

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



**TWENTY FIFTH MEETING OF THE AFI SATELLITE NETWORK
MANAGEMENT COMMITTEE (SNMC/25)**

FINAL REPORT

Freetown, Sierra Leone, 18-22 December 2017

Table of Contents

Page

PART I – HISTORY OF THE MEETING	3
Introduction	3
2. Officer and Secretariat	3
3. Attendance	3
4. Working Language.....	3
5. Agenda of the meeting.....	4
6. Summary of Conclusions and Decisions	4
PART II: REPORT ON AGENDA ITEMS.....	9
Agenda Item 1: Follow up Conclusions and Decisions of SNMC/23	9
Agenda Item 2: Review of AFISNET operational and technical statistics of availability	12
Agenda Item 3:Evaluation and Re-engineering of AFISNET (<i>Implementation of Special AFI/RAN meeting Recommendations 6/18</i>)	13
Agenda Item 4: Interconnection and interoperability of AFISNET with its neighboring networks (CAFSAT, NAFISAT, SADC2).....	15
Agenda Item 5: Outcomes of APIRG 21 st Meeting	16
Agenda Item 6: Evolutions on Satellite Technology;	17
Agenda Item 7: Preparation of the ITU World Radiocommunication Conference 2019 (WRC-19).....	17
Agenda Item 8: Review of the Term of reference and Work Programme of SNMC	18
Agenda Item 9: Review of the Draft Conclusions/Decisions of SNMC/25	18
Agenda Item 10: Any other business	18

Appendices

- A. List of participants
- B. Follow up SNMC/24 Conclusions
- C. Team of Focal Points for the follow up of SNMC deliberations
- D. Study Committee for the Website Marketing
- E. Group of Experts for the E-Learning Courses
- F. Tables of outstanding deficiencies
- G. Revised Terms of Reference of SNMC
- H. Template for SNMC future venue

PART I – HISTORY OF THE MEETING

Introduction

1.1 The Twenty-fifth Meeting of the AFI Satellite Network Management Committee (**AFISNET SNMC/25**) was held from the 18th to 22nd December 2017 at the **Bintumani Hotel** located 11 **Man” O”** War Bay, Aberdeen, **Freetown, Sierra Leone** at the kind invitation of the **ROBERTS FLIGHT INFORMATION REGION** with the support of the **Sierra Leone** Civil Aviation Authority.

1.2 The meeting was opened by Mr **Leonard Balogun Koroma**, Honourable Minister in charge of Transport, Sierra Leone. He was assisted by **El Hadj Mamadi Kaba**, Director General CAA Guinea, **Capt Moses K. Weefur**, Director General CAA Liberia, Mr. **Moses Weefur**, Acting Director General CAA Sierra Leone, Mr **Bissa Sougue**, ASECNA, Mr **Mabitsi Legodi**, ATNS, Mr **Charles Kraikue**, CAA Ghana, Mr **Badara A. Tarawaley**, Secretary Executive of the Roberts FIR and Mr **Farouk Umar** CAA Nigeria.

1.3 Honourable **Koroma** welcomed and thanked the participants to have positively responded to the invitation to the meeting. He reminded the meeting on the important role played by communication for the safety of air navigation and congratulated SNMC members for the progress achieved in providing a sustainable satellite based aeronautical communication infrastructure and systems. He outlined that the framework of the SNMC contributes to facilitate regional integration through the provision of a channel for seamless exchange of aeronautical critical information.

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

He expressed his confident 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. **Matho Nianga Gomou**, Chief of engineering Department Roberts FIR, 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 Fifty-Five eight (**55**) participants from five (**05**) Air Navigation Service Providers (**ASECNA-17 States, GCAA-Ghana, NAMA-Nigeria, the Roberts FIR-Guinea, Liberia, Sierra Leone and ATNS, South Africa**), the Guinean, Civil Aviation Authority, the Nigerian Civil Aviation Authority (**NCAA**), The Liberian Civil Aviation Authority and two (**02**) representatives of the satellite industry (**BAY SAT/POLAR SAT & ENGIE INEO**).

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

4. Working Language

The meeting was conducted in the English language.

5. Agenda of the meeting

The following Agenda was adopted:

Agenda Item 1: Follow up Conclusions and Decisions of SNMC/24th 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*)

Agenda Item 4: Interconnection and interoperability of AFISNET with its neighboring networks (CAFSAT, NAFISAT, SADC2)

Agenda Item 5: Outcomes of APIRG 21st Meeting

Agenda Item 6: Evolutions on Satellite Communication 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/25

Agenda Item 10: Any other business

6. Summary of Conclusions and Decisions

The meeting adopted Fifteen (15) Conclusions and Seven (07) Decisions and tasked SNMC members with specific actions.

Agenda Item 1: Follow up Conclusions and Decisions of SNMC/24th meeting

Conclusion 25/01: *Implementation of SNMC outstanding Conclusions/Decisions*

That:

Concerned SNMC member Organizations are urged to implement the outstanding Conclusions/Decisions of SNMC previous meetings including those related to SNMC/24's as presented in **Appendix B** to this report.

