:

Conclusion 24/01: Implementation of SNMC outstanding Conclusions/Decisions

That:

Concerned SNMC member States/Organizations are urged to implement the outstanding Conclusions/Decisions of SNMC previous meetings including those related to SNMC/23's as presented in **Appendix B to this report.**

1.3 The meeting noted the low pace of implementation of the Conclusions and Decisions of SNMC meetings as well as the lack of coordination actions conducted by the SNMC rolling coordinators. It was agreed that the coordination actions amongst members should be reinforced and the role of coordinators increased.

1.4 In this regard the Secretariat was tasked to circulate amongst SNMC members, the table developed to summarize the SNMC Conclusions/Decisions. SNMC Members were also urged to appoint Focal Points of Experts with the mandate to follow up through E-mailings and teleconferences the status of implementation of SNMC Conclusions/Decisions and report to the current SNMC coordinating ANSP with copy to the Secretariat. The current coordinator was tasked to quarterly assess the status of implementation of SNMC Conclusions/ Decisions and remind if necessary members to carry out their tasks.

The following Decision was formulated:

Decision 24/02: Follow up of SNMC Conclusions/Decisions

That:

In order to ensure effective implementation of the outcome of the SNMC deliberations:

- a) **The Secretariat circulate in a timely manner, amongst SNMC members, the table developed to summarize the SNMC Conclusions/Decisions;**
- b) **A Team composed with Focal Points appointed by SNMC member Organizations is established as attached in **Appendix C** with the mandate to follow up through E-mailings and teleconferences the status of implementation of SNMC Conclusions/Decisions and report to the current SNMC coordinating ANSP with copy to the Secretariat;**
- c) **The SNMC current coordinator quarterly assess the status of implementation of SNMC Conclusions/ Decisions and remind if necessary members to carry out their tasks.**

1.5 The meeting examined the status of the AFISNET Website and noted that it was experiencing lack of regular provision of relevant information related to the network operation and maintenance activities. It was agreed that communication mechanisms should be established by members in order to continuously provide GCAA with relevant information they may wish to upload on the AFISNET Website.

1.6 The issue on the availability of funds to host and maintain the website was raised up and it was agreed that GCAA should continue to afford hosting the AFISNET Website until it attains its financial autonomy through cost recovery of services to be delivered to external partners.

Conclusion 24/03: Operation and Maintenance of the AFISNET Website**That:**

- a) As a matter of urgency SNMC members should establish communication mechanisms aiming to regularly providing GCAA with the relevant information they may wish to upload on the AFISNET Website (www.afisnetsnmc.org);
- b) GCAA kindly continue to afford hosting the AFISNET Website until it attains its financial autonomy through cost recovery of services to be delivered to external partners.

1.7 The meeting discussed the way to ensure an autonomy of funding for the SNMC Website and agreed to establish a Study Committee composed of SNMC experts working under the leadership of GCAA with the task to identify opportunities for the marketing of the SNMC Website.

The committee is allowed to call for the assistance of any relevant expertise in the matter of website marketing and will submit its deliverable to SNMC/25 for formal approval.

In the mean time it was agreed that any initiative towards potential funders could be undertaken.

The following Conclusion was formulated:

Decision 24/04: Autonomy of Funding for the SNMC Website**That:****In order to ensure the financial autonomy for hosting and maintaining the SNMC Website:**

- e) A Study Committee composed of SNMC experts is set up as attached in **Appendix D**, with the task to identify opportunities for the marketing of the SNMC Website;
- f) The committee working under the leadership of GCAA may call for the assistance of any relevant expertise in the matter of website marketing and will submit its deliverable to SNMC/25 for formal approval;
- g) SNMC should appoint their representative in the Study Committee no later than **30/04/2017**

1.8 The meeting discussed the e-learning project under development by ASECNA. It was noted that ASECNA was not provided with courses requirements identified by SNMC members to be delivered by e-learning.

The meeting recognized that the e-learning project is viable and should be conducted in order to take benefit from the available expertise in satellite technology. It was also agreed that other potential candidates which may need to take benefit from the provision of the AFISNET common training manual approved by SNMC/22 should be identified for e-learning.

The following Conclusion was formulated:

Conclusion 24/05: Development of E-learning**That:****In order to finalize the E-learning project document under development by ASECNA:**

- a) Members should endeavor to identify relevant courses to be delivered by E-learning;
- b) In doing so they should also identify other potential candidates which may need to take benefit from the provision of the AFISNET common training manual approved by SNMC/22;
- c) ICAO is encouraged to support the SNMC E-learning initiative by providing guidance and facilitating technical assistance from the industry.

