



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**Sixth Meeting of the APIRG Infrastructure and Information Management Sub-Group
(IIM/SG6)***(Nairobi, 31 July 2023 - 3 August 2023)***Agenda Item 3 Implementation of ASBU elements and Achievements of IIM Projects****3.3 Reporting on Planning and implementation by States and Stakeholders****WP3.3 Implementation of Ground/Ground communication (AFTN, AMHS) in
Uganda***(Presented by Uganda)***SUMMARY**

This working paper provides an update on the implementation of the IIM/SG Communication Project 2 (Ground/Ground (AMHS and AFTN) communication) and its effect on the flow of ATS message traffic in Uganda; the paper indicates the challenges and possible recommendations;

Action by the meeting is at paragraph 3

REFERENCE(S):

- IIM/SG4 WP4.1B
- APIRG/22 Report, Conclusion 22/23, 22/27
- APIRG/24 Report, Conclusion 24/37
- APIRG/25 Report, Conclusion 25/38

Related ICAO Strategic Objectives: A – *Safety*, B – *Air Navigation Capacity and Efficiency*

1. INTRODUCTION

- 1.1 In accordance with the Global Air Navigation Plan (GANP), the Regional Navigation Plan and the Concept of Upgrading the Aviation Block System (ASBU), Uganda implemented the AMHS in 2018 to improve operational traffic data flow and Information Distribution (FPLs OPMETS, NOTAM).
- 1.2 The performance of the circuit is satisfactory though with setbacks resulting from regional system coordination.
- 1.3 Regional cooperation is necessary to ensure the reliable transport of air traffic movement messages and other aeronautical messages.

2. DISCUSSIONS

- 2.1 UCAA implemented the Aeronautical Message Handling System, also known as the Air Traffic Services Message Handling System (AMHS) in 2018 as an aeronautical ground-ground

communications system for the transmission of Notices to Airmen (NOTAM), Flight Plans and Meteorological Data over the Aeronautical Fixed Service (AFS).

- 2.2 The AMHS was installed in Entebbe and six upcountry aerodromes, including Soroti, Gulu, Kisoro, Kasese, Arua and Mbarara. Through the installation of the AMHS, pre-flight information services have been extended to the above upcountry aerodromes by establishing Air Traffic Services (ATS) Reporting Units.
- 2.3 Uganda implemented the AMHS through the following steps:
 - a) Upgrade of NAFISAT link
 - b) System design, hardware selection, factory acceptance tests and shipment of equipment in September 2017.
 - c) Installation of the servers in March 2018.
 - d) Regional and International testing of network in April 2018 and was successful.
 - e) Deployment of User Agents at 6 upcountry airports (Arua, Gulu, Soroti, Kisoro, Mbarara and Kasese) completed between April and July 2018.
 - f) Integration of the AMHS with the Airport Operations Database, the Airspace Management System and AIM Automation system.
 - g) Onsite training of engineers and operators in April 2018.
 - h) Interoperability and site acceptance tests, operational switchover and operationalization of AMHS from 11th to 15th June 2018.
 - i) Stress Tests to determine extreme traffic handling capacity of the system.
 - j) Pre-operation testing in July 2018
 - k) Operational testing and optimization of the system.
 - l) Bi-lateral Agreement with ATNS (South Africa) in 2019.
 - m) Memorandum of Understanding between Entebbe and Nairobi for AMHS interconnection was completed in 2021.
- 2.4 The primary external AMHS link (Entebbe/Nairobi) (ref: AFI AFTN/AMHS Chart 2018) is fully operational with the following challenges:
 - a) When the external AMHS link is down, flight plans to/from Entebbe do not reach their destination or reach after the respective flights to their destinations - missing flight plans.
 - b) The Nairobi AMHS line is unstable, and this has necessitated routing Entebbe traffic through Johannesburg. Johannesburg relies on Nairobi to route flight plans for Middle East bound flights. Message traffic from middle east will not reach Entebbe if Nairobi AMHS line is off.
 - c) The AMHS routes are static and change of routes is manually made upon engagement of the Nairobi AMHS operations centre. This increases down time.

3. ACTIONS BY THE MEETING

- 3.1 The meeting is invited to:
 - a) Take note of the contents of the paper;
 - b) Note the progress in ATN/AMHS Implementation in Uganda and associated challenges.
 - c) Note the need to review the routing of ATS messages and adopt a full mesh topology.
 - d) Encourage member states to strengthen the cooperation amongst their neighbours for an effective implementation of AMHS.
 - e) Note and recommend for implementation by the Secretariat, training platforms to promote and assist in the coordinated implementation of the established bilateral AMHS