Conclusion 25/02: *Follow up and Implementation of the outcome of SNMC 25th and future meetings*

That:

SNMC members update not later than **31 January 2018**, the list of the Team of Focal Points established by SNMC 24 with the complete contact details for e-meetings (E-mailings and teleconferences); The SNMC current Coordinator (Robert FIR) with the assistance of the Secretariat endeavor to find the appropriate mechanism to efficiently follow up the implementation of the conclusions/decisions of SNMC meetings through the activities of the Team of Focal Points.

Decision 25/03: *Finalization of the SNMC Website*

That:

The mandate of the Study Committee established by SNMC/24 and tasked to identify opportunities for the marketing of the SNMC Website (**Decision 24/03**) is expanded to identify the nature of information

from ANSPs to be uploaded, the interest of the industry in the SNMC Webpage, the mechanism of operation and maintenance of the Website;

Members as a matter of urgency appoint and forward to the Roberts FIR and GCAA their nominees in the Study Committee not later than **28/02/2018**.

The funding of the operation and maintenance of the Website shall be supported on a rotational basis by the ANSP currently coordinating the SNMC, until it attains its financial autonomy through cost recovery of services.

Decision 25/04: Implementation of the E-Learning project

That:

A SNMC Group of Experts under the leadership of ASECNA is established with the mandate to identify the training courses to be delivered through E-Learning and the adequate resources to support E-Learning;

Based on the common Training Manual, the Group of Experts with the assistance of the Secretariat finalize the E-Learning document not later than **30/06/2018** for approval by the SNMC Board.

Conclusion: 25/05: Satellite back up

That:

The Joint Technical Team for AFISNET re-engineering and modernization, when finalizing the Technical specifications for the AFISNET Re-engineering, include the requirement on satellite back up as one of the highest priority criteria to be considered in the evaluation of Tenders bids.

SNMC Members continue meanwhile the consultation with the satellite industry and users in order to take advantage of the best practices for the assurance of an effective satellite or intermediate back up for the network.

Conclusion 25/06: Regional Test Equipment Calibration Center

That:

ASECNA pursue its effort to establish and resume the effective implementation of the Regional Test Equipment Calibration Center;

The Secretariat continue the promotion of the Regional Test Equipment Calibration Center

Conclusion 25/07: Mitigation of missing Flight Plans

That:

AFISNET Members pursue their effort to mitigate missing Flight Plans and other safety related operational messages carried on the Network by:

Increasing the national coordination amongst all concerned stakeholders, through the effective establishment and regular function of the Local Groups of investigation on missing Flight Plans;

Reinforcing the bilateral and multilateral technical cooperation and assistance between members;

Modernizing the messages switches to full AMHS systems.

Conclusion 25/08: Mitigation of missing OPMETS

That:

Concerned members namely GCAA and NAMA expedite the finalization of the signature of MoUs with their Departments in charge of Meteorology in order to reduce the rate of missing OPMETS.

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

Conclusion 25/09: Restoration of AFS failing circuits

That:

As a matter of urgency, concerned ANSPs take the appropriate actions aimed at restoring the failing Aeronautical Fixed Service (ATS/DS, AFTN) circuits identified by SNMC/25 and presented at **Appendix G**

Conclusion 25/10: Coordination of maintenance operation

That:

In order to ensure effective maintenance coordination between centers:

AFISNET CAAs consider in their Oversight system, Human Factors of air Traffic Safety Electronic Personnel (ATSEP) as a contributive element to the reinforcement of aeronautical safety;

AFISNET ANSPs improve the language proficiency of their maintenance staff, organize in a regular basis, exchange of technical personnel and ensure the availability of maintenance Focal Points contacts details that will be regularly updated at each SNMC meeting, to facilitate maintenance operation;

Conclusion 25/11: Protection of AFISNET stations against lightning

That:

ANSPs provide AFISNET maintenance personnel with an adequate strategy and sufficient resources to conduct the appropriate actions such as but not limited to measuring of the earth and limitation of its resistance to the standardized value aimed at efficiently protecting AFISNET stations against lightning.

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

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

Decision 25/12: Finalization of the Technical Specification and project scheme for AFISNET re-engineering and modernization

That:

Under the coordination of ASECNA, and taking into consideration the requirements for the interconnections between AFISNET with its neighboring networks in particular SADC/NAFISAT, the Joint Technical Team for AFISNET re-engineering and modernization complete the Technical Specification and the project scheme for AFISNET re-engineering and modernization not later than **15/02/2018**.

Conclusion 25/13: Funding Mechanisms for AFISNET re-engineering and modernization

That:

The detailed project cost estimation updated by the Joint Technical Team for AFISNET re-engineering and modernization be forwarded by the Secretariat to the ECOWAS Commission for consideration in the roundtable of the donors for the ECOWAS regional project in the area of transport;

ICAO continue the coordination actions with ECOWAS in preparation of the roundtable with the funders.

