International Civil Aviation Organization

AERONAUTICAL TELECOMMUNICATION NETWORK IMPLEMENTATION COORDINATION GROUP – EIGHTH WORKING GROUP MEETING (ATNICG WG/8)

Christchurch New Zealand
28 September – 1 October 2010

Agenda Item 3: Planning the use of XML and SWIM related standards in AMHS environment

REPORT ON TESTING OF XML-BASED OPMET DELIVERY OVER AMHS

(Presented by the United States, Hong Kong China, and Singapore)

SUMMARY

This information paper presents the results of the first phase of testing on delivery of XML-based OPMET messages over AMHS. This testing was proposed at ATNICG/5 in June 2010.

1. INTRODUCTION

This paper serves to present the results of testing on delivery of XML-based OPMET messages over AMHS. This test activity was proposed during ATNICG/5 in June 2010, in order to demonstrate the feasibility of utilizing AMHS for exchange of such OPMET data. At that meeting, a request was made that the United States, Hong Kong China, and Singapore plan and execute such a test activity and report results in upcoming meetings. This testing is intended to demonstrate the capability of AMHS for transmission of XML-based OPMET messages and to develop data that can be used to provide feedback to WMO/ICAO regarding this capability.

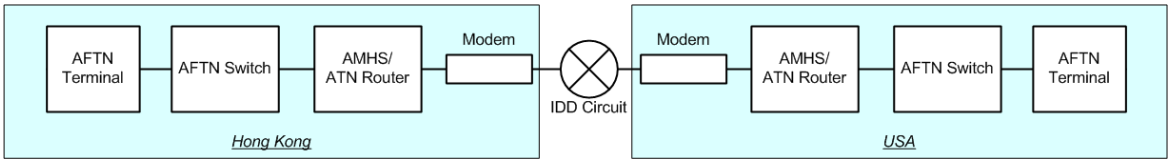
2. TEST PLANNING

This test activity was jointly developed and planned by representatives of Hong Kong China (HKG), Singapore (SIN) and the United States of America (USA). Test procedures were developed and test data messages were created manually or extracted from available documentation. Phase 1 of testing, just completed, was conducted only between USA and HKG in order to provide a simple test configuration and allow for proof of concept before continuing to expand testing. That expansion will occur in phase 2, and will include SIN in a tri-partite test configuration.

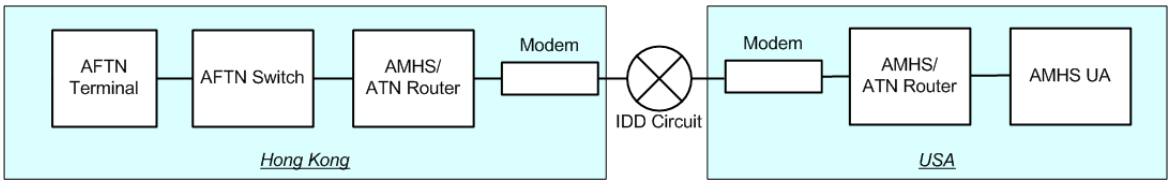
3. TEST CONFIGURATIONS

Testing was conducted using 4 different test configurations, as detailed below:

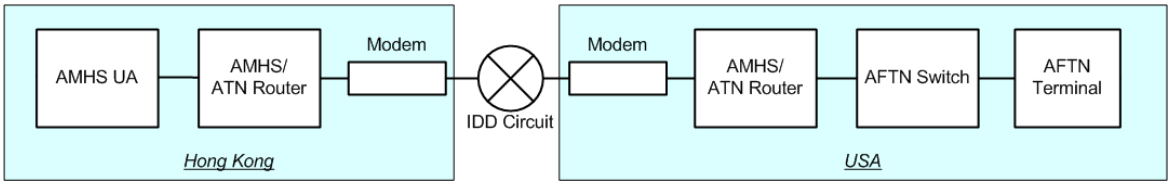
Configuration #1: Message Exchange Between HKG AFTN Terminal and USA AFTN Terminal



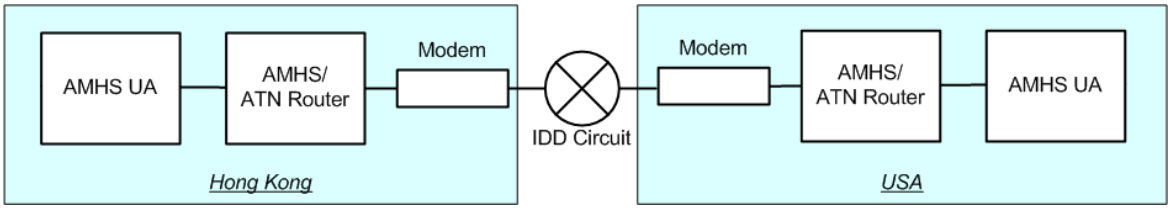
Configuration #2: Message Exchange Between HKG AFTN Terminal and USA AMHS UA



Configuration #3: Message Exchange Between HKG AMHS UA and USA AFTN Terminal



Configuration #4: Message Exchange Between HKG AMHS UA and USA AMHS UA



4. TEST MESSAGES

Testing was conducted using 7 different test messages. Messages 1-3 were simple, manually created messages used in the initial test cases, and contained a small subset of the ASCII character set. Following successful exchange of this data, messages 4-7 were introduced to the data set. These messages were extracted from the WXXM Primer (1) and contained more realistic data with expanded use of the ASCII character set. Details regarding these messages are provided below:

Test Message #1: Approximately 780 characters, containing an overlong line.

Test Message #2: Slightly less than 1800 characters (approximately 1690 characters), with no overlong lines.

Test Message #3: Greater than 1800 characters (approximately 2535 characters), with no overlong lines.

Test Message #4: Approximately 2505 characters, Point Coverage Observation, extracted from paragraph 4.2.1 of Reference (1).

Test Message #5: Approximately 1325 characters, Runway Weather Observation, extracted from paragraph 4.3.1 of Reference (1).

Test Message #6: Approximately 3214 characters, METAR, extracted from paragraph 4.3.2 of Reference (1).

Test Message #7: Approximately 2949 characters, PIREP, extracted from paragraph 4.3.3 of Reference (1).

Reference (1): FAA/EUROCONTROL WXXM 1.1 Primer, February 2010

5. TEST RESULTS

The intent of this initial phase was to establish bilateral AMHS interoperability and exchange XML-based OPMET messages. This phase is considered to be a success. Messages were successfully exchanged between each combination of AFTN terminal and AMHS UA as described in Section 2.2 above using VPN over dial-up IDD connection. Each party in the testing captured and logged the incoming test messages and reported the results via email to one another. To cope with the 12-hour time difference between the two parties, the testing was separately conducted by each party establishing system connectivity during their daytime hours and sending test messages to the other end, who would then examine the incoming data in the beginning of their next working day. (In this manner, minimal disruption to each party's regular work activity was achieved.) No adverse issues were noted during this testing, and the parties involved now intend to proceed to the next phase.

6. NEXT STEPS

As previously discussed, the full intent of the test is to simulate a tripartite configuration. This phase just completed was the first phase of that plan. The next step will be for testing to be expanded to a tri-partite test that will include USA, HKG, and SIN. Additional connectivity will be established between HKG and SIN as their relative locations allow for most efficient work when establishing connections (compared to USA and SIN). The test plan previously developed will be expanded to allow for all three parties, including the routing of messages from the USA, through HKG, and on to SIN. The time frame for this test is yet to be determined.

7. ACTION BY THE MEETING

The meeting is invited to note the test configuration and successful results of phase one testing, as well as offer recommendations for phase two.

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