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Automated Weather Observing System (AWOS) Data Acquisition System (ADAS) Operational Test and Evaluation (OT&E) Integration and OT&E Operational Test Plan

John Barab

December 1992

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16. Abstract

The attached document delineates the various plans associated with the preparation and conduct of Operational Test and Evaluation (OT&E) Integration and OT&E Operational testing of the Automated Weather Observing System (AWOS) Data Acquisition System (ADAS) at the Federal Aviation Administration (FAA) Technical Center. It is being circulated to organizations participating in the testing and implementation of the ADAS.

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EXECUTIVE SUMMARY

This document provides the overall philosophy and approach for the National Airspace System (NAS) Operational Test and Evaluation (OT&E) Integration Test of the AWOS Data Acquisition System (ADAS). The ADAS consists of a single subsystem: the Operational Site Configuration (OSC). This document addresses the integration requirements from the NAS Specifications (NAS-SS-1000), which will provide the basis for the OT&E Integration testing of this particular subsystem.

The primary information within this test plan consists of the following:

1. The NAS-SS-1000 OT&E Integration requirements for the ADAS subsystem;

2. The testing objectives and test configuration/verification of categories required to satisfy the NAS requirements;

3. Configuration drawings;

4. Associated organizational test roles, responsibilities, and test activities;

5. Test Verification Requirements Traceability Matrix (TVRTM).

The NAS interfaces to be tested are the ADAS/Automated Weather Observing System (AWOS), ADAS/Automated Surface Observing System (ASOS), ADAS/Automated Observing System (AOS), ADAS/Real-Time Weather Processor (RWP), ADAS/Data Link Processor (DLP), ADAS/Weather Message Switching Center Replacement (WMSCR), ADAS/Maintenance Processor Subsystem (MPS), ADAS/Coded Time Source (CTS), ADAS/National Airspace Data Interchange Network II (NADIN II), and ADAS/Local Communications Network (LCN). These interface requirements are included in the NAS System Specification.

1. INTRODUCTION.

1.1 PURPOSE.

The primary purpose of this document is to define the overall planning, coordination, and testing activities associated with the preparation and conduct of Operational Test and Evaluation (OT&E) Integration testing of the Automated Weather Observing System (AWOS) Data Acquisition System (ADAS). The OT&E Integration testing is to be conducted at the Federal Aviation Administration (FAA) Technical Center, and at one or more ADAS field sites, in accordance with National Airspace System (NAS) Test and Evaluation Order 1810.4A(B).

The more general purpose of this document is to detail the plan for testing so that it demonstrates that the ADAS can be successfully integrated into the NAS. To meet this objective, the ADAS must be capable of being operationally integrated, with both existing, as well as new subsystems. Moreover, the ADAS must be capable of functioning with other related subsystems of the NAS in an initial "transition" state configuration as well as in a final "end" state configuration (see section 4.1.2 ADAS Implementation Phases).

1.2 SCOPE.

This plan furnishes comprehensive information concerning the philosophy of approach in the integration and testing of the ADAS to its intended NAS interfaces. It defines the integration and operational requirements to be verified and the methods to be employed for verification. Requirements are defined to the extent to which testing is to be applied in order to assure that ADAS meets integration and system level requirements necessary to satisfy NAS OT&E Integration Test requirements. Information on these requirements is contained in the Test Verification Requirements Traceability Matrix (TVRTM) in appendix A of this document.

The scope, level, and degrees of testing of the ADAS during NAS OT&E Integration are defined in this test plan. Test roles, responsibilities, and activities of relevant personnel are addressed as to test preparation and planning. The overall schedule of activities relating to test planning is also included.

1.3 BACKGROUND.

The ADAS was conceived for purposes of fulfilling the need for collection, processing, archival, and distribution of aviation-oriented weather observation data products in support of the NAS. The ADAS is intended to be located at each of the 23 Area Control Facilities (ACF), the FAA Technical Center (ACT), and the Mike Monroney Aeronautical Center (ACC).

Each operational system is intended to acquire data products from multiple AWOSs and/or Automated Surface Observing System (ASOSs) and/or Automated Observing System (AOSs) within its assigned area. The processed data will then be disseminated through NAS user interfaces to the end processors. The NAS interfaces include the Real-Time Weather Processor (RWP), the Data Link Processor (DLP), the Weather Message Switching Center Replacement (WMSCR), the Maintenance Processor Subsystem (MPS), the Coded Time Source (CTS), the NAS Local Communications Network (LCN), and the National Airspace Data Interchange Network (NADIN) Packet Switched Network (PSN). End processors of the ADAS data products are the RWP, DLP, WMSCR, and MPS.

Following Factory Acceptance Testing (FAT), the first production ADAS will be delivered to the FAA Technical Center and installed by the contractor. Site Acceptance Testing (SAT) will then be performed by the contractor and be monitored by the Weather/Primary Radar Division, ACW-200A, ADAS Test Director. Upon acceptance, ACW-200A will then proceed with the OT&E Integration testing.

1.4 AUTHORITY TO CHANGE.

Modifications and revisions to this plan, if any, shall be proposed in writing to the FAA Technical Center Engineering, Integration, and Operational Evaluation Service (ACW-1). The proposal shall clearly document the section number of the plan, the information currently contained in the plan, and the proposed modification. The reason for this proposed modification shall also be defined. The ACW-1 office shall maintain a record of all dispositions and subsequent revisions to the plan.

2. APPLICABLE DOCUMENTS.

This section lists the applicable documentation and reference materials which relate to the contents of this plan, or upon which this plan is based.

2.1 FAA DOCUMENTS.

2.1.1 FAA Specifications.

FAA-E-2804	AWOS Data Processing System (ADAS) System Specification, October 18, 1991
NAS-SS-1000	NAS System Specification Functional and Performance Requirements for the National Airspace System (Volumes I-V)
NAS-SR-1000	National Airspace System Requirements Specification
NAS-MD-110	Test and Evaluation (T&E) Terms and Definitions for the National Airspace System
NAS-DD-1000	NAS Design Level Document

2.1.2 FAA Standards.

FAA-STD-024a	Preparation of Test and Evaluation Documentation, August 17, 1988

2.1.3 FAA Orders.

1810.4A(B)	FAA NAS Test and Evaluation Policy

2.1.4 Other FAA Documents.

ADAS MTP	ADAS Master Test Plan, September 18, 1989
NAS-IC-21022000	LCN/ADAS Interface Control Document (ICD), September 27, 1991
NAS-IC-25082511	RWP/ADAS ICD, August 20, 1990
NAS-IC-25082513	DLP/ADAS ICD, March 6, 1991
NAS-IC-25082507	WMSCR/ADAS ICD August 20, 1990
NAS-IC-25083101-03	AWOS/ADAS ICD, August 28, 1990
NAS-IC-25089202	ADAS/CTS ICD, November 1, 1990
NAS-IC-25084302	ADAS/NADIN ICD, November 8, 1990
NAS-IC-51030002	ADAS/MPS ICD, July 24, 1991
NAS-IR-21020000	LCN/User System Interface Requirements Document (IRD), August 17, 1987
NAS-IR-43020001	NADIN PSN X.25 IRD, June 1, 1990 Rev A
NAS-IR-44010001	TE/Digital IRD, June 16, 1987
NAS-IR-51030002	MPS Automation IRD, March 9, 1988
NAS-IR-61002508	ACF/ADAS IRD, July 18, 1989
NAS-IR-92020000	CTS IRD, March 1, 1990 Rev A

2.2 OTHER DOCUMENTS.

ISO/OSI 7498	International Standards Organization Standard for Open System Interface
FCM-S2	Standard Formats for Weather Data Exchange Among Automated Weather Information Systems
FCM-S3	Standard Telecommunications Procedures for Weather Data Exchange Among Automated Weather Information Systems

3. TEST AND EVALUATION (T&E) PHILOSOPHY.

The intent of this ADAS OT&E Integration Test Plan is to provide a well documented, reliable source of information that will enable verification of ADAS applicable requirements (in compliance with FAA Order 1810.4A(B)) to be carried out, with full confidence, in an orderly fashion.

NAS OT&E Integration is that phase of the testing cycle conducted for purposes of verifying integration requirements. These will consist of interface characteristics, and performance and functional requirements. FAA Order 1810.4A(B) requires verification of all applicable NAS-SS-1000 requirements and specifies the verification procedural process to be followed.

ACW-200A will plan and conduct ADAS integration testing activities at the FAA Technical Center and at one or more operational ADAS field sites. Test results will be documented, compiled, and analyzed as the process to be followed in properly verifying TVRTM requirements. Testing activities will be carefully planned to insure that ADAS OT&E Integration testing will not duplicate verification of requirements previously verified at a lower level of testing.

ACW-200A will determine that the following OT&E Integration Test activities and products are completed in accordance with FAA-STD-024a:

a. ADAS OT&E Integration TVRTM derived from the NAS System Specification (NAS-SS-1000) and cross-referenced to the system specification;

b. ADAS OT&E Integration Test Procedures, with applicable success criteria, for each of the tests defined in the ADAS OT&E Integration Test Plan;

c. Documentation and verification of each test that satisfies the OT&E Integration requirement(s), identification, and documentation of those requirements that cannot be verified, and the status and tracking of all problems enccuntered during OT&E Integration Test verification;

d. Test reports will be provided to the NAS Weather Sensor Branch (ANW-140), Weather Sensor Program Office (ANW-400) upon completion of OT&E Integration Test activities.