Conclusion 25/14: Finalization of the Memorandum of Understanding (MoU)

That:

As a matter of urgency ANSPs who have not yet done so endeavor to provide not later than **09/03/2018**, ASECNA with their comments on the draft Memorandum of Understanding aimed at governing the framework of bilateral and multilateral cooperation between members.

Conclusion 25/15: Coordination meeting of the SNMC Board

That:

An SNMC Board coordinating meeting be convened in Dakar during the first quarter of year 2018 in order to approve the AFISNET re-engineering and modernization Project scheme and signed the Memorandum of Understanding (MoU) previously finalized by ASECNA after review and inputs by GCAA, NAMA and the Roberts FIR;

The Secretariat facilitate the organization of the coordination meeting with the assistance of ASECNA.

Agenda Item 4: Interconnection and interoperability of AFISNET with its neighboring networks (CAFSAT, NAFISAT, SADC2)

Decision 25/16: *Monitoring of the performance of the links established through the interconnection of AFISNET with its neighboring Networks*

That:

ASECNA take the appropriate actions in order to follow up and monitor the performance of the links established through the interconnection of AFISNET with its neighboring Networks (SADC 2, NAFISAT, CAFSAT) and report to the SNMC.

Conclusion 25/17: *Restoration of the Accra/Luanda link*

That:

ATNS, ASECNA, GCAA and ENANA pursue their consultation in order to identify the technical causes of the dysfunction of the link between Accra (AFISNET) and Luanda (SADC 2) and conduct the remedial actions aim at restoring its performance.

Agenda Item 5: Outcomes of APIRG 21st Meeting

Conclusion 25/18: *Consideration of APIRG Regional Project Approach for the modernization of AFISNET*

That:

In the framework of the network re-engineering and modernization, ANSPs take into account the APIRG identified and approved regional projects that may have linkage with AFISNET to ensure coordination and avoid duplication.

Conclusion 25/19: *Cyber Safety and resilience of AFISNET*

That:

In order to ensure the Cyber Safety and resilience of AFISNET ANSPs endeavor to:
Conduct Gap analysis to identify AFISNET cyber vulnerabilities and mitigate the related risks;
Consider the protection of AFISNET against cyber threat in the technical specification;
Provide with the support of ICAO, technical and operational personnel with the adequate education training in the matter.

Decision 25/20: *Expansion of the Mandate of the Joint Technical Team to address issues on Cyber Safety and resilience of AFISNET*

That:

The mandate of the Joint Technical Team for AFISNET re-engineering and modernization is expanded to address issues on Cyber Safety and resilience of AFISNET.

The team will conduct its activities in this area under the coordination of the rolling SNMC coordinator and report to SNMC.

Agenda Item 6: Evolutions on Satellite Communication Technology;

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

Decision 25/21: Support to ICAO Position for WRC-19

That:

A regional preparatory conference involving various partners (CAAs, ANSPs, Airlines, Aerodrome Operators, Telecommunication Regulator) should be organized during year 2018 with the aim to develop a consistent document summarizing the concern of the African Civil Aviation community on WRC-19 agenda items;

The Secretariat in collaboration with SNMC CAAs, ANSPs and the industry initiate and coordinate the effective preparation of the conference.

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

Decision 25/22: Adoption of the Term of reference and Work Programme of SNMC

That:

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

Agenda Item 9: Review of the Draft Conclusions/Decisions of SNMC/25

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 /24 meeting held in Abuja, Nigeria, from 14 to 18 November 2016.

1.2 It was noted that some conclusions have been partially implemented while others still need to be implemented. The status of implementation of SNMC/24 conclusions/decisions is presented in **Appendix B**.

The following conclusion was formulated:

Conclusion 25/01: Implementation of SNMC outstanding Conclusions/Decisions

That:

Concerned SNMC member Organizations are urged to implement the outstanding Conclusions/Decisions of SNMC previous meetings including those related to SNMC/24's as presented in **Appendix B to this report.**

1.3 The meeting recognized a lack of proper follow up and coordination of the Conclusions and Decisions of SNMC meetings resulting in delay or missing implementation although focal points were assigned by members. It was agreed to reactivate coordination actions amongst members between two meetings and to reinforce the role of the current coordinator.

1.4 In this regard members were called upon to update the list of the Team of Focal Points established by SNMC/24 with the complete contact details for e-meetings (E-mailings and teleconferences). The current Coordinator (**Robert FIR**) and the Secretariat were tasked to find the appropriate mechanism to efficiently follow up the implementation of the conclusions/decisions of SNMC meetings through the activities of the Team of Focal Points. The current list of Focal point is presented at **Appendix C** to this report.

