ATNP/WG 3

WP/ 44

March 4,, 1997

AERONAUTICAL TELECOMMUNICATION NETWORK PANEL

WORKING GROUP 3 (APPLICATIONS AND UPPER LAYERS)

Phuket, THAILAND, 4 - 6 March 1997

VALIDATION OF ADS SARPS

Prepared by: Dan Blum

Presented by: James Moulton

SUMMARY

This document presents details on the FAA sponsored validation of the ADS SARPs.

This paper presents the results of the implementation and validation testing of the ADS SARPs.

1. Introduction

This paper presents the results of the implementation and testing of the ADS SARPs for the the purpose of validating the SARPs.

2. Implementation

The ADS implementation was completed using Borland C on a Windows system. The air and ground modules were linked together without the intervening communication layers. (Note: the movement of the code to a networked environment is underway and will be completed shortly. Since the ULCS and lower layers have already been validated, this simulated environment should not affect the validation effort.)

3. Tests Performed

The following tests were performed performed on the software to verify the proper execution of the state machine. The tests were modeled after section 2.2.1.5.1 of the ADS SARPs. See Figures 2.2.1.5-1 through 2.2.1.5-35 of the ADS SARPs.

The crossover rules (2.2.1.5-28 .. 2.2.1.5-30) and the provider abort rules (2.2.1.5-33 .. 2.2.1.5-35) were not tested.

3.1 Tests

Test 1 - 2.2.1.5-1 - Use of demand contract with no dialog existing, pos ack

Test 2 - 2.2.1.5-2 - Use of demend contract with dialogue existing, pos ack

Test 2 - 2.2.1.5-3 - Use of demand contract with no dialogue existing, neg ack

Test 2 - 2.2.1.5-4 - Use of demand contract with dialogue existing - with neg ack

Test 3 - 2.2.1.5-5 - Use of demand contract with no dialogue existing - with non not

Test 4 - 2.2.1.5-6 - Use of demand contract with dialogue existing - with non not

Test 5 - 2.2.1.5-7 - Use of event contract with no dialogue with pos ack or non not

Test 6 - 2.2.1.5-8 - Use of event contract with dialogue with pos ack or non not

Test 7 - 2.2.1.5-9 - Use of event contract with no dialogue with pos ack

Test 8 - 2.2.1.5-10 - Use of event contract with dialogue with pos ack

Test 9 - 2.2.1.5-11 - Use of event contract w/ no dialogue w/ pos ack or non not, im rpt

Test 10 - 2.2.1.5-12 - Use of event contract w/ no dialogue w/ neg ack

Test 11 - 2.2.1.5-13 - Use of event contract w/ dialogue w/ neg ack

Test 12 - 2.2.1.5-14 - Use of periodic contract with no dialogue with pos ack

Test 13 - 2.2.1.5-15 - Use of periodic contract with dialogue with pos ack

Test 14 - 2.2.1.5-16 - Use of periodic contract with no dialogue with pos ack or non not

Test 15 - 2.2.1.5-17 - Use of periodic contract with dialogue with pos ack or non not

Test 16 - 2.2.1.5-18 - Use of periodic contract with no dialogue with neg ack

Test 17 - 2.2.1.5-19 - Use of periodic contract with dialogue with neg ack

Test 18 - 2.2.1.5-20 - Use of ADS cancel contract service

Test 19 - 2.2.1.5-21 - Use of ADS cancel contract service w/ only one contract

Test 20 - 2.2.1.5-22 - Use of ADS cancel all contracts service

Test 21 - 2.2.1.5-23 - Use of emergency report service

Test 22 - 2.2.1.5-24 - Modification of emergency contract

Test 23 - 2.2.1.5-25 - Modification of emergency contract rejected

Test 24 - 2.2.1.5-26 - Cancellation of emergency contract

Test 25 - 2.2.1.5-27 - Cancellation of emergency contract w/ no other contracts in place

Test 26 - 2.2.1.5-28 - (NOT TESTED) Crossed air emergency cancellation and cancel all contracts

Test 27 - 2.2.1.5-29 - (NOT TESTED) Crossed air emergency cancellation and mod emergency

Test 28 - 2.2.1.5-30 - (NOT TESTED) Crossed air emergency cancellation and mod emergency

Test 29 - 2.2.1.5-31 - Air user abort service

Test 30 - 2.2.1.5-32 - Ground user abort service

Test 31 - -2.2.1.5-33 - (NOT TESTED) Dialogue service provider abort service

Test 32 - 2.2.1.5-34 - (NOT TESTED) Ground ASE abort

Test 23 - 2.2.1.5-35 - (NOT TESTED) Air ASE abort

4. Conclusions

The implementation and testing of the ADS SARPs showed no deficiecies in the SARPs which should preclude their approval.

The testing performed covered most states in the ADS state tables and verified the correct operation of the ADS SARPs.