ICAO

Twenty-Second Meeting of the AFI Planning and Implementation Regional Group (APIRG/22)
(Accra, Ghana, 29 July – 2 August 2019)

Agenda Item 2.4: Status of implementation of Aviation System Block Upgrades (ASBUs)

SADC VSAT and NAFISAT networks capability to support the mandated services
(AFTN/AMHS, ATS/DS, AIDC, and VoIP) including the possibility of implementing additional
Value-Added Services

(Presented by ATNS)

SUMMARY
This paper aims to demonstrate the technical and operational readiness of the SADC VSAT and NAFISAT networks to support current and future services in the ATM environment

REFRENCE(S):

Related ICAO Strategic Objective(s):
• Global Air Navigation Plan (GANP)   • ASBU Block modules

1. INTRODUCTION

1.1.   The SADC VSAT2 and NAFISAT networks were established in 2007 to address ground/ground communication (ATS/DS and AFTN) deficiencies in the region.

1.2.   The objective of the networks is to support the provision of a variety of aeronautical telecommunication services including the mandated Air Traffic Services Direct Speech (ATS/DS) and Aeronautical Fixed Telecommunication Network (AFTN), for which the network was built as well as the migrating of these to the modern equivalent ATN applications of ATS Message Handling System (AMHS), ATS Inter-facility Data Communications (AIDC) and Voice over Internet Protocol (VoIP).

2. DISCUSSION

2.1.   The SADC VSAT and NAFISAT network upgrade was completed in 2017 to enable the networks to be IP capable. Subsequent to the upgrade, the optimization of the bandwidth was undertaken and completed in 2018.

2.2.   The following are some of the services that the networks are capable of supporting.

- Computer-to-computer data exchanges between ATS Flight Data Processing Systems (FDPS);
- Operational meteorological data exchanges;
- Operational aeronautical information services exchanges;

- Aeronautical administrative support;
- ADS-B and Radar data exchanges; and
- VHF Extended range.

2.3.   A technical feasibility study was conducted in 2018 and showed that the upgraded networks are technically capable of supporting the added services, however these services will require additional satellite spectrum and in some cases hardware.

2.4.   The services currently operating on the networks are the following.

- Aeronautical Fixed Telecommunication Network (AFTN)
- Aeronautical Message Handling System (AMHS)
- Air Traffic Services Direct Speech (ATS/DS)

2.5.   A Proof of Concept (PoC) was conducted in 2018 to measure the impact of Value-Added Services on the NAFISAT network to ensure that the network is flexible and scalable to adopt future services.

2.6.   The PoC was conducted between South Africa and a NAFISAT state and the objective was to test if the network was able to handle a continuous data stream in the form of the:
- Space based ADSB data; and
- The Centralized AIM database client connectivity.

2.7.   The conclusion of the PoC was that the networks are capable of supporting these additional Value-Added Services.

2.8.   Additional Satellite Provider Spectrum would be required for each additional service that is added to the networks and would require its own dedicated spectrum.

3.   ACTION BY THE MEETING

3.1.   The meeting is invited to:

a) Take note that the networks have been proven to support the mandated services of AFTN/ AMHS ATS- DS, AIDC and VOIP including the implementation of Value-Added Services, and also;
b) Encourage member States to implement services that are supported by the networks to support ICAO ASBU implementation

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