The following Decision was formulated:

Decision 25/02: Follow up of SNMC Conclusions/Decisions

That:

SNMC members update not later than **31 January 2018, the list of the Team of Focal Points established by SNMC/24 with the complete contact details for E-mailings and teleconferences;
The SNMC current Coordinator (**Robert FIR**) with the assistance of the Secretariat endeavor to find the appropriate mechanism to efficiently follow up the implementation of the conclusions/decisions of SNMC meetings through the activities of the Team of Focal Points.**

1.5 The meeting discussed the status of implementation of the AFISNET Website. In this regard the Robert FIR informed the meeting (**WP17**) on the initiatives undertaken to implement SNMC/24 meeting **Conclusion 24/04: "Autonomy of the financing for the SNMC website"**. The meeting was informed that, based on an assessment that revealed the inactivity of the AFISNET website and its domain, the Roberts FIR. the internet domain (www.afisnetsnmc.org) which was proposed and accepted to be the AFISNET internet domain during SNMC/23 was registered for a period of eleven (11) years. The subscription will be due for renewal on 23rd December 2027. Moreover, a secured platform was located with a subscription for the hosting paid for a period of Five (5) years until 23rd December 2022. A test AFISNET website has been developed using the domain (www.afisnetsnmc.org) and presented to the meeting.

1.6 The future development of the AFISNET site was discussed with focus on the funding of its maintenance. The meeting decided to expand the mandate of the Study Committee established by SNMC/24 and tasked to identify opportunities for the marketing of the SNMC Website (Decision 24/04) to identify the nature of information from ANSPs to be uploaded, the interest of the industry in the SNMC Webpage, the mechanism of operation and maintenance of the Website and urged members to appoint and forward to the

Roberts FIR and GCAA their nominees in the Study Committee. It was also decided that until it attains its financial autonomy through cost recovery of services, the funding of the operation and maintenance of the Website shall be supported on a rotational basis by the ANSP currently coordinating the SNMC.

The table for the collection of the members of the Study Committee is attached at **Appendix D** to this report
The following decision was formulated

Decision 25/03: Finalization of the SNMC Website

That:

The mandate of the Study Committee established by SNMC/24 and tasked to identify opportunities for the marketing of the SNMC Website (Decision 24/04) is expanded to identify the nature of information from ANSPs to be uploaded, the interest of the industry in the SNMC Webpage, the mechanism of operation and maintenance of the Website;

Members as a matter of urgency appoint and forward to the Roberts FIR and GCAA their nominees in the Study Committee not later than 28/02/2018.

The funding of the operation and maintenance of the Website shall be supported on a rotational basis by the ANSP currently coordinating the SNMC, until it attains its financial autonomy through cost recovery of services.

The meeting examined the status of implementation of the E-Learning Project and noted a low pace of implementation of the previous SNMC Conclusion/Decision related to this matter. In particular no significant steps were made forward. It was decided to establish a Group of Expert that should work under the leadership of ASECNA to:

Identify from the common Training Manual the courses;

Identify the capability of the ANSPs infrastructure to support the E-Learning

Propose a platform to host the E-Learning

Finalize the project document for E-Learning.

The template for the collection of the Group of Expert is attached at **Appendix E** to this report.

The following Conclusion was formulated:

Decision 25/04: Implementation of the E-Learning project

That:

A SNMC Group of Experts under the leadership of ASECNA is established with the mandate to identify the training courses to be delivered through E-Learning and the adequate resources to support E-Learning;

Based on the common Training Manual, the Group of Experts with the assistance of the Secretariat finalize the E-Learning document not later than 30/06/2018 for approval by the SNMC Board.

1.8 The meeting was informed by ASECNA on the consultation undertaken with INTELSAT for the satellite backup. It was noted that the proposal from the provider is based on a transponder backup on the same satellite. Nama shared its experience of satellite backup based on two satellites.

The meeting agreed that the requirement on satellite backup should be duly included in the technical specifications for AFISNET modernization and re-engineering and invited members to continue in the meantime, the consultation with the satellite industry and users in order to take advantage of the best practices for the assurance of an effective satellite or intermediate back up for the network.

The following Conclusion was formulated:

Conclusion 25/05: Satellite back up

That:

The Joint Technical Team for AFISNET re-engineering and modernization, when finalizing the Technical specifications for the AFISNET Re-engineering, include the requirement on satellite back up as one of the highest priority criteria to be considered in the evaluation of Tenders bids. SNMC Members continue meanwhile the consultation with the satellite industry and users in order to take advantage of the best practices for the assurance of an effective satellite or intermediate back up for the network

1.9 ASECNA presented to the meeting (IP05) the progress made in the development of the calibration Centre for AFISNET Test equipment as decided by SNMC previous meetings. The meeting was informed that the budget for this project has been planned in ASECNA budget for Investment for the period 2018 to 2022.

1.10 The actions identified in the short term have been conducted except the decision for the creation of the equipment test center, the purchase of Microwave equipment, the development of technical documents. Five (5) staff members have been trained on basics of calibration
The meeting applauded the effort undertaken and encouraged ASECNA to continue the projects.