1.9 The meeting discussed in length on satellite back up for the continuous operation of AFISNET. Because this issue has technical and financial implications, it was agreed that members continue the discussion with the industry in order to find a set of best available realistic and cost effective proposals aiming to ensuring

the back up of AFISNET, bearing in mind the critical safety of life and time sensitive constraints of the services supported by the network.

The following Conclusion was formulated:

Conclusion 24/06: Satellite back up

That:

SNMC members continue the discussion with the industry in order to find a set of best available realistic and cost effective proposals aiming to ensure the back up of AFISNET, bearing in mind the critical safety of life and time sensitive constraints of the services supported by the network.

1.10 ASECNA presented to the meeting the progress made in the development of the calibration Centre for AFISNET Test equipment as decided by SNMC previous meetings. In this regard it was reported that the feasibility study of the implementation of the calibration center in the WACAF area, focused on 6400 measuring instruments (5000 for meteorological sensors and 1400 devices for electromagnetic measuring).

1.11 The contribution of NAMA (list of test equipment) to ASECNA was still awaited to complete the study. However it appeared from this step of the study, an estimated Return on Investment (ROI) after eight (8) years for an average payback period of 10 years.

1.12 A strategic plan including the construction of a building to host the center was presented by ASECNA for a smooth implementation of the calibration center, in order to ensure its will be full operation immediately after its establishment. This Strategic Plan is attached at **Appendix E** to this report.

The following Conclusion was formulated:

Conclusion 24/07: Regional Test Equipment calibration Centre

That:

In view of the benefits expected by the SNMC community and the tangible progress made in studies, training of experts and positive results of initial calibration activities:

- a) NAMA, who have not yet done so, is urged forward to ASECNA, the list of potential test equipment candidate to be calibrated to enable expedite the finalization of the study;
- b) ASECNA is encouraged to complete the formal establishment of the Regional Test Equipment calibration Centre with regard to the Strategic Plan attached at **Appendix E**;
- c) ICAO continue to support the development of the Regional Test Equipment Calibration Center by facilitating various partnerships.

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

2.1 Under this agenda item the meeting examined the statistics of availability of the Aeronautical Fixed Service (ATS/DS & AFTN) supported by AFISNET. ASECNA, GCAA and NAMA reported on the statistics of ATS/DS and AFTN circuits and underscored the main causes of the failures.

Based on the above a table of identified outstanding deficiencies was developed as attached in **Appendix F** to this report and remedial actions agreed by SNMC/24.

The following Conclusion was formulated:

Conclusion 24/08: Restoration of the AFS circuits

That:

As a matter of urgency concerned SNMC members take the appropriate action to restore the failing AFS (ATS/DS-AFTN) circuits summarized in **Appendix F to this report no later than **31/05/2017**.**

2.2 The meeting reviewed the actions undertaken to mitigate the loss of flights plans. The meeting noted that GCAA and the Roberts FIR have not yet established the multidisciplinary local investigation Groups composed of technical and operational personnel and including airlines representatives in order to take remedial measures to address the main causes of missing Flight Plans and urged these ANSPs to do so.

2.3 Nama was encouraged to make effective the functionality of the multidisciplinary local investigation Group already established and ASECNA to continue assisting SNMC members if needed. It was agreed that ANSPs will report on the actions conducted and the detailed results to SNMC/25.

The following conclusion was formulated:

Conclusion 24/09: Mitigation of missing Flight Plans

That:

As a matter of high importance and urgency for safety insurance, and considering the methodology circulated by ASECNA:

- a) **GCAA and Roberts FIR who have not yet done so, establish the multidisciplinary local investigation Groups composed of technical and operational personnel and including airlines representatives in order to take remedial measures to address the main causes of missing Flight Plans;**
- b) **NAMA, endeavor to ensure the effective functionality of the multidisciplinary local investigation Group already established;**
- c) **ASECNA is encouraged to assist SNMC members if needed;**
- d) **ANSPs should report on the actions conducted and the detailed results to SNMC/25**

2.4 The meeting discussed the issue on missing OPMETs and noted that many factors may contribute to the unavailability of OPMETs amongst which, the transmission of meteorological raw data to the ANSPs who are not in charge of the collection of national OPMETs (GCAA, NAMA and the Roberts FIR). It was agreed that a proper dissemination of the data needs to be performed between the national meteorological agencies to the Kano, Lagos, Accra and Robert Centers. These centers may ensure with ASECNA, the fluent and reliable transmission to Niamey and Dakar centers through AFISNET.