4. T&E APPROACH AND CONCEPT.

The OT&E Integration of any NAS subsystem and associated interfaces requires an environment that is equivalent to that of the NAS operational environment, or one that closely approximates that environment.

In the case of the ADAS, analysis of related NAS-SS-1000 requirements indicated that 92 of the 117 requirements (approximately 81 percent), can be fully verified at the FAA Technical Center. The remaining requirements, while partially verifiable at the FAA Technical Center, will be tested at one or more operational ADAS field sites to ensure full verification.

4.1 ADAS EXTERNAL INTERFACES.

The following subparagraphs describe various aspects of the NAS subsystems with which ADAS interfaces.

4.1.1 ADAS Interface Configuration.

The NAS subsystems that interface with the ADAS do so in one of two ways: by direct connection interface links and by network connection interface links.

Direct connection interface links connect the ADAS to its NAS-related data sources. These links provide the interconnection between the ADAS nodes and the following NAS subsystems:

a. Coded Time Source (CTS)
b. Automated Weather Observing System (AWOS)
c. Automated Surface Observing System (ASOS)
d. Automated Observing System (AOS)

The MPS and the NAS users which receive the ADAS weather products communicate with the ADAS indirectly through a NAS data network. The network connection interface links use the National Airspace Data Interchange Network II (NADIN II) Packet Switched Network (PSN) and/or the Local Communications Network (LCN) as an intermediate pathway between the ADAS and the following NAS subsystems:

a. Maintenance Processor Subsystem (MPS)
b. Real-time Weather Processor (RWP)
c. Data Link Processor (DLP)
d. Weather Message Switching Center Replacement (WMSCR)

4.1.2 ADAS Implementation Phases.

Two phases are associated with the implementation of the network connection interface links: a transition state, and an end state.

The transition state is essentially a phasing in operational period in which the ADAS and initial interfacing system elements of the NAS will be delivered to the Air Route Traffic Control Centers (ARTCCs), installed, and become operational. During this phase, communication between the ADAS and each end processor (WMSCR, RWP, DLP, MPS) is to be performed indirectly through the NADIN PSN. Figure 4.1.2-1 shows the transition-state ADAS interface configuration. As will be noted, AWOS, ASOS, and AOS weather data communication inputs are expected to be available as well as the CTS.

Upon implementation of the NAS LCN at each of the ARTCCs in the 1996/1997 time frame, the ARTCCs will become known as ACFs. The LCN will link the ADAS directly to the ACF-collocated NAS processors (RWP, DLP, MPS), and serve as the gateway to the NADIN PSN for connection to the remote NAS processor (WMSCR). Figure 4.1.2-2 shows the end-state ADAS interface configuration.

ADAS integration testing will include transition-state configuration testing as well as end-state configuration testing.

4.1.3 Subsystem Availability.

Based on recent scheduling information, supplementing that of the ADAS Master Test Plan (MTP), not all of the interfacing subsystems are expected to be available during the planned time frame of the ADAS OT&E Integration testing at the FAA Technical Center. It is anticipated that there will be AWOS lines available for the ADAS OT&E Integration testing and that the DLP will also be available. Thus, a complete thread of weather product acquisition, processing, and dissemination can be verified during OT&E Integration testing. Additionally, the FAA Technical Center MPS is expected to be utilized for the ADAS OT&E Integration testing for verification of maintenance functions.