The following Conclusion was formulated:

Conclusion 25/06: Regional Test Equipment Calibration Center

That:

**ASECNA pursue its effort to establish and resume the effective implementation of the Regional Test Equipment Calibration Center;
The Secretariat continue the promotion of the Regional Test Equipment Calibration Center.**

1.11 The meeting examined the actions conducted in mitigating missing flight plans and other operational messages carried on AFISNET. Members were strongly encouraged to increase the national coordination amongst stakeholders and to reinforce bilateral and multilateral technical cooperation and assistance between members.

The following Conclusion was formulated:

Conclusion 25/07: Mitigation of missing Flight Plans

That:

**AFISNET Members pursue their effort to mitigate missing Flight Plans and other safety related operational messages carried on the Network by:
Increasing the national coordination amongst all concerned stakeholders, through the effective establishment and regular function of the Local Groups of investigation on missing Flight Plans;
Reinforcing the bilateral and multilateral technical cooperation and assistance between members;
Modernizing the messages switches to full AMHS systems**

1.12 The meeting examined the issue on missing OPMETs and the status of implementation of Conclusion 24/20 "*Mitigation of missing OPMETs*" of SNMC/23rd meeting. and encouraged GCAA and NAMA expedite the finalization of the signature of MoUs with their Departments in charge of Meteorology in order to reduce the rate of missing OPMETs.

The following Conclusion was formulated:

Conclusion 25/08 : Mitigation of missing OPMETS

That:

Concerned members namely GCAA and NAMA expedite the finalization of the signature of MoUs with their Departments in charge of Meteorology in order to reduce the rate of missing OPMETS

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 collected by members and addressing the Aeronautical Fixed Service (ATS/DS & AFTN) supported by AFISNET. NAMA (W3A), GCAA(W3B), ASECNA (W3C), and Roberts FIR (WP3D) reported on the AFS statistics of and outlined the main causes of the failures of ATS/DS and AFTN circuits. The update on missing Flight Plans (WP15) and missing OPMETS (WP16) was provided to the meeting by ASECNA. 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/25. The meeting urged members to undertake the appropriate actions aimed at restoring the failing links.

The following Conclusion was formulated:

Conclusion 25/09: Restoration of AFS failing circuits

That:

As a matter of urgency, concerned ANSPs take the appropriate actions aimed at restoring the failing Aeronautical Fixed Service (ATS/DS, AFTN) circuits identified by SNMC/25 and presented at **Appendix F**

2.2 The meeting discussed issues encountered in the coordination of maintenance operation and identified the main barriers amongst which the poor language proficiency, the lack of nominated focal points in each node and the lack of exchange of maintenance professional staff.

2.3 The meeting agreed Human Factors of Air Traffic Safety Electronic Personnel (ATSEP) are contributive element to the reinforcement of aeronautical safety and invited AFISNET CAAs to consider them in their Oversight system and called upon ANSPs to improve the language proficiency of their maintenance staff, organize in a regular basis, exchange of technical personnel and ensure the availability of maintenance Focal Points contacts details that will be regularly updated at each SNMC meeting, to facilitate maintenance operation .

The following conclusion was formulated:

Conclusion 25/10: Coordination of maintenance operation

That:

In order to ensure effective maintenance coordination between centers:

AFISNET CAAs consider in their Oversight system, Human Factors of air Traffic Safety Electronic Personnel (ATSEP) as a contributive element to the reinforcement of aeronautical safety;

AFISNET ANSPs improve the language proficiency of their maintenance staff, organize in a regular basis, exchange of technical personnel and ensure the availability of maintenance Focal Points contacts details that will be regularly updated at each SNMC meeting, to facilitate maintenance operation;

2.4 The meeting noted an increase of occurrence of lighting resulting in severe dysfunction. During the last month the stations of Accra and recently of Roberts FIR have been subject to lighting with complete shutdown of the nodes. The meeting recognized the negative impact of such occurrence in the provision of AFS and AMS to support a safe Air Navigation Service. It was therefore agreed to provide AFISNET maintenance personnel with an adequate strategy and sufficient resources to conduct the appropriate actions

such as but not limited to measuring of the earth and limitation of its resistance to the standardized value aimed at efficiently protecting AFISNET stations against lightning.

The following Conclusion was formulated:

Conclusion 25/11: Protection of AFISNET stations against lightning

That:

ANSPs provide AFISNET maintenance personnel with an adequate strategy and sufficient resources to conduct the appropriate actions such as but not limited to measuring of the earth and limitation of its resistance to the standardized value aimed at efficiently protecting AFISNET stations against lightning.

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 reviewed the ongoing actions aimed at completing the process for the Evaluation and Re-engineering of AFISNET. In this regard ASECNA provided the meeting (**WP04**) with the status of development of the Technical Specification. Inputs were received from some SNMC members but it is still to be completed and ASECNA proposed to complete and submit the development of the detailed Technical Specifications for AFISNET re-engineering and modernization by 15th February 2018.