2.5 ASECNA was encouraged to ensure the availability of the transmission of OPMETs to the Regional OPMET Data Base of Dakar and to the World area forecast Centres (WAFCs) of London.

The following Conclusion was formulated:

Conclusion 24/10: Mitigation of missing OPMETs

That:

- a) **SNMC members who are not in charge of the collection of national OPMETs namely, GCAA, NAMA and Roberts FIR, should establish and sign with the national Meteorological Agency a contract of service with requirements of Quality of Service (QoS) on OPMETS data availability, accuracy, transit time in order to provide their ACCs with relevant OPMETs data.**
- b) **The dissemination of the OPMETs data collected by the Kano, Lagos and Accra centers to Niamey and by Roberts centers to Dakar, should be continuously monitored in view to ensure the rate of availability agreed in the AFI Region;**
- c) **ASECNA should ensure the agreed level of availability of the transmission from Niamey to the regional OPMET Data Base of Dakar and from Dakar to the World area forecast Centres (WAFCs) of London.**

- d) **ICAO continue to support the actions for the mitigation of missing OPMETs through Workshops and seminars involving all stakeholders.**

Agenda Item 3: Evaluation and Re-engineering of AFISNET (Implementation of Special AFI/RAN meeting Recommendations 6/18)

3.1 Under this agenda item the meeting examined the status of implementation of the Conclusions/Decisions of the previous SNMC meetings related to the Evaluation and Re-engineering of AFISNET.

In this regard the meeting reviewed the deliberations of the technical coordination meetings held in Lomé, Togo from 27th April to 4th May 2016.

3.2 The report on the Coordination meeting on surveillance data sharing and implementation of AIDC was reviewed by SNMC/24. This meeting was reported to be attended by representatives of the four ANSPs (ASECNA, GCAA, NAMA & Roberts) involving both operational and technical experts. The meeting addressed technical and operational requirements and agreed in principle to share surveillance (SSR & ADS-B) data following the proposals below:

- ***Data to be shared via point to point SATCOM links in priority and assessed on case by case basis by any other solution;***
- ***A project to be tailored in order to implement surveillance data sharing on a step by step basis with periodic assessment;***

3.3 SNMC/24 also reviewed the report on the Coordination Meeting for the finalization of the Action Plan for AFISNET Modernization and reengineering held back to back with the meeting on the implementation of AIDC and surveillance data sharing. This meeting identified the operational requirements and listed with estimated cost the equipment needed for the modernization. An assignment of Tasks to SNMC ANSPs was also proposed by the meeting.

The meeting applauded the two reports and agreed that the tasks identified should be pursued.

The following Decision was formulated:

Decision 24/11: Endorsement of the Reports on the coordination technical meetings of the Joint Technical Team

That:

The Reports on the Coordination Meeting for Surveillance Data sharing and implementation of AIDC along the Gulf of Guinea and on the Coordination Meeting for the finalization of the Action Plan for AFISNET modernization and re-engineering held in Lomé, Togo from 27th April to 4th May 2016 are approved and attached together with their amended Appendices.

3.3 The meeting examined in details and updated the Plans for short term trials on surveillance data sharing, AIDC and AMHS developed by the Lomé meeting and concluded that trials on surveillance data sharing and implementation of AIDC should be conducted when possible, before the end of year 2016.

The tables containing those Plans are attached at **Appendix G** to this report.

The following Conclusion was formulated:

Conclusion 24/12: Implementation of the updated Plans for short term trials on surveillance data sharing, AIDC and AMHS

That:

- a) **SNMC members endeavor to conduct, when possible, before the end of year 2016, the short term trials on surveillance data sharing and implementation of AIDC as proposed by the SNMC Joint Technical Team;**

- b) **They will take the opportunity to conduct where possible trials on AMHS interconnectivity as preamble to the implementation of the ATN ground component.**

3.4 The meeting examined and updated the list of tasks developed by the Lomé meeting and that will be carried out in the framework of the Joint Technical Team. With regards to calendar constraints members were urged to develop and forward their respective contribution to ASECNA for compilation no later than 31/01/2017.

