



ICAO

**Twenty-Fourth Meeting of the AFI Planning and Implementation Regional Group
(APIRG/24)
(Virtual – 2 to 4 November 2021)**

Agenda Item 4: Other Air Navigation Initiatives

4.1 Initiatives by States and Industry and other air navigation issues

Title: Implementation of Ground/Ground Communication (AMHS and AFTN) in South Africa

(Presented by South Africa)

SUMMARY	
This information paper provides an update on the implementation of Ground/ground (AMHS and AFTN) communication aimed at ensuring operational traffic data flow and information management in South Africa.	
The Meeting is invited to note the information provided.	
Strategic Objectives	<ul style="list-style-type: none"> • Safety: • Air Navigation Capacity and Efficiency:

1. INTRODUCTION

- 1.1 The Aeronautical Fixed Service provides, among other things, for the exchange of messages about the safety of air navigation and the regular, efficient and economical operation of air services.
- 1.2 In the framework of the technologies Roadmap for Communication defined in the Global Air Navigation Plan (GANP) and the Africa-Indian Ocean (AFI) strategy assist States in the implementation of:
- a) Aeronautical Fixed Telecommunication Network (AFTN); and
 - b) Air Traffic Service Message Handling System (AMHS).
- 1.3 In accordance with the operational requirements of Annex 3 Aeronautical Meteorology, Annex 10 Volume II Aeronautical telecommunication, Annex 11, Air Traffic Service, Annex 15 Aeronautical Information Service, and the relevant supporting guidance documents (Doc 9896 Manual for the ATN using IPS Standards and Protocols, Doc 9880, Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols Doc 9694 Manual on Air Traffic

Services Datalink Applications.

1.4 This paper provides an update on the implementation of AFTN/AMHS in South Africa.

2. DISCUSSION

2.1. AFTN/AMHS

2.1.1. AFTN in South Africa was implemented in 2001;

2.1.2. In 2007 the Aeronautical Telecommunication Network (ATN) router was upgraded from supporting Internet Protocol version 4 (IPv4) only to supporting IPv4 and Internet Protocol version 6 (IPv6);

2.1.3. The AMHS was implemented in 2009 with the upgrade of the AFTN system;

2.1.4. All domestic airports using AFTN were also migrated to Transmission Control Protocol/Internet Protocol (TCP/IP);

2.1.5. The domestic implementation of AFTN/AMHS has been a success, with South Africa assisting other states with their implementation;

2.1.6. The AMHS systems deployed (by different vendors) within South Africa successfully tested the interchange of IWXXM messages between the RODB (Pretoria Met) and the Communication Centre in September 2016; and

2.1.7. Currently, busy with the process of replacing the AFTN/AMHS system with a new system that will ensure that South Africa continues to deliver the required service as the regional communications centre as provided for in the International Civil Aviation Organisation (ICAO) regional plans.

2.2. Inter Air Navigation Service Providers (ANSP) / States Connection challenges/issues.

2.2.1. South Africa experienced no major challenges/issues with the domestic implementation of AFTN/AMHS; however, challenges/issues which impacted the implementation were encountered when required to connect to other ANSPs/States.

2.2.2. Some of the common challenges/issues that have been encountered with inter ANSP/states implementation are as follow:

- a) Insufficient training that is offered by the Original Equipment Manufacturer (OEM) /Service providers;
- b) States readiness to facilitate interconnection with other states;
- c) Using Internet Service Providers (ISPs) to facilitate interconnection between ANSPs/States; and
- d) ANSPs not disclosing the AMHS status with the Air Traffic Services Messaging Management Centres (AMC).

2.2.3. The training that is offered by the service provider appointed to install the system does not equip the states technical teams with sufficient information to enable them to maintain the system after installation. This was highlighted on the APIRG Infrastructure & Information Management Sub-Group COM Project 2 meeting that took place on 12 May 2021.

- 2.2.4. The states readiness to facilitate interconnection with other ANSPs/States is a major challenge as it determines whether the ANSP/State has all the infrastructure in place to facilitate cross-border communication such as Very-small-Aperture terminal (VSAT).
- 2.2.5. Using ISPs to facilitate interconnection between states where there's no VSAT is a challenge because ISPs only want one ANSP/State to be responsible for the agreement of the communication line.
- 2.2.6. States not registered with (AMC) is a challenge as the AMHS transition is complex to manage, and proper coordination between COM Centers is an essential requirement to ensure the overall air traffic service messaging quality of service. The AMC supports AMHS operation, address management and user management this assists during the transition.

3 ACTION BY THE MEETING

- 3.1. The meeting is invited to take note of the status of the Implementation of the AMHS/AFTN in South Africa; and the challenges/issues which are encountered during the implementation of AMHS/AFTN with other ANSP/States.

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