The following Decision was formulated:

Decision 25/12: Finalization of the Technical Specification and project scheme for AFISNET re-engineering and modernization

That:

Under the coordination of ASECNA, and taking into consideration the requirements for the interconnections between AFISNET with its neighboring networks in particular SADC/NAFISAT, the Joint Technical Team for AFISNET re-engineering and modernization complete the Technical Specification and the project scheme for AFISNET re-engineering and modernization not later than 15/02/2018.

3.2 The meeting discussed the funding mechanism for AFISNET meeting re-engineering. In this regard the Secretariat presented (WP05) three scenario that can be envisaged to fund the AFISNET re-engineering and modernization:

3.2.1 Common funding with direct mobilization of resources by ANSPs

In this case each ANSPs will mobilize and bring its own resources for the funding based on the cost estimation for its contributing nodes to be modernized. This Scenario is similar to the one used to fund the external Audit.

3.2.2 Prefunding the total of the project by one or more ANSP in a cost recovery basis. In this case a Memorandum of Understanding will include in the project the schedule for reimbursement of the prefund.

3.2.3 Search for a common funding source.

In this scenario, the project is considered as a sub-regional Aeronautical Telecommunication Project by donors or funders.

3.3 The meeting was also informed that the SNMC/24 meeting paid a courtesy visit to the Community Development Programme (CDP), Macroeconomic Policy Department of the ECOWAS Commission for Infrastructure. During this meeting were discussed issues on the eligibility of the AFISNET modernization project as an ECOWAS regional project. The Secretariat informed the meeting that at the request of ECOWAS, the Secretariat the Guidelines for the Finalization of Priority Projects and the Project Datasheet Template were filled up for submission of the project to the round table with the funders/donors.

3.4 Furthermore, the Secretariat recently updated the document to include ATM systems and AMHS terminals for the SNMC centers and included Cape Verde in order to have a “*No country Left Behind*” ECOWAS Project. The updated documents were submitted to ECOWAS through the attached letter

(Appendix G) with copy to Members in view of the roundtable tentatively planned to take place in Abidjan Cote d'Ivoire early 2018. The meeting applauded the initiative undertaken by the Secretariat and set up an ad'hoc committee composed with SNMC core members tasked to complete the estimation of the project.

The following Conclusion was formulated:

Conclusion 25/13: Funding Mechanisms for AFISNET re-engineering and modernization

That:

The detailed project cost estimation updated by the Joint Technical Team for AFISNET re-engineering and modernization be forwarded by the Secretariat to the ECOWAS Commission for consideration in the roundtable of the donors for the ECOWAS regional project in the area of transport; ICAO continue the coordination actions with ECOWAS in preparation of the roundtable with the funders.

3.5 The attention of the meeting was drawn on the draft *Memorandum of Understanding (MoU)* developed by ASECNA and submitted to SNMC members for review. It appeared that the Robert FIR and NAMA legal services have already examined the document. GCAA committed to also review the draft MoU. The meeting recognized that this MoU can be a framework governing bilateral and multilateral cooperation between members for the conduct of action beyond the network re-engineering and modernization. It was therefore agreed that all the comments on the draft Memorandum of Understanding should be provided to ASECNA not later than 09/03/2018.

The following Decision was formulated:

Conclusion 25/14: Finalization of the Memorandum of Understanding (MoU)

That:

As a matter of urgency ANSPs who have not yet done so endeavor to provide not later than 09/03/2018, ASECNA with their comments on the draft Memorandum of Understanding aimed at governing the framework of bilateral and multilateral cooperation between members.

3.6 The meeting recognized that since the SNMC the meeting on 16th October 2015 during which the results of the External Audit of AFISNET was presented to the SNMC Board the issue on the funding of the project has become a hurdles to the development of the project. The meeting also recognized that an agreement on a funding mechanism as part of the MoU in preparation requires a meeting of SNMC Board.

3.7 It was therefore agreed to convey in Dakar, a SNMC Board meeting during the first quarter of 2018 in order to approve the AFISNET re-engineering and modernization Project scheme and signed the Memorandum of Understanding (MoU). ASECNA was asked to kindly host such meeting in Dakar and the Secretariat to facilitate its organization.

The following Conclusion was formulated:

Conclusion 25/15: Coordination meeting of the SNMC Board

That:

An SNMC Board coordinating meeting be convened in Dakar during the first quarter of year 2018 in order to approve the AFISNET re-engineering and modernization Project scheme and signed the Memorandum of Understanding (MoU) previously finalized by ASECNA after review and inputs by GCAA, NAMA and the Roberts FIR; The Secretariat facilitate the organization of the coordination meeting with the assistance of ASECNA

Agenda Item 4: Interconnection and interoperability of AFISNET with its neighboring networks (CAFSAT, NAFISAT, SADC2)

4.1 Under this agenda item the meeting reviewed the status of implementation of the interconnection of AFISNET with its neighboring networks. ASECNA reported that in coordination with DGAC (French Guyana), Trinidad & Tobago Civil Aviation Authority (TTCAA) and Brazil, the interconnection of AFISNET to REDDIG -2 and CAFSAT through the implementation of AFISNET nodes in Cayenne (French Guyana, Piarco (Trinidad and Tobago) and Recife (Brazil), was completed with IP capability.