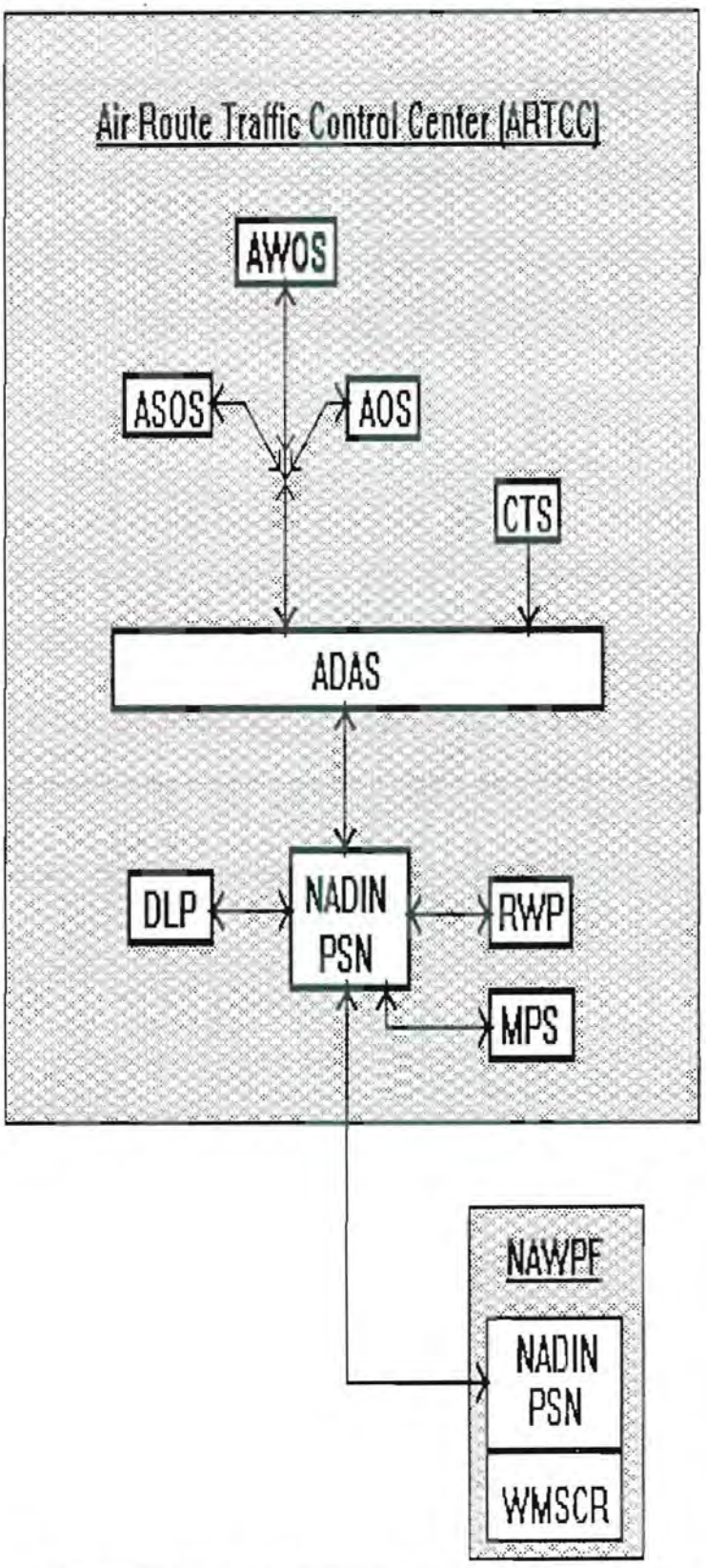

FIGURE 4.1.2-1. ADAS TRANSITION-STATE INTERFACE CONFIGURATION

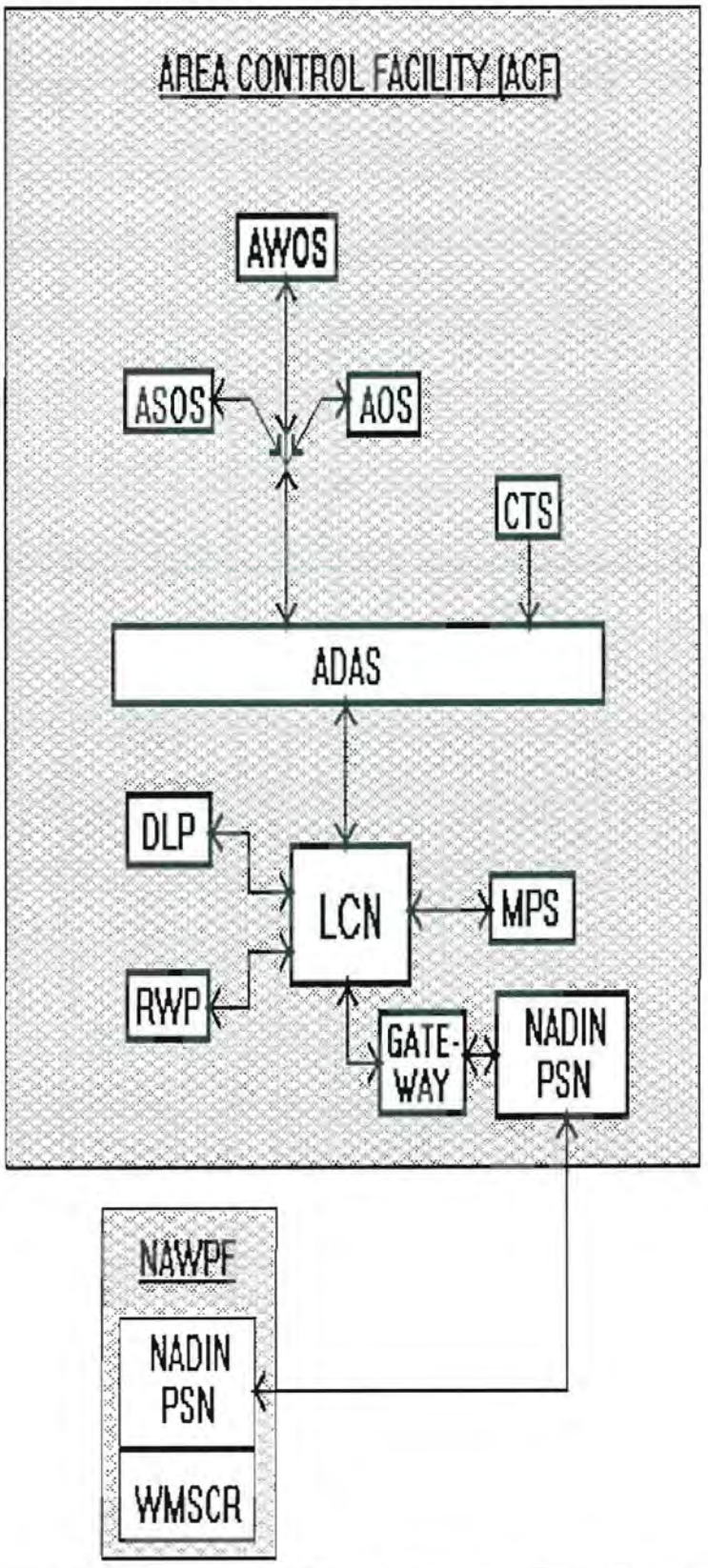

FIGURE 4.1.2-2. ADAS END-STATE INTERFACE CONFIGURATION

The Interactive Process Simulator (IPS), being designed and developed by Communication and Power Engineering (CommPower), the prime contractor of the ADAS, is to be capable of simulating the message generation of all of the external subsystems which interface with the ADAS. During ADAS OT&E Integration testing, the IPS will be used to simulate all nonavailable interfaces. When the IPS is used for providing simulated interfaces, certain requirements associated with the interfaces are only partially verified. Therefore, regression testing shall be performed at an operational ADAS field site when the operational subsystems become available.

In addition, the CTS signal from the IPS will be manipulated (i.e., the test time will be advanced) to trigger events within the ADAS. This manipulation will create problems with accepting input from the "live" AWOS-type subsystems. Live subsystems' time stamps will not advance with the CTS provided Coordinated Universal Time (UTC) and will therefore be discarded by the ADAS as old data. Therefore, the IPS will simulate the AWOS-type subsystems during most tests which manipulate the CTS signal.

4.2 TEST CATEGORIES.

As a means of facilitating a logical, systematic order of testing, the following ADAS test categories resulted from an analysis of the ADAS functions:

a. Functional/Physical Setup
b. Data Collection
c. Data Processing
d. Data Dissemination
e. Data Archiving
f. Maintenance Functions

These six test categories provide the benefit of enabling latter tests to build upon earlier tests. The end result is an accumulative test category sequence. This is decidedly advantageous to the ADAS OT&E Integration test process. The types of testing to be performed in each of the categories is described in further detail in the following subparagraphs.

4.2.1 Category A - Functional/Physical Setup.

The purpose of this category is to verify that the ADAS interface connections are in accordance with the NAS specification. The ADAS connections will be verified for conformance to the physical requirements. All interface cabling and connectors will be examined to assure proper physical connection of the ADAS to all interfacing subsystems. A protocol analyzer will be used to nonintrusively capture data transferred between the ADAS and the subsystems connected to the ADAS.

These tests will verify that the physical and functional connections of the ADAS exist and are in accordance with the specification. The functional data requirements will be incrementally verified by the tests in categories B, C, and D. The composite results of the tests will be analyzed to verify that the functional requirements are satisfied.

Verification of these requirements will require the ADAS to be connected to operational NAS subsystems. Full requirement verification will only be possible for the subsystems which are available at the time of OT&E Integration at the FAA Technical Center. Therefore, regression testing will be performed at one or more field sites for any requirement whose subsystem is unavailable for testing during the initial OT&E Integration testing at the FAA Technical Center.

Table 4.2.1-1, which follows, furnishes specific paragraph numbers of the NAS-SS-1000 Systems Specification requirements for the ADAS that apply and will be verified. The table also lists the test configurations required to fully verify each requirement. The specific information related to these paragraph numbers appear in the ADAS OT&E Integration TVRTM (appendix A). The required test configurations are described in this document in paragraph 9.3 (Test Configurations).

TABLE 4.2.1-1. CATEGORY A NAS-SS-1000 REQUIREMENT PARAGRAPHS

Paragraph No.	Configuration	Paragraph No.	Configuration
3.2.3.1	2	3.3.1	2
3.3.6.1.a	2	3.3.6.1.b	2
3.3.6.2	2	3.3.7	2
3.5.1	2	3.6.1	2
3.6.2	2	3.2.1.5.8.3-1.A	5
3.2.1.5.8.3-1.B	2	3.2.1.5.8.3-1.C	5 & 6
3.2.1.5.8.3-1.D	2	3.2.1.5.8.3-1.G	2
3.2.1.5.8.3-1.H	5 & 6	3.2.1.5.8.3-1.I	5 & 6

A similar method of listing applicable reference paragraphs of the NAS-SS-1000 by tabular means will be used in relation to the discussion of subsequent categories, i.e., categories, B, C, D, E, and F (tables 4.2.2-1 through 4.2.6-1).

4.2.2 Category B - Data Collection.

The purpose of the data collection test is to verify that the ADAS accepts input data from the data source subsystems. The first data input to be verified is the synchronization to the UTC from the CTS. The second data input function to be tested is the capture of the input data from the weather observation sensors. The test scenario will be designed to verify the proper handling of both types of input concurrently.

The IPS will be used to simulate the CTS to permit control over the CTS data. The IPS scenario used will simulate all interfaces to avoid unwanted error processing as the UTC output of the CTS simulator is manipulated.

The scenario will start running with the UTC set to 3 minutes before the hourly messages to WMSCR are scheduled to occur (this is a system-adaptable parameter). The scenario will simulate the loss of the CTS signal at 1 minute prior to the scheduled WMSCR messages. During the running of the scenario, the protocol analyzer will monitor the LCN line and will be set up to capture the data being sent across that line. The scenario will keep the CTS signal muted until 2 minutes past the scheduled delivery time for the hourly WMSCR messages. When the CTS signal is reactivated, the UTC will be set to 3 minutes before the next hourly delivery of the WMSCR messages. The scenario will run for an additional 4 minutes before terminating. The IPS MPS simulator will be used to capture the event and error logs from the ADAS. The data from the protocol analyzer will also be collected for analysis.

The requirements for data collection requires the input from multiple automated observation subsystems. Full verification requires more live systems than will be available for OT&E Integration testing at the System Support Facility (SSF). Verification of the maximum input requirements will be verified at an operational ADAS field site with as many live interfaces as available, with the balance of the interfaces to be simulated with the portable IPS.

TABLE 4.2.2-1. CATEGORY B NAS-SS-1000 REQUIREMENT PARAGRAPHS

Paragraph No.	Configuration	Paragraph No.	Configuration
3.2.1.1.4.1.a	2	3.2.1.1.4.1.b	2
3.2.1.1.4.1.e	2	3.2.1.2.4.a.4.d	2
3.2.1.2.4.a.5	2	3.2.1.2.8.4.b	1
3.2.1.2.8.4.c	1	3.2.1.5.8.1.1	2
3.2.1.5.8.1.7	1	3.2.1.5.8.2.1.1.a	2
3.2.1.5.8.1.1.b	2	3.2.1.5.8.2.1.2	2
3.2.1.5.8.2.3	2	3.2.1.5.8.2.8	1

4.2.3 Category C - Data Processing.

This category addresses the processing on the input data that the ADAS is required to perform. This processing includes verifying the reasonableness of the format of the incoming data and the time stamp within the data packet; simple processing, such as synoptic aviation observation (SAO) format conversion; and special processing, such as generating Special and Urgent Special reports.

Verification of these requirements requires connection to operational NAS subsystems. Therefore, regression testing will be performed on each required interface which is simulated when the operational subsystem becomes available for testing.

The design of the scenario for this test will assign various observation sensor simulators to output defined data which should cause the desired processing to be performed. The protocol analyzer will be used to monitor and capture the data that is output to the LCN. The captured data will be analyzed to verify that the proper processing has taken place.