The following Decision was formulated:

Decision 24/13: Finalization of the Technical Specifications for AFISNET re-engineering and modernization

That:

Based on the tasks carried out by the Joint Technical Team:

- a) **The detailed Technical Specifications for AFISNET re-engineering and modernization should be finalized in consideration of the draft developed by ASECNA and presented to the JTE;**
- b) **SNMC members endeavor to develop their contribution in accordance with the Action Plan and tasks distribution agreed by the Lomé meeting as attached at **Appendix H** and forward to ASECNA for compilation no later than **31/01/2017**;**
- c) **ASECNA should finalize the detailed Technical Specification with the assistance of the Secretariat if necessary no later than **20 /03/2017**.**

3.5 The Secretariat presented to the meeting a draft project scheme for AFISNET re-engineering and modernization involving the modalities for Funding, Procurement, and provision of satellite spectrum etc... as summarized in the table below.

Draft P draft project scheme for AFISNET re-engineering and modernization

Task	Resource	status
Establishment of a Project Team	JTE	Available
Identification of operational and technical requirements	Outcome of previous SNMC meetings	Available
Estimation of Costs	Evaluation of technical facilities	Available
Search for common funding	ECOWAS or other funding mechanisms, Cost sharing	On going
Agreement on a common procurement process Procurement Regulation	ECOWAS, ICAO TCB procurement mechanisms, Others	To be determined according to the funder requirements
Call for Tenders	Technical Specifications	Under development
Adoption of a project schedule	Based on funding& Procurement mechanisms and tenders Proposals	To be determined
Conduct and assessment	JTE, ICAO, Funder	

The meeting noted that based on the tasks distribution, members should provide additional data for the completion of the table.

The following Conclusion was formulated:

Conclusion 24/14: Development of a project scheme for AFISNET re-engineering and modernization

That:

- a) SNMC Members provide no later than **15 December 2016** the Secretariat with their contribution for the finalization of the draft Project Scheme for AFISNET re-engineering and modernization aiming to ensuring the relevance and consistency of the AFISNET Re-engineering exercise.
- b) The Secretariat consolidate and finalize the Project Scheme for AFISNET re-engineering and modernization to be included in the Request for Proposals document before **31 December 2016**.

Agenda Item 4: APIRG new structural organization (IIM/SG) and mechanisms (Project Approach) and its impacts on the activities of the SNMC

4.1 Under this agenda item the Secretariat reminded the meeting on the APIRG new structural organization and mechanisms. The meeting agreed that the framework of the SNMC in particular the Joint Technical Team is similar to the project approach envisaged by APIRG for its future work.

4.2 The meeting encouraged members to actively attend the forthcoming meetings of the APIRG Information and Infrastructure Sub Group (IIM/SG), include the Re-engineering and modernization of AFISNET exercise in the framework of the APIRG Project Approach mechanisms and identify regional/sub regional additional Communication projects in relation with AFISNET to be conducted in this framework.

The following Conclusion was formulated:

Conclusion 24/15: Consideration of the APIRG new structural organization (APCC, IIM/SG) and mechanisms (Project Approach) for the future work programme of SNMC

That:

In order to enable seamless improvement of Air Navigation Service, SNMC Members:

- a) **Actively attend the forthcoming meetings of the APIRG Information and Infrastructure Sub Group (IIM/SG);**
- b) **Include the Re-engineering and modernization of AFISNET exercise in the framework of the APIRG Project Approach mechanisms;**
- c) **Identify regional/sub regional additional Communication projects in relation with AFISNET to be conducted in this framework.**

Agenda Item 5: Interconnection and interoperability of AFISNET with its neighboring networks (CAFSAT, NAFISAT, SADC2)

5.1 Under this agenda item the meeting was provided with the upgrade related to the interconnection links between AFISNET and its neighboring networks, NAFISAT, SADC-2, CAFSAT, and REDDIG. ASECNA informed the meeting on the ongoing project of expansion of AFISNET in the SAM and NACC Region.