4.2 This extension of AFISNET to the SAM region solves deficiencies in the Aeronautical Fixed Services affecting the two regions and improves the ATM provision between AFI and SAM regions. It is an opportunity to build an interregional circuit, with the capability to support the forthcoming CNS applications (AMHS and AIDC).

4.3 CAFSAT and AFISNET networks are interconnected through Dakar and the Recife AFISNET and CAFSAT nodes with the capability to support IP protocols. The CNMC and the SNMC are respectively in the process to upgrade CAFSAT and AFISNET networks to both support IP protocols and trials on AMHS and AIDC in the framework of SAT are planned to be conducted by DGAC(France), DECEA (Brazil) and TTCCA (Trinidad and Tobago) and ASECNA.

4.4 South Africa provided the meeting (WP07) with a detailed status of the availability of SADC/2 and NAFISAT networks. It was reported that co-operation between ATNS – ASECNA and other AFISNET member States ensures interoperability of the networks. The specification and design of the NAFISAT and SADC2 networks provide continued connectivity with AFISNET and during the upgrade of NAFISAT and SADC2 provision was made for the retention of the current technical interface solution with the AFISNET network. Challenges were experienced with some of the connections, particularly in respect of the Brazzaville and lately the Accra circuits.

It was agreed that ASECNA take the appropriate actions in order to follow up and monitor the performance of the links established through the interconnection of AFISNET with its neighboring Networks (SADC 2, NAFISAT, CAFSAT) and report to the SNMC.

The following Conclusion was formulated:

Decision 25/16: Monitoring of the performance of the links established through the interconnection of AFISNET with its neighboring Networks

That:

ASECNA take the appropriate actions in order to follow up and monitor the performance of the links established through the interconnection of AFISNET with its neighboring Networks (SADC 2, NAFISAT, CAFSAT) and report to the SNMC.

4.5 The dysfunction of the ATS/DS link between Accra (AFISNET) and Luanda (SADC/2) was discussed and a side meeting was held involving the above organization in order to coordinate remedial actions.

The following Conclusion was formulated:

Conclusion 25/17: Restoration of the Accra/Luanda link

That:

ATNS, ASECNA, GCAA and ENANA pursue their consultation in order to identify the technical causes of the dysfunction of the link between Accra (AFISNET) and Luanda (SADC 2) and conduct the remedial actions aim at restoring its performance

Agenda Item 5: Outcomes of APIRG 21st Meeting

5.1 Under this agenda item the meeting reviewed (**WP08**) the outcome of the APIRG 21st Meeting held in Nairobi Kenya from 9 to 11 October 2017 with focus on the Conclusions and Decisions with impact on AFISNET.

5.2 APIRG/21st meeting reviewed the fourteen (**14**) Regional Projects identified by the Infrastructure and Information Management /Sub Group (**IIM/SG**) (*respectively three (03) AIM Projects, nine (09) CNS & Spectrum projects and Two (02) MET Projects*) and approved the appointment of Project Teams (**PTs**) members and the assignment of Project Teams Coordinators (**PTCs**).

5.3 In the area of Aeronautical Communication, all the regional projects have a link with AFISNET since they are dealing with service directly supported by the networks:

5.3.1 **IIMSG COM Project 1 & IIMSG COM Project 2** are related to Aeronautical Fixed Service delivering Ground/Ground Communication such as Air Traffic Service /Direct Speech (**ATS/DS**), Air Traffic Service Interfacilities Data Communication (**AIDC**), Voice over Internet Protocol (**VoIP**), Aeronautical Fixed Telecommunication Network (**AFTN**), Air Traffic Service Message Handling System (**AMHS**).

5.3.2 **IIMSG COM Project 3** aims at supporting Aeronautical Mobile Service (**AMS**) by enabling the provision of long range remotely VHF coverage for voice and future datalink.

5.3.3 **IIMSG COM Project 4** plans to implement an AFI Integrated Aeronautical Telecommunication Infrastructure with the aim to achieve interoperability among the AFI aeronautical VSAT networks, develop and implement AFI ATN backbone, provide a common IP based managed network service across the AFI region and an efficient support to operational data and potentially voice communications

5.4 The meeting encouraged SNMC members to consider in the AFISNET re-engineering and modernization exercise, the APIRG identified and approved regional projects that may have linkage with AFISNET to ensure harmonization and avoid duplication.

The following Conclusion was formulated:

Conclusion 25/18: Consideration of APIRG Regional Project Approach for the modernization of AFISNET

That:

In the framework of the network re-engineering and modernization, ANSPs take into account the APIRG identified and approved regional projects that may have linkage with AFISNET to ensure coordination and avoid duplication.