The scenario for this test is primarily designed to trigger the ADAS to issue Special and Urgent Special reports. Several AWOS-type simulators in the IPS will be designed to produce "bad" data (i.e., aged time stamps and/or bad data formats). Three AWOS-type simulators will be designed to trigger Urgent Special reports by reporting tornados, water spouts, and funnel clouds. Various other AWOS-type simulators will be designed to trigger special reports by reporting variations on one of the following conditions:

a. Ceiling
b. Obscuring phenomenon
c. Wind shift
d. Thunderstorms
e. Hail
f. Freezing precipitation
g. Ice pellets
h. Runway visual range
i. Pressure jump
j. Visibility

TABLE 4.2.3-1. CATEGORY C NAS-SS-1000 REQUIREMENT PARAGRAPHS

Paragraph No.	Configuration	Paragraph No.	Configuration
3.2.1.1.4.1.c	1	3.2.1.1.4.1.g	1
3.2.1.5.8.2.2.3.a.1	1 & 4	3.2.1.5.8.2.2.3.a.2	1 & 4
3.2.4.5.8.2.2.3.a.3	1 & 4	3.2.1.5.8.2.2.3.b.1	1 & 4
3.2.1.5.8.2.2.3.b.2	1 & 4	3.2.1.5.8.2.2.3.c.1	1 & 4
3.2.1.5.8.2.2.3.c.2	1 & 4	3.2.1.5.8.2.2.3.c.3	1 & 4
3.2.1.5.8.2.2.3.c.4	1 & 4	3.2.1.5.8.2.2.3.d	1 & 4
3.2.1.5.8.2.2.3.e	1 & 4	3.2.1.5.8.2.2.3.f.1	1 & 4
3.2.1.5.8.2.2.3.f.2	1 & 4	3.2.1.5.8.2.2.3.f.3	1 & 4
3.2.1.5.8.2.2.3.g	1 & 4	3.2.1.5.8.2.2.3.h.1	1 & 4
3.2.1.5.8.2.2.3.h.2	1 & 4	3.2.1.5.8.2.2.3.h.3	1 & 4
3.2.1.5.8.2.2.4	1 & 4	3.2.1.5.8.2.2.6	2

4.2.4 Category D - Data Dissemination.

In conjunction with the above test, the scenario will also be designed to verify the Data Dissemination requirements of the ADAS. These requirements include verifying that the data is disseminated within the time constraints and that the required additive data is included at the stipulated time. The ADAS is required to disseminate weather data to the DLP and RWP on a minute-by-minute basis. Additionally, ADAS must disseminate hourly, special, and urgent special reports to both of these subsystems and to the WMSCR.

Verification of the requirements will primarily result from the analysis of the data collected from the tests. Full verification of these requirements requires connection to operational NAS subsystems, therefore regression testing will be performed on any required interface which is simulated when the operational subsystem becomes available for testing.

The scenario for this test category will primarily involve triggering the generation and dissemination of hourly reports. The data inputs will be varied in such a way as to verify the ability of the ADAS to maintain trend, accumulative, minima, and maxima information. The subjective time of this scenario will be of a period greater than 72 hours. This will allow for three cycles of the 24-hour additive data tracking. The following additive data categories will be affected:

a. 12-hour maximum temperature
b. 24-hour maximum temperature
c. 12-hour minimum temperature
d. 24-hour minimum temperature
e. 3-hour pressure tendency
f. 1-hour precipitation accumulation
g. 6-hour precipitation accumulation
h. 24-hour precipitation accumulation
i. pressure unsteady
j. pressure rising/falling rapidly

TABLE 4.2.4-1. CATEGORY D NAS-SS-1000 REQUIREMENT PARAGRAPHS

Paragraph No.	Configuration	Paragraph No.	Configuration
3.2.1.1.1.1.h	1	3.2.1.2.4.b.2	1
3.2.1.2.4.b.4	1	3.2.1.2.4.c.1	1
3.2.1.2.4.e.4	1	3.2.1.5.8.2.2.1.a	1
3.2.1.5.8.2.2.1.b	1	3.2.1.5.8.2.2.1.c	1
3.2.1.5.8.2.2.2	1	3.2.1.5.8.2.2.5.a.1	1 & 5
3.2.1.5.8.2.2.5.a.2	1 & 5	3.2.1.5.8.2.2.5.b.1	1 & 5
3.2.1.5.8.2.2.5.b.2	1 & 5	3.2.1.5.8.2.2.5.c	1 & 5
3.2.1.5.8.2.2.5.d.1	1 & 5	3.2.1.5.8.2.2.5.d.2	1 & 5
3.2.1.5.8.2.2.5.d.3	1 & 5	3.2.1.5.8.2.2.5.e	1 & 5
3.2.1.5.8.2.2.5.f	1 & 5	3.2.1.5.8.2.4.a	1, 5, & 6
3.2.1.5.8.2.4.b	1, 5, & 6	3.2.1.5.8.2.4.c	1, 5, & 6
3.2.1.5.8.2.6.a	1	3.2.1.5.8.2.6.b	2

4.2.5 Category E - Data Archiving.

NAS-SS-1000 requirements specify that ADAS is to record, store, and playback ADAS mission data. The ADAS maintains four archival logs to support these requirements. The four logs, SAO message output, event, error, and maintenance, will contain information recorded during the running of the procedures in the previous four categories.

The on-line archives are required to maintain data in the logs for 15 days. The testing in the previous categories manipulates the CTS often, advancing the time to initiate time-triggered events and provide time-stamp discontinuity. An additional benefit of advancing the CTS time is that the logs will contain data over a time period much greater than the time actually needed to conduct OT&E Integration testing. The tests in the previous categories will be designed to ensure that the time period, as seen by the archives, is greater than 15 days.

The testing performed in category E will access the four archives in the ADAS and extract their contents for analysis. This analysis will verify the completeness of the archives and the degree of compliance of the ADAS to NAS archiving requirements.

TABLE 4.2.5-1. CATEGORY E NAS-SS-1000 REQUIREMENT PARAGRAPHS

Paragraph No.	Configuration	Paragraph No.	Configuration
3.2.1.1.4.1.n	1	3.2.1.2.4.g	1
3.2.1.5.8.1.5	1	3.2.1.5.8.2.5	1

4.2.6 Category F - Maintenance Functions.

The purpose of the maintenance category is to verify that all ADAS Remote Maintenance Monitoring Subsystem (RMMS) requirements, to include MPS interface requirements, are fulfilled. Under the RMMS concept, the MPS, which resides at a centralized work center, monitors the performance of the ADAS subsystem. The MPS interfaces to the Remote Monitoring Subsystem (RMS) function in ADAS. The RMS performs real-time monitoring of operational functions of ADAS. If anomalous conditions occur they are reported to the MPS by the RMS in the form of alerts and alarms. In addition, the RMS will respond to periodic or operator initiated requests for information in the form of site data reports.

The OT&E Integration test of the ADAS/MPS interface shall be conducted at the FAA Technical Center SSF utilizing the ACN-100D MPS equipped with Testcom and Packet Handler software (see section 9.1). The ADAS Interim Monitor and Control Software (IMCS) module will be used if available; otherwise, IMCS OT&E Integration testing will occur at an operational site.

ACN-100D RMMS personnel shall conduct five separate tests in this category.

a. The Interface Test verifies that the communication link between the ADAS RMS and the MPS has been established.

b. The Monitoring Test verifies that the ADAS RMS is properly reporting the ADAS system status to the MPS, including all monitored parameters.

c. The Alarm Test verifies the response capability of the ADAS RMS to ADAS system alarm/alert and state change conditions; and the successful transmission of alarm, state change, and return-to-normal messages to the MPS.

d. The Terminal Test verifies the operation of the ADAS local terminal.

e. The Performance Test verifies that the ADAS RMS response times are within the limits defined in NAS-SS-1000.

Table 4.2.6-1 summarizes the NAS-SS-1000 requirements which are to be validated during execution of the test procedures in this category. The configurations identified in table 4.2.6-1 are depicted in section 9.

TABLE 4.2.6-1. CATEGORY F NAS-SS-1000 REQUIREMENT PARAGRAPHS

Paragraph No.	Configuration	Paragraph No.	Configuration
3.2.1.1.2.2.4	3	3.2.1.1.4.1.1	3
3.2.1.1.4.1.2	3	3.2.1.1.4.1.3	3
3.2.1.1.4.1.4	3	3.2.1.1.4.1.5	3
3.2.1.1.4.1.6	3	3.2.1.1.4.1.7	3
3.2.1.1.4.1.9	3	3.2.1.1.4.1.10	3
3.2.1.1.4.1.11	3	3.2.1.1.4.1.12	3
3.2.1.1.4.1.13	3	3.2.1.1.4.1.14	3
3.2.1.1.4.1.15	3	3.2.1.1.4.1.18	3
3.2.1.1.4.1.19	3	3.2.1.1.4.1.20	3
3.2.1.1.4.1.21	3	3.2.1.1.4.2.1	3
3.2.1.1.4.2.2	3	3.2.1.1.4.2.3	3
3.2.1.1.4.2.4	3	3.2.1.1.4.2.7	3
3.2.1.1.4.2.8	3	3.2.1.1.4.3	3
3.2.1.1.9.1.a	5	3.2.1.1.9.1.b	5
3.2.1.1.9.1.g	5	3.2.1.2.9.a	3
30.1.1.1.H	3	30.1.1.2.H	3
30.1.1.3.H	3	30.1.1.4.H	3
30.1.1.5.H	3	30.1.1.6.H	3
30.1.1.9.H	3	30.1.1.10.H	3
30.1.1.11.H	3	30.1.1.12.H	3
30.1.1.13.H	3	3.2.1.5.8.1.3	1
3.2.1.5.8.2.5	3	3.2.1.5.8.3-1.E	5 & 6
3.2.1.5.8.3-1.F	5 & 6		

4.3 CRITICAL REQUIREMENTS.

The test categories of this OT&E Integration Test Plan encompass the six critical functions of the ADAS. Except for category A, ACW-200A has identified a requirement in each category which reflects the critical mission functions. All the requirements in category A have been identified as critical requirements. The other requirements reflecting critical functions of the ADAS are:

Category B:	3.2.1.1.4.1.a	Accept weather information from external subsystem that support NAS specialists and users.
Category C:	3.2.1.1.4.1.g	Classify weather information as hazardous which may impact flight operations.
Category D:	3.2.1.1.1.1.h	Disseminate aeronautical/weather data to the user that directly affects flight operations.
Category E:	3.2.1.1.4.1.n	Archive weather information for use in event reconstruction and accident investigation.
Category F:	3.2.1.1.7.1.a	The NAS shall continually monitor subsystem performance to obtain the data needed by specialists for maintenance and operations support.

