International Civil Aviation Organization

**Aeronautical Telecommunication Network
Implementation Coordination Group – Seventh
Working Group Meeting (ATNICG WG/7)**

29 Janaury 2010, Bangkok, Thailand

Agenda Item 5: **Review Proposed Change to AMHS Manual Provide Address Correction and Additional Test Procedures for ATN Router**

**PROPOSAL FOR ENHANCEMENTS TO
ASIA/PACIFIC AMHS MANUAL, ANNEX C**

(Presented by the United States)

SUMMARY

This information paper presents a proposal for enhancements to the Asia/Pacific Guidance Document for AMHS Conformance Testing (APAC AMHS Manual). These enhancements include detailed suggestions for additional test procedures that were recommended in a previous paper. The enhancements also include the modification of some addresses for purposes of accuracy as well as to provide compliance with Version 3 of the Asia/Pacific IDRP Routing Policy.

1. INTRODUCTION

1.1. This paper serves to propose enhancements to the APAC AMHS Manual, Annex C. This is the extension of an activity that was initially proposed at ATNICG WG/6 in September, 2009. The following topics are discussed:

      i. Addition of test cases to ensure sufficient scope of interoperability testing of ATN Routers.

      ii. Correction of domain-related information in existing NSAP addresses.

      iii. Modification of NSAP addresses to ensure consistency with anticipated changes associated with Version 3 of IDRP Routing Policy.

1.2. This meeting is invited to review these proposals and provide comment.

2. ADDITIONAL TEST CASES

2.1. As the implementation of AMHS spreads throughout the region, it is crucial to ensure that the scope of interoperability testing is sufficient to exercise increasing network complexity. The following must be considered:

     i.   Initial implementations of AMHS are essentially point-to-point between two users, which allows for relatively simplified test configurations.

     ii.   Adding users to the network creates multiple connections to some of the existing systems, as well as multiple routes between systems to provide network redundancy.

     iii.   Consideration must be given to testing of the routing capabilities provided by this expanded network, with emphasis on circuit failure and the alternate routing provided by the protocol.

2.2.   The current test suite offered by the APAC AMHS Manual includes test cases that verify routing capabilities of the ATN Routers, but are somewhat limited in scope. It is proposed that additions to the test cases be considered; below is an example of scenarios which might be included:

     i.   Expansion of the routers/domains in a test network, to three and then four domains

     ii.   Removal and restoration of routers from these expanded networks, and verification of the following elements:

        a)   Updates to routing tables
        b)   Correct route selection from new routing list
        c)   Successful transmission of re-routed messages
        d)   Verification that routing loops are not present
        e)   Verification of network and IDRP parameters

2.3.   The following test cases are suggested for inclusion in Annex C:

     i.   Three routers in a test network (or "loop"), fully connected (this is similar to an existing test case with three routers, but would add full network connectivity).
        a.   This test would place two routers in one domain and one router in a second domain

     ii.   Three routers in a test network (or "loop"), fully connected.
        a.   This test would place all three routers in different domains

     iii.   Four routers in a test network (or "loop"), fully connected.
        a.   This test would place two routers in each of two domains

     iv.   Four routers in a test network (or "loop"), fully connected.
        a.   This test would place all four routers in different domains

Each of these test cases would verify suggested items from Section 2.2 above under normal operational scenarios as well as during scenarios involving circuit failure.

3.   CORRECTION OF EXISTING NSAP ADDRESSES IN ANNEX C

3.1.   Annex C of the APAC AMHS Manual offers numerous test cases as well as detailed diagrams and parameter tables that describe each test configuration and provide addressing and parameter information. Close examination of this document reveals the following:

- Figure 3 shows three ATN Routers (A, B & C) located in two AMHSLANDs (1 and 2)
- AMHSLAND1 has 2 ATN Routers (A and B) connected via local WAN
- AMHSLAND2 has 1 ATN Router (C)

However, according to Parameter Table 18, the following are the 5-byte prefixes associated with each ATN Router:

Router A: 47.0027.81.81
Router B: 47.0027.81.85

Router C: 47.0027.81.81

It appears that the intent of the test is to simulate a tripartite configuration in a bilateral test environment. This would explain the differing 5-byte prefixes of Router A and Router B. However, it is noted that Router C has the same 5-byte prefix as Router A. As the document does not specify the specific routes or prefixes that are passed in the Open/Update PDUs, this configuration may technically be correct. However, if the intent is indeed to simulate separate states in AMHSLAND1 and AMHSLAND2, these prefixes would then need to be modified.

4.   MODIFICATION OF ADDRESSES TO COMPLY WITH VERSION 3 OF THE ASIA/PACIFIC IDRP ROUTING POLICY

4.1.   The acceptance of Version 3 of the Asia/Pacific IDRP Routing Policy provides for the modification of NSAP addresses such that the region will utilize a common 5-byte NSAP prefix rather than differing prefixes within the region. As such, Annex C of the Asia/Pacific AMHS Manual will require changes to addressing information to maintain compliance with the modified routing policy.

4.2.   It is suggested that these changes may be made at the time of the previously described updates to this document in order to maximize efficiency and minimize document churn.

5.   ACTION BY THE MEETING

5.1.   The meeting is invited to review the proposal for modifications to the Asia/Pacific AMHS Manual, Annex C, and provide input.

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