5.5 Cyber Safety and resilience of AFISNET

5.5.1 **IIMSG COM Project 5** addresses the issue on Cyber Safety and Resilience for the Air Navigation System widely developed under **WP 09** which emphasizes that the worldwide exchange of aeronautical information, while enhancing efficiency, capacity and flexibility of the operations and raising productivity, increases vulnerabilities to cyber-attacks since the trend is to use open available and emerging technologies.

5.5.2 The cyber threats associated to the vulnerabilities of the air navigation system will increase since current and future systems to be implemented, require more information sharing through increased use of public available information technology, shared network and computing infrastructures.

5.5.3 The threat is both very real, serious and may emanate from various internal and /or external sources since the air navigation systems infrastructure includes people, procedures, information, resources, facilities (air traffic services units and airports), equipment (communications, navigation, and surveillance (CNS)). Therefore, in the framework of their National Civil Aviation Security Programme, States and Operators were

called upon to develop and execute security strategies and plans to ensure continued mission operations despite cyber threats that can jeopardize safety and resilience of the air navigation system.

The following conclusion was formulated:

Conclusion 25/19: Cyber Safety and resilience of AFISNET

That:

**In order to ensure the Cyber Safety and resilience of AFISNET ANSPs endeavor to:
Conduct Gap analysis to identify AFISNET cyber vulnerabilities and mitigate the related risks;
Consider the protection of AFISNET against cyber threat in the technical specification;
Provide with the support of ICAO, technical and operational personnel with the adequate education training in the matter.**

5.5.4 Considering the above, the meeting decided to expand the Mandate of the Joint Technical Team to address issues on Cyber Safety and resilience of AFISNET and invited the Team to include the requirement on cyber safety in the Technical Specification for AFISNET re-engineering and modernization.

The following Decision was formulated:

Decision 25/20: Expansion of the Mandate of the Joint Technical Team to address issues on Cyber Safety and resilience of AFISNET

That:

**The mandate of the Joint Technical Team for AFISNET re-engineering and modernization is expanded to address issues on Cyber Safety and resilience of AFISNET.
The team will conduct its activities in this area under the coordination of the rolling SNMC coordinator and report to SNMC.**

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 BAY SAT/POLAR SAT (WP10) and ENGIE INEO (WP11) informed SNMC/25 on their respective area of activities and their reference in the industry provision of design and operation of satellite earth station.

6.2 The example of the Ghana domestic aeronautical VSAT network recently provided by BAY SAT/POLAR SAT and the various nodes installed by ENGIE INEO updated the meeting with the recent evolution in the network technology.

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

7.1 Under this agenda item, the Secretariat provided the meeting (WP12) with the ICAO Position for the forthcoming World Radiocommunication Conference of the International Telecommunication Union (ITU-WRC) scheduled to take place in Sharm El Sheikh Egypt on 2019.

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 current preparatory period of WRC-19 should amongst others be:

Dissemination of the position to stakeholders

Work with national radio regulators to secure a national/ATU position in line that of ICAO

Where possible participate in the work of the ATU and ITU-R

7.4 The meeting agreed that a regional preparatory conference involving various partners (CAAs, ANSPs, Airlines, Aerodrome Operators, Telecommunication Regulator) should be organized during year 2018 with the aim to develop a consistent document summarizing the concern of the African Civil Aviation community on WRC-19 agenda items and tasked the Secretariat in collaboration with SNMC CAAs, ANSPs and the industry initiate and coordinate the effective preparation of the conference

The following Conclusion was formulated:

Decision 25/21: Support to ICAO Position for WRC-19

That:

A regional preparatory conference involving various partners (CAAs, ANSPs, Airlines, Aerodrome Operators, Telecommunication Regulator) should be organized during year 2018 with the aim to develop a consistent document summarizing the concern of the African Civil Aviation community on WRC-19 agenda items;

The Secretariat in collaboration with SNMC CAAs, ANSPs and the industry initiate and coordinate the effective preparation of the conference.

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 H** to this report with the amendments highlighted was adopted by the meeting.

The following decision was formulated:

Decision 25/22: 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 H and may be further amended as necessary.**

Agenda Item 9: Review of the Draft Conclusions/Decisions of SNMC/25

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 **the Roberts FIR** the current SNMC coordinator until next SNMC 26 meeting to be hosted by **ASECNA**.

Agenda Item 10: Any other business

10.1 Under this agenda item the meeting discussed issues related to the organization of the meeting of the SNMC Board and tasked ASECNA and the Secretariat to coordinate the effective holding of this important meeting.

10.2 The meeting recalled the rotation process adopted for hosting SNMC meetings. In this regard the **ASECNA** is the member who will host the next SNM/26 meeting during year 2018.

The Secretariat was tasked to update the table as attached at **Appendix I** to this report.