4.4 VERIFICATION METHODS.

Two methods of verification, test and demonstration, will be used to verify the requirements identified in the TVRTM, appendix A. The methods of verification are defined in the following subparagraphs.

4.4.1 Test (T).

Test is a method of verification wherein performance is measured during or after the controlled application of functional and/or environmental stimuli. Quantitative measurements are analyzed to determine the degree of compliance. The process uses laboratory equipments, procedures, items and/or services.

4.4.2 Demonstration (D).

Demonstration is a method of verification where qualitative determination of properties is made for an end-item including software and/or the use of technical data and documentation. The items being verified are observed in a dynamic state but not quantitatively measured in a dynamic state.

5. PROGRAM FLOW DIAGRAM.

The ADAS Verification Flow Diagram, shown in figure 5-1, graphically depicts the sequential flow and related progression of activities of the ADAS OT&E Integration testing activities.

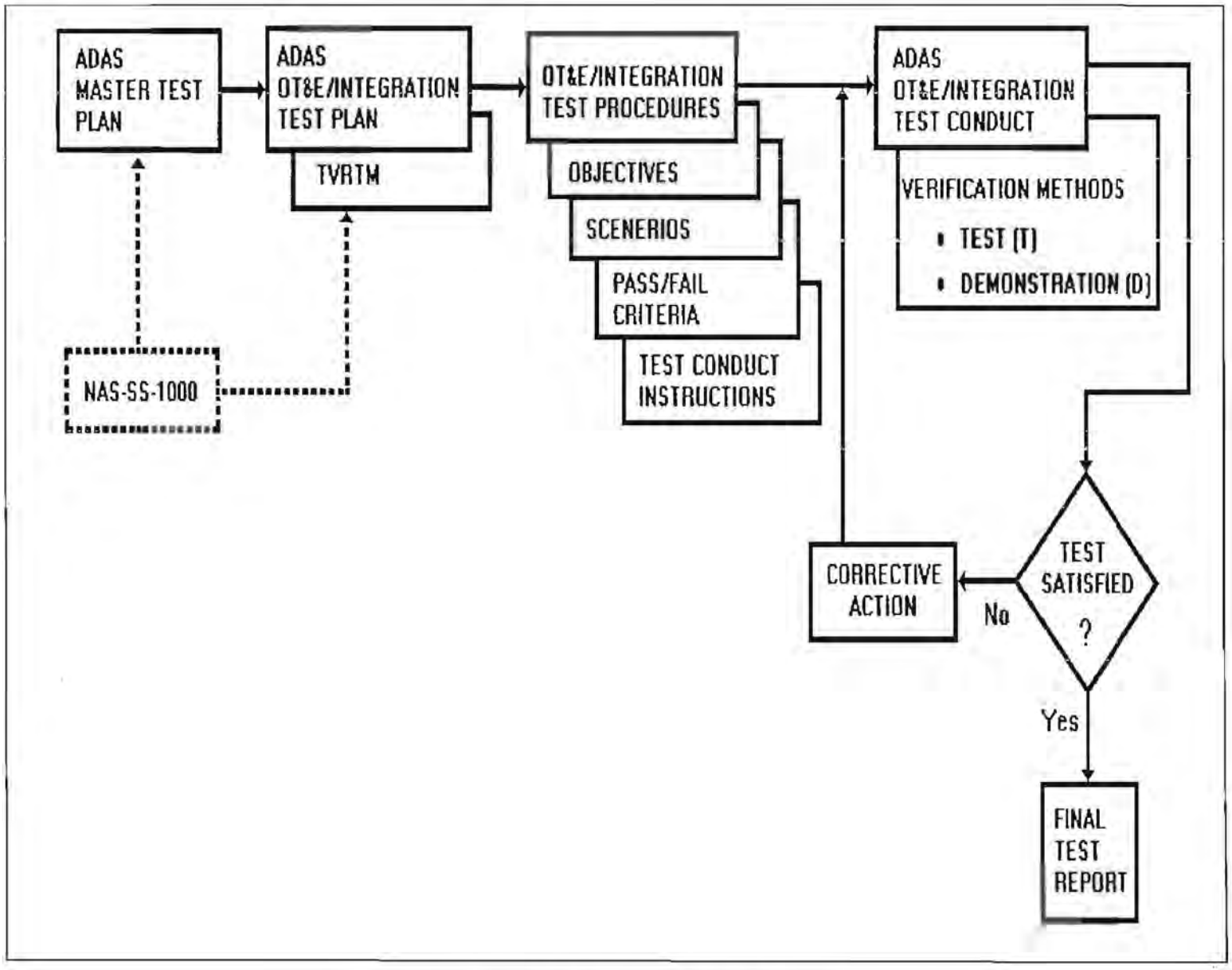

FIGURE 5-1. ADAS PROGRAM FLOW DIAGRAM

6. ORGANIZATION ROLES AND RESPONSIBILITIES.

6.1 RESPONSIBILITIES.

This section describes the responsibilities and roles of ACW-200A and other participating organizations, including contract support personnel, who will be associated with the ADAS integration testing activities.

Organization	Primary Roles and Functions
ANW-400	The ADAS Program Manager (PM) directs and manages all FAA activities for ADAS acquisition and implementation. The PM is responsible for the design, development, integrated logistic support, test and evaluation, full-scale production, and installation. The PM is the program spokesperson inside the FAA and outside, including to Congress, other government agencies, contractors, the aviation community, and the media. Develops program master plan, management plan, and Project Implementation Plan (PIPs). Develops program and budget justification documentation, and controls program funds within approved appropriation.
ANW-140	The ADAS Associate Program Manager for Engineering (APME) directs, manages, and accomplishes engineering activities delineated in ADAS program directives. Approves program directives jointly with the FAA Technical Center as a key function for directing OT&E Integration and approves the budget to fund this testing activity. Provides assistance and support to the implementation of this OT&E Integration plan through the review of related test plans, procedures, test data, and test reports. Issues project requirements for T&E, and incorporates the NAS system level requirements. In conjunction with the ACW-200A Associate Program Manager for Test (APMT), presents reviews to the Test Policy Review Committee (TPRC) as required.
ACW-200A	The ADAS APMT appoints the Test Manager, who is responsible for managing the details of the ADAS OT&E Integration testing. ACW-200A will serve as the focal point of control for each aspect of the testing defined in this plan. Ensures preparation of test plans and procedures are in accordance with FAA-STD-024a. Issues OT&E Integration requirements for T&E. Conducts testing; prepares and maintains test logs and test result files and issues final report upon test completion. Coordinates and schedules all integration activities; witnesses selected ADAS tests and participates in status and review meetings. Provides a recommendation based on test results in support of the Deployment Readiness Review (DRR) Executive Committee (EXCOM) process.
AOS-300	AOS-300 will be responsible for the development and preparation of the ADAS Shakedown Test Plan, ADAS Shakedown Test Procedures, and the ADAS Maintenance Handbook. AOS-300 will be responsible for conducting OT&E Shakedown testing at the FAA Technical Center.

Support Contractor	Provides support to ACW-200A in developing test plans and procedures for ADAS OT&E Integration activities. Provides assistance in planning, conducting, and observing and witnessing testing activities, as required. Aids and assists in the preparation of test logs, the analysis of test results, and the preparation of the final test report upon completion of testing.
SEIC	Provides management and technical support in the development of functional requirements, feasibility studies, performance analyses, and deployment support of NAS plan projects. Systems Engineering and Integration Contractor (SEIC) also assists in the scheduling and monitoring of project milestones. Supports ANW-140 in the planning, oversight, and review of ADAS testing and report activities, as directed.
ADAS Prime Contractor	Provides assistance in determining causes, and implementing solutions, for hardware, software, and firmware malfunctions during integration test activities.

6.2 ROLES.

This section defines the following test roles:

a. Associate Program Manager for Test (APMT)

b. Test Manager

c. Test Observers/Monitors

d. Test Operator

e. Test Support Group

6.2.1 APMT.

The APMT, provided by ACW-1, will be ultimately responsible for the overall management of the ADAS OT&E Integration test effort. The APMT will have ultimate responsibility for:

a. FAA MTP distribution at the FAA Technical Center

b. conducting status reviews

c. approving OT&E Integration and Human Factors test requirements, plans, procedures, and reports

d. coordination of test documentation

e. conducting OT&E Integration testing

f. manpower/test equipment acquisition

g. funding, test documentation management

h. appointment of Test Manager

i. presenting unresolved test issues, problems to TPRC

j. providing assessments for DRR

6.2.2 Test Manager.

The test manager is appointed by the test director and is responsible for upholding test schedules, and maintaining authority at the test site during test conduct. Duties include the following activities:

a. Test personnel are available and properly trained to conduct the required tests;

b. Required equipment is available and in working order at the designated test site;

c. Requirements for on-site test support personnel are coordinated;

d. Test activities are performed within the approved schedule in accordance with approved test plans and procedures;

e. Noted test discrepancies are logged and appropriate remedial action for resolution of the test problems is recommended;

f. Test logs/observer records are being documented properly;

g. Test data for analysis is collected and test results are documented.