The status of implementation of the interconnection is summarized below:

Interconnection and interoperability between AFISNET and the neighboring VSAT networks

AFISNET Node (I)	Neighboring network node (II)	Interconnection & interoperability	Services	Observations
Dakar	Cayenne	REDDIG II	ATS/DS, AIDC	Fully operational since august 2015
	Piarco	REDDIG II		
	Recife	REDDIG II - CAFSAT	ATS/DS, AIDC, AMHS/AFTN	Implementation on going (December 2016) Interregional ATN Backbone through (AFISNET, CAFSAT)
	Johannesburg-	CAFSAT	AMHS/AFTN	Interregional ATN Backbone through (AFISNET, CAFSAT)
	Casablanca-Sal Madrid	CAFSAT	ATS/DS, AIDC, AMHS/AFTN	Re-engineering planned
	Luanda	SADC-2	ATS/DS, AIDC	Implemented in 2008, upgrade planned in the framework of AFISNET and SADC-2 Re-engineering
Abidjan	Luanda	SADC-2	ATS/DS, AIDC	
Abidjan	Recife	REDDIG -II	ATS/DS, AIDC	Implementation on going (December 2016)
Johannesburg	Eizeza	CAFSAT	AMHS/AFTN	Interregional ATN Backbone through (AFISNET, CAFSAT)
Nouakchott	Las Palmas-Casablanca	CAFSAT	ATS/DS, AIDC, AMHS/AFTN	Implemented in 2008, Re-engineering planned
Brazzaville	Khartoum--Nairobi	NAFISAT	ATS/DS, AIDC, AMHS/AFTN	AFI ATN regional backbone
	Luanda - Kinshasa	SADC-2	ATS/DS, AIDC, AMHS/AFTN	Implemented in 2008, upgrade planned in the framework of AFISNET and
Ndjamena	Khartoum--Tripoli	NAFISAT	ATS/DS, AIDC, AMHS/AFTN	

Niamey	Addis-Ababa-- Tripoli	NAFISAT	ATS/DS, AIDC, AMHS/AFTN	NAFISAT & SADC- 2 re-engineering
Antananariv o	Johannesburg- Beira	SADC-2	ATS/DS, AIDC	
	Dar Es Salam-- Victoria	NAFISAT	ATS/DS, AIDC	
Moroni	Dar Es Salam- Victoria(Seychelles	NAFISAT	ATS/DS, AIDC	Planned
	Beira	SADC-2	ATS/DS, AIDC	Planned
Bangui	Kinshasa	SADC-2	ATS/DS, AIDC	Planned

5.2 The installation of the AFISNET stations of Cayenne, French Guyana and Piarco, Trinidad de Tobago is completed and the station of Recife is under procurement.

The following Conclusion was formulated:

Conclusion 24/16: Interconnection and interoperability of AFISNET with its neighboring networks That:

In order to ensure the continuous provision of aeronautical communication service:

- a) The interconnection and interoperability of AFISNET with its neighboring networks should be pursued in a balanced manner with respect to the current architecture and topology of the network
- b) The expansion of AFISNET beyond the AFI Region should be finalized with the aim of providing a robust infrastructure to sustain the implementation of the global Aeronautical Telecommunication Network components (AIDC, AMHS).

Agenda Item 6: Evolutions on Satellite Technology;

6.1 Under this agenda item the meeting was provided with the presentation by the industry In this regard NIGCOMSAT informed SNMC/24 on the status of implementation and operation of the Nigerian geostationary communications satellite satellites **NigComSat-1** and **NigComSat-1R**.

6.2 Furthermore during a visit of the NIGCOMSAT facilities organized on Friday 18 November 2016, the participants of SNMC/24 were provided with more detailed technical and operational information (Orbit, EIRP, Spectrum, Tracking, Monitoring & Maintenance operations etc....) governing the satellite.

6.3 The meeting encouraged SNMC members to take advantage of the satellite capacity available in Africa as possible spectrum solution, bearing in mind the necessity to continuously meet the Standards and Recommended Practices and guidelines governing the provision of aeronautical communication in the AFI Region.

The following Conclusion was formulated:

Conclusion 24/17: Follow up satellite emerging technology

That:

When modernizing the network, SNMC members should follow up the evolution of the emerging satellite technology and take advantage of the satellite capacity available in Africa as possible spectrum solution, bearing in mind the necessity to continuously meet the Standards and

Recommended Practices and guidelines governing the provision of aeronautical communication in the AFI Region.

Agenda Item 7: Preparation of the ITU World Radiocommunication Conference 2019 (WRC-19)

7.1 Under this agenda item, the Secretariat informed the meeting that the International Telecommunication Union World Radio Conference (**ITU-WRC**) is scheduled to take place in Geneva on 2019 and in this regards the draft ICAO position on all issues of relevance to aviation on the agenda of WRC-19 was developed by the ICAO Frequency Management Panel (**FMP**) and will be circulated to States after its approval by the ICAO Council.

