

International Civil Aviation Organization



**THE SIXTH MEETING OF AERONAUTICAL
TELECOMMUNICATION NETWORK (ATN)
IMPLEMENTATION CO-ORDINATION GROUP
OF APANPIRG (ATNICG/6)**



Seoul, Republic of Korea, 16 - 20 May 2011

**Agenda Item 4: Review States' ATN/AMHS Implementation Status, Transition and
Operational Issues**

**INITIATION OF AMHS SERVICE BETWEEN
THE UNITED KINGDOM AND THE UNITED STATES**

(Presented by USA)

SUMMARY

This paper provides a brief discussion regarding the effort to establish AMHS service between the UK and the US. Topics include a description of the previous and current environments, a proposed plan for completion and the benefits of the plan.

1. INTRODUCTION

The National Air Traffic Services (NATS) of the United Kingdom (UK) and the Federal Aviation Administration (FAA) of the United States (US) are establishing ATS Message Handling System (AMHS) service between the UK and the US. This is the continuation of an effort that began with the establishment of an Aeronautical Fixed Telecommunications Network (AFTN) circuit between the two countries.

2. DISCUSSION

2.1 PREVIOUS ENVIRONMENT

Prior to August of 2010, the primary connectivity between the UK and USA was an AFTN circuit which was routed via Canada, using the X.25 protocol at 9600bps. When problems were experienced in recent years related to this path the resulting disruption caused increases to miles in trail, flight delays and considerable impact to air traffic control, commercial airlines, general aviation, and the flying public. Once full service was restored, it would often take several hours to transmit backlogged messages.

The alternative path was via Portugal, which is connected to the UK and to the US at 9600bps.

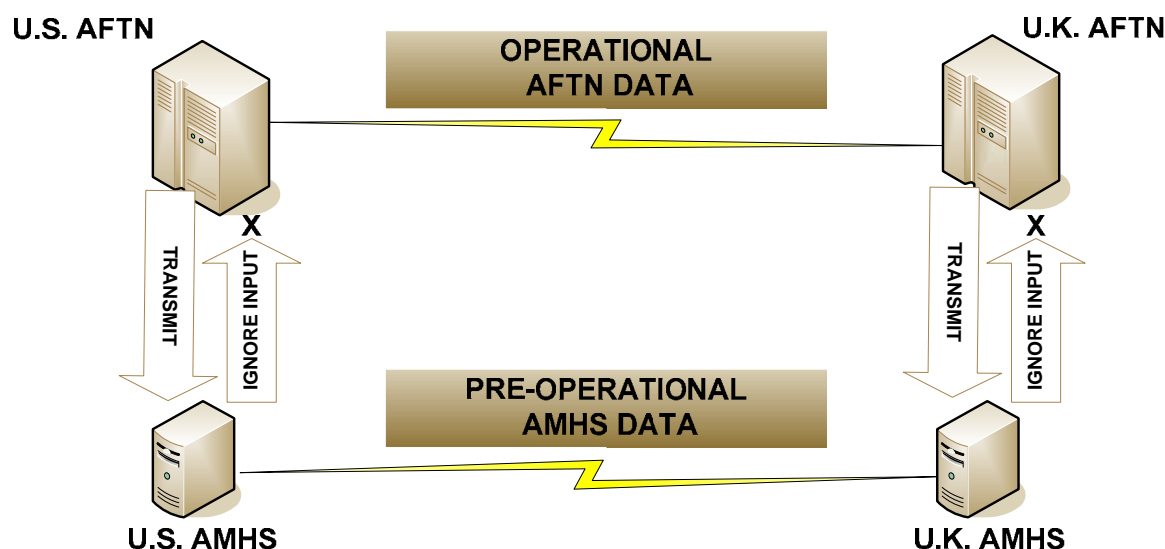
2.2 CURRENT ENVIRONMENT

2.2.1 DIRECT AFTN CONNECTION

In August of 2010, a direct AFTN connection was created between the UK and US. This connection utilized one half (64K) of the bandwidth of a newly-procured 128K bps circuit. Following extensive interoperability testing between the countries, each country modified the routing tables within their operational AFTN systems so that traffic between the countries utilized the new direct circuit, and was no longer routed through Canada. The path through Canada is now the backup route in the event of a loss of service on the new direct connection.

2.2.2 PRE-OPERATIONAL AMHS CONNECTION

Additionally, in April of 2011, an AMHS connection was established between the UK and US, utilizing the other 64K of the bandwidth of a new circuit. This connection and the existing AFTN connection operate in a parallel “dual-feed” configuration, whereby the AFTN messages that are exchanged operationally are also fed to the AMHS gateway on each end. This provides input to the AMHS gateways, allowing for AMHS data to be exchanged between the countries. This data, upon receipt by each AMHS gateway, is forwarded to the gateway’s local AFTN system, which ignores or discards it. In this manner, each AMHS gateway is operating as if it is exchanging live traffic, while the data of record is still the AFTN traffic. This configuration is depicted below:



This “pre-operational” arrangement offers several benefits:

- 1) The AMHS gateways can undergo a “shakeout” period, during which careful monitoring can be performed to evaluate functionality and performance.
- 2) Any address translation issues which may exist can be investigated.
- 3) On-site support staff can be provided with hands-on training with a system that looks 100% live with no risk of impact to operations.

2.3 MIGRATION TO OPERATIONAL AMHS

Following the satisfactory completion of several months of pre-operational usage, the AMHS connection will be utilized in a live manner. This, in effect, is as simple as accepting the AMHS data as operational input while beginning to ignore the incoming AFTN data. This plan has the added benefit of a readily available fallback procedure; that is, if there is any issue with the newly operational AMHS circuit, the traffic can be switched back to the AFTN circuit. Following the acceptance of the AMHS connection, the 64K AFTN circuit will remain available for a short period of time, after which the bandwidth will be re-allocated to increase the AMHS circuit to the full 128K.

This migration to operational AMHS is expected to be completed in the summer of 2011.

3. ACTION TAKEN BY THE MEETING

The meeting is invited to note this implementation. UK NATS and US FAA will inform the ICAO regional Office when the service is operational.