6.2.3 Test Observer(s).

Technically qualified test observer(s) will be assigned to monitor and record activities for specific ADAS OT&E Integration Test activities. Test observer(s) will also maintain a compilation of all their test observer notes, as well as any other type of assigned data sheets. The test observer(s) will assist the test manager in verifying that test observations and/or measurements are properly recorded.

6.2.4 Test Operator.

The test operator will be a qualified person assigned to perform and fulfill various test duties during the conduct of testing. The test operator will be expected to follow the ordering sequence of the test and record anomalies. In the conduct of these assessments/evaluations, the test operator will be under the direct supervision of the test manager.

In addition, the test operator will also assist in:

a. Bringing up the system;

b. Carrying out test setups and execution runs;

c. Ensuring hard copies are printed and available;

d. Providing support in all data reduction tasks (required for analysis of the test results);

e. Operating the test equipment.

6.2.5 Test Support Group.

The ADAS Test Support Group will consist of a group of specialists knowledgeable in specific testing area(s) and specific aspects of the ADAS TVRTM.

Personnel from this group will assist ACW-200A in providing the services necessary to establish, schedule, maintain, and control test activities for conducting the ADAS testing effort.

The following are the ADAS test support personnel responsibilities:

a. To support the conduct of the NAS OT&E Integration testing at the FAA Technical Center;

b. To review test plans, procedures, and reports;

c. To witness conduct of testing;

d. To verify related reports.

7. DOCUMENT REQUIREMENTS AND CONTROL.

This section identifies the test documentation, reviews, and reports that will be necessary to support the OT&E Integration of ADAS that will be conducted at the FAA Technical Center and the first operational site.

Examples of the specific forms discussed in this section are found in appendix B of this plan.

7.1 DOCUMENTATION TREE.

The hierarchical dependencies of the primary documents used in the development of this plan are represented in figure 7.1-1, ADAS OT&E Integration Test Plan (ITP) Documentation Tree. As noted from this figure, guidance for the format and content of the OT&E ITP was derived primarily from the following documents: FAA Order 1810.4A(B), FAA-STD-024a, NAS-MD-110, FAA-E-2804, and the ADAS FAA Master Test Plan (MTP).

FAA Order 1810.4A(B) identifies the various organizational roles and responsibilities for performing test activities throughout a project's life cycle, while FAA-STD-024a provides the standard for the preparation of the various types of OT&E documentation. NAS-MD-110 specifies the test terms and definitions utilized for the NAS. In accordance with FAA Order 1810.4A(B) and as defined by NAS-MD-110, and as directed by ANW-140, the ADAS OT&E Integration testing will be conducted by the FAA at the test site (the FAA Technical Center). The ADAS OT&E ITP, developed by ACW-200A, will assure that the appropriate type and level of testing and evaluation is conducted, as necessary, to verify all of the requirements of the ADAS TVRTM listed in appendix A.

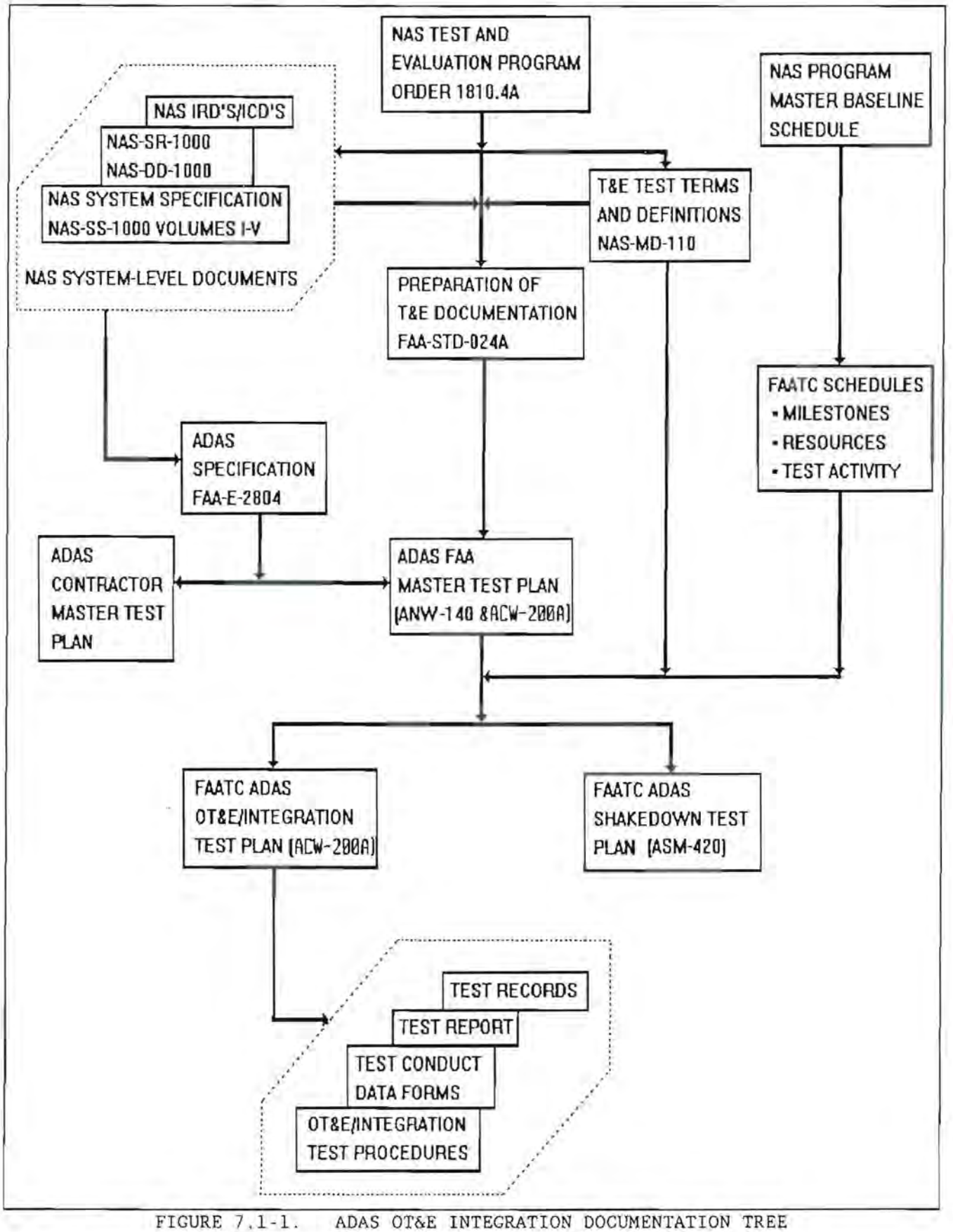

FIGURE 7.1-1. ADAS OT&E INTEGRATION DOCUMENTATION TREE

7.2 OPERATING AND CONTROL DOCUMENTS.

7.2.1 Test Procedures.

The major thrust of the ADAS OT&E Integration Test Procedures to be developed by ACW-200A is to determine if the ADAS meets its NAS-SS-1000 transition-state and end-state interface requirements.

The procedures will contain step-by-step instructions for conducting the verification of requirements (see section 4) associated with each test category and configuration. These procedures will be prepared in accordance with this plan and FAA-STD-024a.

All procedures will be designed for the testing to be performed at the SSF. Those OT&E Integration Test Procedures requiring operational NAS subsystems for full verification of requirements will contain applicable information pertaining to the performance of follow-on ADAS field site testing. A Test Conduct Log form (see appendix B) and a checklist of the materials needed for procedure execution will be included with each procedure.

7.2.2 Test Log.

A Test Conduct Log (see appendix B) will be developed and finalized before the actual conduct of the test. One log will be prepared for each test procedure and will include at a minimum the following information:

a. Test Identification Number
b. Test Location
c. Test Configuration
d. Test Director's Name
e. Test Operator's Name
f. Input Data Identification
g. Procedure Step Performance Indication
h. Output Data Identification

7.2.3 Test Observer's Record.

Test observer monitor notes will be recorded on the Test Observer/Monitor Record (see appendix B) and signed by the observer.

7.2.4 Test Discrepancy Reports.

The test manager will be responsible for determining that all discrepancies observed during the tests are documented. The following forms, appearing in appendix B, are to be used to document test discrepancies.

a. Software Discrepancy Report - This form is initiated when any discrepancies or anomalies is ADAS subsystem software-related.

b. Hardware Discrepancy Report - This form is initiated when a problem is ADAS subsystem hardware-related.

c. Problem Trouble Report - This form is initiated when a problem is related to a non-ADAS subsystem/equipment maintenance-type discrepancy.

8. TRAINING.

Training of FAA Technical Center government and contractor support test personnel will encompass various instructional and self-learning processes in preparation for the OT&E Integration testing of the ADAS.

Reading of technically related ADAS literature will be the basic and chief medium of gaining familiarization with the system and its intended system interfaces. The various forms of informational reading will include: NAS publications related to the ADAS, FAA Specifications and Standards, FAA Headquarters' generated documents (e.g., FAA Master Test Plan), and various CommPower CDRL publications.

Arrangements are planned for several key FAA Technical Center ADAS test personnel to undergo IPS training at the ADAS contractor's facility prior to the time of the ADAS Test Readiness Review. Training is expected to be three days in duration and will encompass familiarization concerning the startup, shutdown, and operational aspects of the IPS hardware and software. Participants will be sent preliminary copies of the ADAS and IPS user's manuals in advance for preliminary study.

