



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

**AFISNET SATELLITE NETWORK MANAGEMENT COMMITTEE (SNMC)
COORDINATION MEETING
Dakar, 26 March 2008**

SUMMARY OF DISCUSSIONS

1. Introduction

A Coordinating Meeting of the SNMC Coordinating Meeting was held in Dakar, Senegal on 26 March 2008, in the Conference Room of the ICAO Regional Office for Western and Central Africa.

2. Opening

The meeting was opened by Mr. Mam Sait Jallow, ICAO Deputy Regional Director. In his address, Mr. Jallow recalled AFISNET network's vital role in providing for key AFTN and ATS/DS links throughout the Africa-Indian Ocean Region, hence the need to address its sustainability as a matter of priority. He indicated that, a matter of fact, the degradation of AFISNET performance had remained a serious safety concern over the six past years, mainly due to the fact that the network members had not implemented the Short-Term Enhancement Programme (STEP) established at the SNMC Coordinating Meeting held in Dakar, in May 2003. For that reason, the AFI Planning and Implementation Regional Group (APIRG) had called for AFISNET modernization (APIRG/15), and recognized that full implementation of SADC/2 and NAFISAT VSAT networks and their interconnection with AFISNET would allow for the elimination of most of the deficiencies still affecting aeronautical fixed services (AFTN and ATS/DS) (APIRG/16). He concluded his address by underscoring the need for the AFISNET network to be upgraded, like the Southern African Development Community (SADC) aeronautical VSAT network.

3. Secretariat

Mr. Prosper Zo'o-Minto'o, Regional Officer, Communications, Navigation and Surveillance (CNS), the SNMC Coordinator, acted as Secretary.

4. Attendance

The list of participants is shown at Appendix A to this summary of discussions.

5. Agenda

The meeting adopted the Agenda as drafted by the Secretariat, as shown at **Appendix B** to this summary of discussions.

6. Summary of discussions

The meeting's discussed focused on the implementation of a *Joint Technical Evaluation of AFISNET Network*, including the establishment of a Team of Experts, associated terms of reference and plan of action.

Establishment of a Team of Experts

The meeting noted that only Ghana Civil Aviation Authority (GCAA) and ASECNA had designated their experts in accordance to SNMC Conclusion 16/08.

Therefore, those Administrations/Organizations which have not yet done so are requested to designate their experts and communicate their contact details to this Office.

Terms of reference for the Joint technical evaluation of AFISNET

The terms of reference for the Joint technical evaluation of AFISNET are provided in **Appendix C** to this summary of discussions. These terms of reference include the following items:

- objectives
- functionalities
- references
- technical and operational expectations
- system configuration and performance assessment
- enhancements
- work programme: site visits and team leaders
- project duration (three months)
- reporting process

Working arrangements and project funding

The established team of experts will carry out its tasks through correspondence and meetings as required. The team leaders are responsible for the reports on site visits to be consolidated into a single project report together with other inputs of relevance to the Joint technical evaluation.

Concerning the funding of the project, the meeting agreed that the concerned AFISNET Administrations/Organizations will have to support participation of their expert(s) in the Joint technical evaluation, including all expenses related to the site visits.

All arrangements related to the implementation of the three-month Joint technical evaluation of the network should be finalized by 30 June 2008, in order for the whole exercise to be completed by 30 September 2008.