7.2 The attention of the meeting was reminded on the stakes and challenges on this future WRC-19 and their impact on the safe operation of AFISNET Frequency band. The meeting overviewed the mechanisms and stakeholders involved in the preparation of WRC at the national, sub regional and international levels

7.3 The meeting agreed that the main initiatives that can help overcoming the challenges for the forthcoming preparatory period of WRC-19 should amongst others be:

- Support by SNMC members to ICAO position for WRC-19;
- Strong link between ANSPs and CAAs to represent and defend the ICAO position at the national regulation level with the aim to obtaining a clear support from the Regulator;
- Active participation in the national sub regional and regional preparatory meetings organized by, ANSPs, AFI Frequency Management Group (AFI/ FMG), WATRA, ATU (APM), ICAO;
- Participation when possible in ITU preparatory meetings such as Working Parties and the CPM;
- Participation in the Conference itself.

The following Conclusion was formulated:

Conclusion 24/18: Preparation of the ITU World Radiocommunication Conference 2019 (RC-19)

That:

SNMC Members should endeavor to undertake adequate actions aimed at ensuring the protection of the C-Band operated by AFISNET. They will inter alia:

- a) **Participate when feasible in the various preparatory activities for WRC-19 organized at the national, sub regional and international levels;**
- b) **Provide in a timely manner their contribution to the forthcoming draft ICAO Position for WRC-19;**
- c) **Take into account the forthcoming final ICAO position for WRC-19 to conduct the Collaborative Decision Making (CDM) with the stakeholders involved in the usage of aeronautical spectrum, in particular CAAs and National Telecommunication Regulators;**
- d) **Consider the identified stakes and challenges on the FSS band when conducting the re-engineering exercise of AFISNET.**

Agenda Item 8: Review of the Term of reference and Work Programme of SNMC

8.1 Under this agenda item the meeting reviewed the Terms of Reference and Work Programme of SNMC together with the Form of agreement.

8.2 The amended Terms of reference attached in **Appendix G** to this report with the amendments highlighted was adopted by the meeting.

The following decision was formulated:

Decision 24/19: Adoption of the Term of reference and Work Programme of SNMC

That:

The Term of Reference and Form of Agreement and Work Programme of SNMC are adopted as attached at **Appendix I and may be further amended as necessary.**

Agenda Item 9: Review of the Draft Conclusions/Decisions of SNMC/24

9.1 Under this agenda item, the meeting reviewed and amended when necessary, the draft conclusions and decisions presented by the Secretariat.

9.2 It was reminded that the follow up of the implementation of these Conclusions and Decisions will be under the responsibility of **NAMA** the current SNMC coordinator until next SNMC 25 meeting to be hosted by the **Roberts FIR**.

Agenda Item 10: Any other business

10.1 Under this agenda item the meeting discussed issues related to the preparation of the visit to the ECOWAS Commission in order to present the project on AFISNET re-engineering and modernization. In this regard a delegation comprising representatives of ASECNA, GCAA, NAMA, the Roberts FIR and ICAO was established.

10.2 It was proposed that the delegation be led by NAMA assisted by the Secretary General of the Robert FIR. The Secretariat of SNMC was tasked to draft a presentation on behalf the SNMC that would be presented to the ECOWAS Commission.

10.2 The meeting confirmed the rotation process adopted for hosting SNMC meetings. In this regard the Roberts FIR is the member who will host the next SNM/25 meeting during year 2017. The Secretariat was tasked to update the table as attached at **Appendix J** to this report.

APPENDIX A

List of participants

Appendix B

Status of implementation of the Conclusions/Decisions of SNMC 23

Appendix C

Team Focal Points for the follow up of SNMC Conclusions/Decisions

Appendix D
Outstanding deficiencies

APPENDIX E

APPENDIX F

Terms of Reference and Work Programme of SNMC

APPENDIX H

Template for SNMC future venue

SNMC Meeting	Year	Hosting State/Organization	Remarks
SNMC/20	2012	Nigeria	Completed
SNMC/21	2013	Roberts FIR	Completed
SNMC/22	2014	ASECNA	Completed
SNMC/23	2015	Ghana	Completed
SNMC/24	2016	Nigeria	Completed
SNMC/25	2017	Roberts FIR	
SNMC/26	2018	ASECNA	
SNMC/26	2019	Ghana	
SNMC/27	2020	Nigeria	