9. TEST SUPPORT.

9.1 INSTRUMENTATION.

The IPS, used by CommPower for Factory Acceptance Testing, is to be provided for use at the FAA Technical Center for SAT and OT&E Integration testing.

A protocol analyzer will be used to capture data input and output of the ADAS. The captured data will be used to verify both transferred data and transport protocol.

Testcom is a software package created and maintained by ACW-200A. This software executes in the MPS and provides for the testing of RMS subsystems. Through a table driven send-receive capability, Testcom can functionally emulate an IMCS module. By executing in the MPS, Testcom provides an environment which is near operational. Testcom additionally provides for recording of messages.

The Packet Handler software, which also resides in the MPS, provides for X.25 communication in the absence of NADIN II. This software will accept X.25 packets from ADAS and distribute these packets to DLP, the IPS, or to Testcom software within the MPS based on the address or logical channel of the X.25 packet. Conversely, all packets received from these elements will be throughput to ADAS.

9.2 DATA ANALYSIS.

Data analysis of the various test categories is intended to be accomplished through comparison of the actual test output data to the expected data results appearing in the ADAS test procedures. The required test output data will be gathered by designated test team personnel from recording devices, printed outputs, and monitor displays, etc., during testing.

9.3 TEST CONFIGURATION.

The OT&E Integration test activities will be conducted at the FAA Technical Center SSF and at one or more operational ADAS site. The ADAS OT&E Integration Test configurations will consist of equipment comprised of two or more of the following items:

a. an operational ADAS
b. an ADAS IPS
c. available ADAS interfacing subsystems
d. available ADAS interfacing networks
e. a protocol analyzer
f. a Tandem computer (running MPS Testcom and Packet Handler programs)
g. a MPS ADAS IMCS module

Analysis of the ADAS OT&E Integration TVRTM has resulted in six distinct test configurations (see figures 9.3-1 through 9.3-6). The first four configurations are for FAA Technical Center SSF testing, while the last two are for transition and end-state testing at one or more ADAS operational field sites. The ADAS OT&E Integration Test configurations are defined as:

Configuration ID	Configuration Descriptions
ADAS_ITC_1	An operational ADAS with IPS simulation of the message generation of all interfacing systems.
ADAS_ITC_2	An operational ADAS with live and IPS simulated weather sensor inputs and IPS simulation of the message generation of all other interfacing subsystems.
ADAS_ITC_3	An operational ADAS with a Tandem computer (running MPS Testcom and Packet Handler programs) and IPS simulation of the message generation of all other interfacing subsystems.
ADAS_ITC_4	An operational ADAS and an operational DLP with a Tandem computer (running MPS Testcom and Packet Handler programs) and IPS simulation of the message generation of all other interfacing subsystems.
ADAS_ITC_5	An operational ADAS, an operational NADIN II network, a MPS ADAS IMCS module, and available operational ADAS Interfacing subsystems with IPS simulation of the message generation of all other interfacing subsystems.
ADAS_ITC_6	An operational ADAS, an operational LCN network, an operational NADIN II network, a MPS ADAS IMCS module, and available operational ADAS Interfacing subsystems with IPS simulation of the message generation of all other interfacing subsystems.

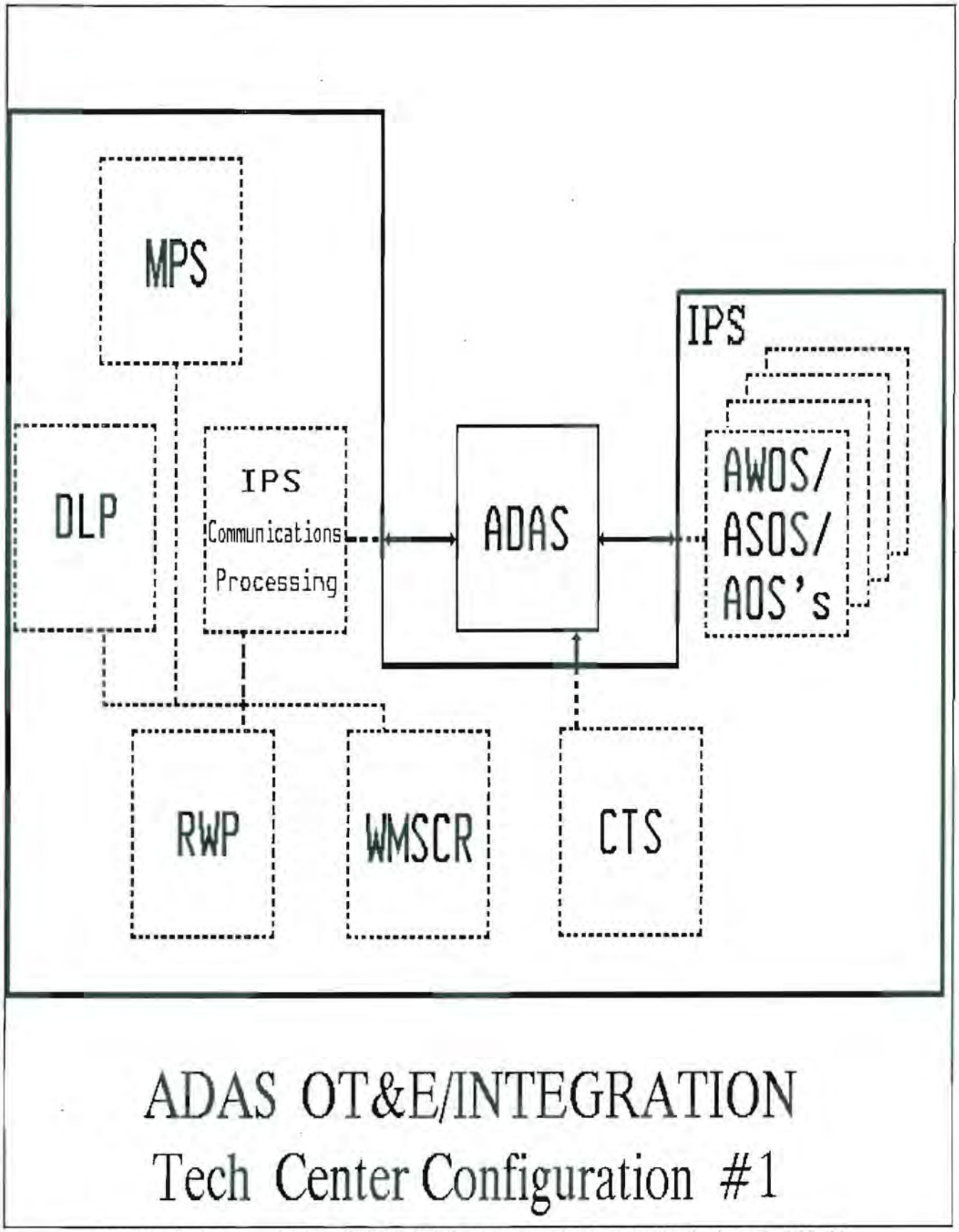

FIGURE 9.3-1. ADAS INTEGRATION TEST CONFIGURATION 1 (ADAS_ITC_1)