SNMC/CDN-SUMMARY OF CONCLUSIONS

APPENDIX A

LIST OF PARTICIPANTS

Country	Name	Designation	Address	Telephone, Fax, E-mail
GHANA	Mr. BANFRO SAMUEL TETTEY	Manager Electronics	Ghana Civil Aviation Authority – PMB, Kotoka International Airport ACCRA, Ghana	Tel: 233-21776171 Ext.1265 Fax: 233-21773293 sbanfro@hotmail.com
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ASECNA	Mr. SOUGUE BISSA	Chef Bureau gestion et exploitation des Télécommunications	ASECNA BP 3144 Dakar Sénégal	Tel: 221-776542355 Fax: 221-338207538 souquebis@asecna.org
	Mr. FRANCOIS XAVIER SALAMBANGA	Head of operational communications	ASECNA BP 8163 Dakar –Sénégal	Tel : 221-338695749 Fax : 221-338207538 salambangafra@asecna.org Delmafrank@yahoo.fr
	Mr. SY OUMAR BEN KHATAB	Chef Projets	ASECNA/DET BP 8163 Dakar Yoff Sénégal	Tel: 221-338695115 Fax: 221-338200015 syoum@asecna.org
	Mr. DJINDIL JUDE	Chef Service Gestion Projets Equipements	ASECNA BP15598 Dakar-Fann Sénégal	Tel : 221-338204898 Fax : 221-338204898 djindiljud@asecna.org jude-djindil@orange.sn
ICAO	Mr. MAM SAIT JALLOW	Deputy Regional Director	ICAO Dakar	mjallow@icao.sn
	Mr. PROSPER ZO'O MINTO'O	Regional Officer CNS	ICAO Dakar	pzoomintoo@icao.sn

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APPENDIX B

AGENDA

1. Opening Session
2. Review of SNMC/16 Conclusions
3. Implementation of a Joint Technical Evaluation of AFISNET Network
 - a. Establishment of a Team of Experts
 - b. Terms of Reference
 - c. Working Arrangements
 - d. Project Funding
4. Project Plan of Action and Implementation Target Dates
 - a. Selection of AFISNET sites to be visited
 - b. Schedule of site visits
 - c. Coordination of the Report on Project Findings and Recommendations
 - d. Approval of the Report by SNMC Members
 - e. Submission of the Report to ICAO
5. Any Other Business
6. Closing Session

APPENDIX C

**AFI SATELLITE TELECOMMUNICATION NETWORK
(AFISNET)**

Joint Technical Evaluation of the network

Terms of Reference

1 – Objectives:

1.1 The main objectives of the joint technical evaluation are to:

- a) identify its deficiencies and non-ICAO, WMO and ITU compliant elements/features;
- b) make recommendations and proposals concerning the short-term, mid-term and long-term solutions and strategies to be implemented, such as using appropriate human resource management, training policies and modern technologies, for achieving an enhanced, efficient, high performance, secure, CNS/ATM capable and cost-effective network, meeting interoperability and seamless requirements ; and
- c) evaluate the anticipated costs in view of a comprehensive project document to support a collective financing mechanism.

2 - Network functionalities

Functionalities

2.1 The network was originally designed to support the following communication services in accordance with the Air navigation plan for the Africa-Indian Ocean (AFI) Region:

- 1) ATS Direct Speech between adjacent FIRs;
- 2) Aeronautical Fixed Telecommunications Network (AFTN);
- 3) Operational meteorological data exchanges (OPMET);
- 4) Operational Aeronautical Information Services exchanges.
- 5) Support for remote VHF voice;
- 6) Aeronautical Administrative support (AAC);

2.2 In addition to these services, the following communications will also be progressively supported by the network:

- 1) Aeronautical Telecommunications Network (ATN)
 - Air/ground data link applications : ADS/CPDLC, ADS-B, DFIS, VDL or SSR Extended Squitter - ES1090
 - Ground-ground applications: AMHS, AIDC.
- 2) Computer-to-computer data exchange (ICC) between ATS Flight Data Processing Systems (FDPS); and
- 3) GNSS augmentation data transmission.

3 – Reference documentation

3.1 The joint technical evaluation shall be conducted using relevant provisions contained in ICAO, WMO and ITU standards, recommendations, regulations, manuals and procedures (ICAO Annexes, WMO

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Technical Manual on GTS – Doc 386, ITU Radio regulations), AFI Air navigation plan (Doc 7474), AFI CNS/ATM plan (Doc 003), APIRG Reports, SNMC Meeting Reports, European Union Evaluation Mission Report (2003), and Report on Technical Evaluation of AFISNET Network, ICAO Special Implementation Project (2006).

