INTERNATIONAL CIVIL AVIATION ORGANIZATION

WESTERN AND CENTRAL AFRICAN OFFICE

Twenty-third Meeting of the AFI Satellite Network Management Committee (SNMC/23)
(Accra, Ghana, 15 – 19 February 2016)

Agenda Item 3: **Interconnection and Interoperability of AFISNET with its Neighbouring Networks (CAFSAT, NAFISAT, SADC2)**

(Presented by ATNS)

SUMMARY

This working paper presents information on the upgrading of the SADC2 and NAFISAT VSAT networks and the continuation of interconnectivity between these networks and AFISNET in an efficient manner

1 BACKGROUND

1.1 The SADC and NAFISAT Supervisory Boards decided to upgrade the current networks in order to:

- Replace obsolete equipment to ensure operation until at least 2022;
- To address the requirements for IP based application; and
- To Increase the network capacity to provide for planned services.

It was also decided by the Supervisory Boards that the upgrade must be based on the new SkyWAN IDU7000 satellite modem and NetPerformer FAD, as a replacement for the obsolete IDU5000 and Memotec equipment respectively.

2 DISCUSSION

2.1 The upgrade of SADC2 and NAFISAT is in progress. ATNS has signed contracts for the supply of equipment with ND Satcom and with a contractor in South Africa for the installation of the new equipment. The equipment will be delivered by ND Satcom in March 2016 and it is expected that transfer of services to the upgraded network will be conducted during September 2016.

2.2 As the existing course material of the VSAT training course at the Aviation Training Academy is now outdated and a new course is in the development stage to accommodate concepts and equipment specific training for the new VSAT equipment. The new VSAT Course will be presented to all the SADC and NAFISAT members States and will be available to other interested parties.

2.3 At present co-operation between ASECNA and ATNS ensures interoperability networks. To provide continued connectivity with AFISNET the specification and design of the NAFISAT and SADC2 network upgrade was developed to make provision for the retention of the current technical interface solution with AFISNET. A decision on the way forward will be made after the ICAO Audit and a decision on the AFISNET upgrade.

It should be mentioned that ATNS is experiencing problems in maintaining the obsolete Memotec equipment, particularly in respect of the N'Djamena, Niamey and Brazzaville circuits. It is suggested that the Memotec equipment at all the SADC2/NAFISAT/AFISNET interconnections be upgraded as soon as possible – preferably with NetPerformer FADs. This can possibly be implemented before the NAFISAT upgrade.

2.4 Because AFISNET and SADC2/NAFISAT use different satellite access methods the actual interfacing is made at baseband level. Although this solution has provided reliable operations for the past 7 years, it is clearly not the most cost effective solution.

2.5 APIRG/18 Conclusion 18/25 makes provision for the Best Practices for VSAT Networks in the AFI Region. The APIRG conclusion states:

That the AFI States and Air Navigation Services Providers (ANSPs) operating aeronautical VSAT Networks adopt the best practices stated at Appendix 3.4G to the report, as well as any other best practices to be developed or adopted by APIRG

2.6 Amongst others the following Best Practices, which the upgraded SADC2 and NAFISAT networks will comply with, are highlighted below:

2.6.1 To ensure cost effective seamless operations between networks a similar satellite access method, namely MF-TDMA must be implemented. For this reason it is envisaged that MF-TDMA will be the adopted for the AFISNET upgrade. This would support the requirement for full interconnectivity with the SADC2 and NAFISAT network upgrade that will be based on MF-TDMA.

2.6.2 It also requires the capability to support IP based applications i.e. Aeronautical Telecommunication Network (ATN) applications (AMHS, AIDC, etc.). The SADC2 and NAFISAT upgrade will fully support this although it should be noted that applications based on legacy protocols will still be supported to allow smooth transition to future systems.

2.6.3 To address the requirement for Technical Arrangements (Interconnection Management) it can be reported that the Agreement between ASECNA and ATNS for the Interconnection of the ASECNA AFISNET and ATNS SADC2 and NAFISAT VSAT nodes, has been finalised and will be signed shortly. This Agreement covers in details the responsibilities of both parties to interconnect ATS/DS and AFTN/AMHS services and also covers Fault Reporting procedures for maintaining the equipment in an efficient manner to ensure a high availability of the applicable interconnections.

2.6.4 Dedicated Engineering Service Channels for coordination of maintenance work will also be implemented as part of the upgrade.

3 SUGGESTED ACTION TO BE TAKEN BY THE MEETING

The Meeting is requested to:

3.1 Note the progress made in respect of the upgrade of the SADC2 and NAFISAT networks;

3.2 Observe the actions taken to address and ensure compliance of SADC2 and NAFISAT with the ICAO Best Practices for VSAT Network;

3.3 Take notice of the requirements in the ICAO Best Practices to support interconnectivity between networks in AFI Region.

3.4 Note the suggestion to upgrade the Memotec equipment at the SADC2/NAFISAT/AFISNET interconnections with NetPerformer FADs.

3.5 Note the new VSAT training course under development by ATNS.