4 – Expectations

4.1 The joint technical evaluation shall provide a detailed description and analysis of the current network features, performance and operating/maintenance costs. The following constituents shall be addressed:

a - Technical

- Availability, continuity and reliability requirements;
- System maintainability;
- Frequency plan;
- Spectrum management;
- Adequacy of available bandwidth for AFTN, ATS/DS, service channels and other voice services;
- Architecture, satellite access techniques, protocols;
- Configuration management;
- Interoperability requirements;
- Ability to accommodate CNS/ATM emerging technologies (ATN applications) and SADIS operations;
- Bit-oriented protocols (BOPs).

b - Operational

This part of the joint technical evaluation shall clearly show up the advantages and disadvantages associated with the current network. In this connection, the following issues shall particularly be analyzed:

- Quality of service for ground-to-ground applications and air-to-ground applications, based on ICAO and WMO requirements;
- Network security, confidentiality and data integrity;
- AFTN transit times against the agreed requirements;
- Implementation of TCP/IP protocol stack.

The joint technical evaluation shall clearly establish the extent to which the network performances are SARPs-compliant and meet users' needs.

System configuration and performance assessment

4.2 The joint technical evaluation shall assess and provide advice on, and not limited to, the following:

- **AFTN/GTS**
 - Suitability of network topology taking into consideration ICAO specifications concerning continuity of services;
 - Routing tables;

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- Message switch performance assessment (dialogue, conflicts, etc.);
- Congestion, loss of AFTN messages, propagation times and quality of service (QoS).

- **ATS/DS**
 - Topology conformance to ICAO specifications to ensure continuity of services
 - Implementation of voice links using Frame relay protocol stack.
 - Priority management, connection time, and quality of service.

- **AMS**
 - Extended VHF coverage

- **CNS/ATM**
 - Possibility of implementing a number of CNS/ATM functionalities (AMHS, AIDC, ADS/CPDLC, D-FIS, etc.) and meeting availability, reliability integrity and continuity performance criteria using the network infrastructure.

Enhancements

4.3 After a critical analysis of the network, showing the network capabilities and limitations, the joint technical evaluation shall propose corrective measures and/or adequate solutions to rectify any reported deviations (as required), and formulate proposals for the network re-engineering. These shall include use of appropriate human resource management policies, suitable technologies and topologies for ATS communications (ATSC) and aeronautical administrative correspondence (AAC), system reliability, data integrity, as well as network management, administration, operations, monitoring and maintenance policies, including development of a common software tool for technical statistics.

5 – Project requirements

Duration

5.1 The joint technical evaluation shall be completed within three (3) months.

Work programme

5.2 The work programme for the conduct of the joint technical evaluation shall include the following site visits, taking into consideration their roles in the regional communication infrastructure (AFTN main centres) and/or air traffic management system (flight information centres, area control centres), or associated interface problems.

Centre	Responsibilities			Team Leader
	Area Control Centre/ Flight Information Centre	AFTN Main Centre	Network Control Centre	
1. Abidjan	X			Roberts FIR
2. Accra	X			ASECNA
3. Brazzaville	X	X		GCAA Ghana
4. Conakry	X			ASECNA
5. Dakar	X	X	X	Roberts FIR
6. Douala	X			NAMA

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Centre	Responsibilities			Team Leader
	Area Control Centre/ Flight Information Centre	AFTN Main Centre	Network Control Centre	
				Nigeria
7. Kano	X			ASECNA
8. Lagos	X			ASECNA
9. Libreville	X			GCAA Ghana
10. Ndjamena	X			NAMA Nigeria
11. Niamey	X	X		GCAA Ghana
12. Ouagadougou	X			NAMA Nigeria

Joint Technical Evaluation Report

5.3 The draft Report on the joint technical evaluation shall be circulated to concerned AFISNET Administrations and Organizations through the ICAO Regional Office, Dakar for their comments before it is finalized.