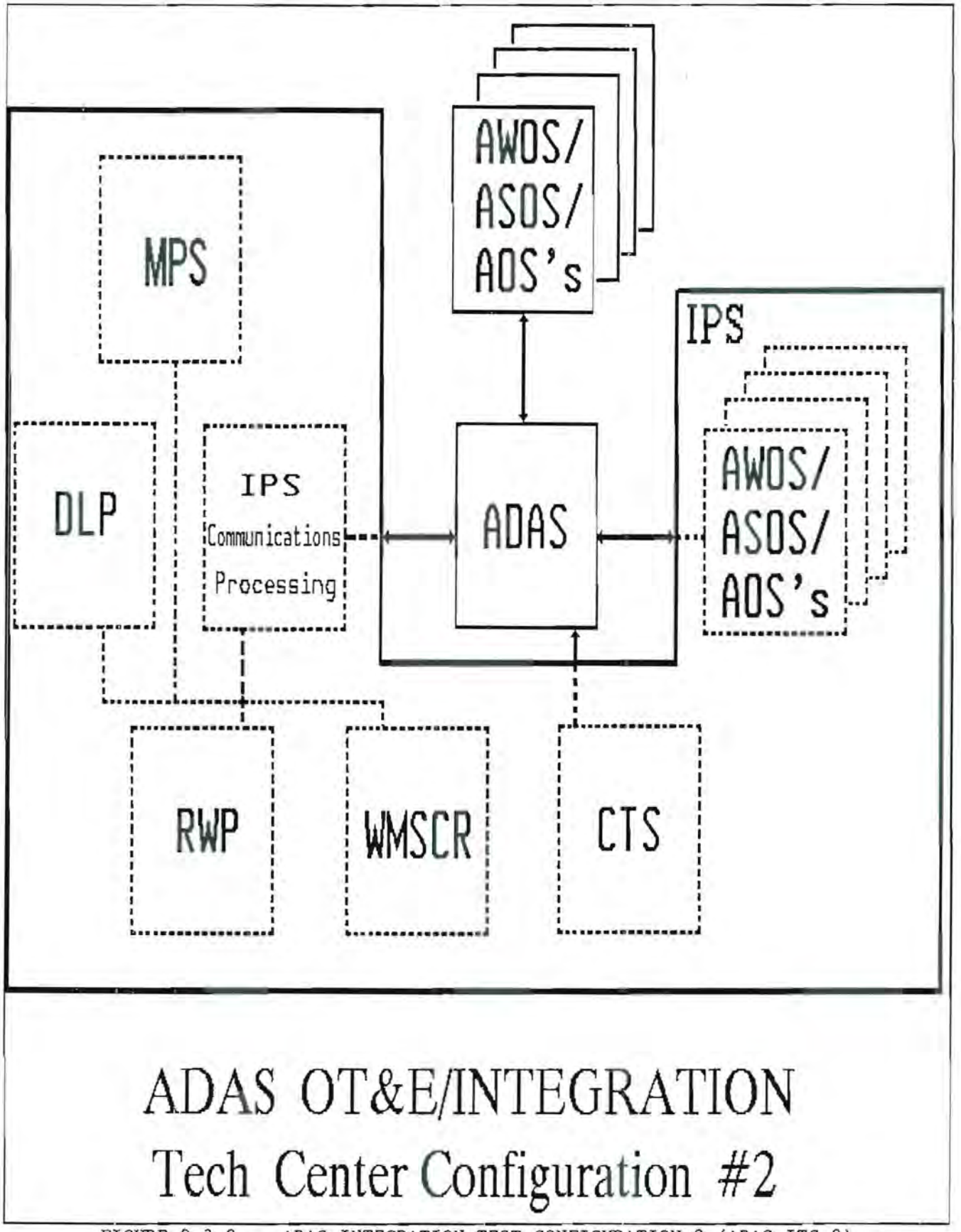

FIGURE 9.3-2. ADAS INTEGRATION TEST CONFIGURATION 2 (ADAS_ITC_2)

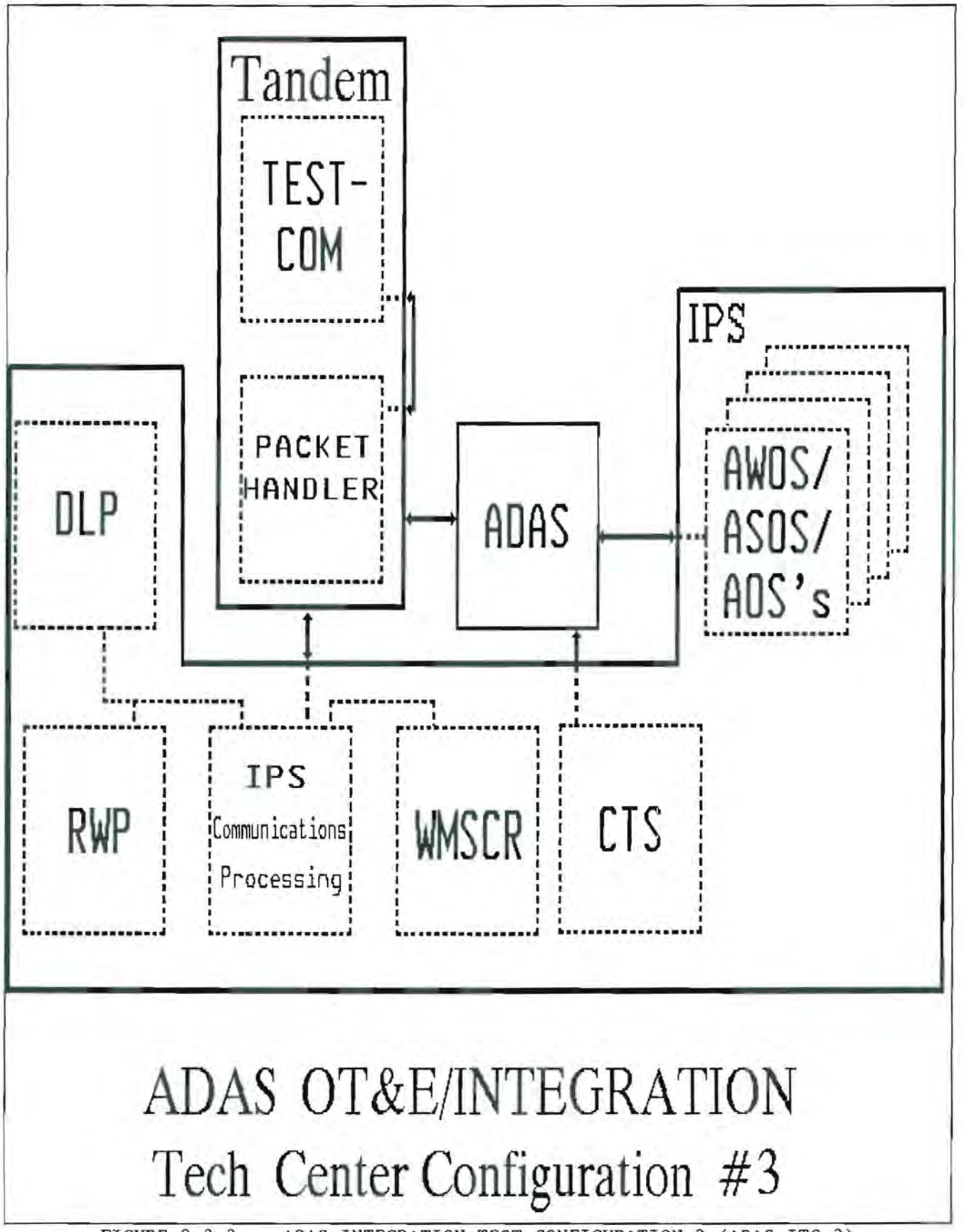

FIGURE 9.3-3. ADAS INTEGRATION TEST CONFIGURATION 3 (ADAS_ITC_3)

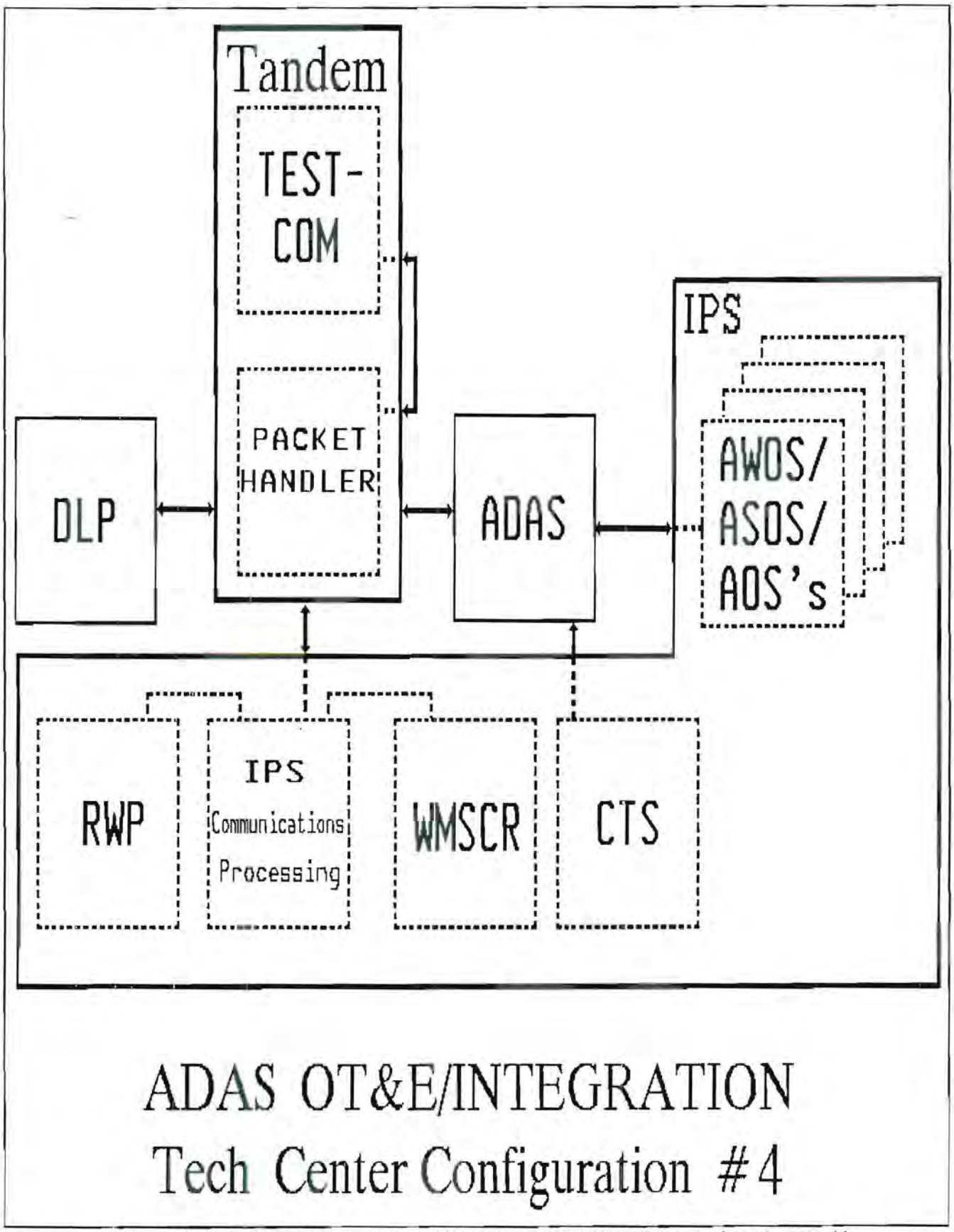

FIGURE 9.3-4. ADAS INTEGRATION TEST CONFIGURATION 4 (ADAS_ITC_4)

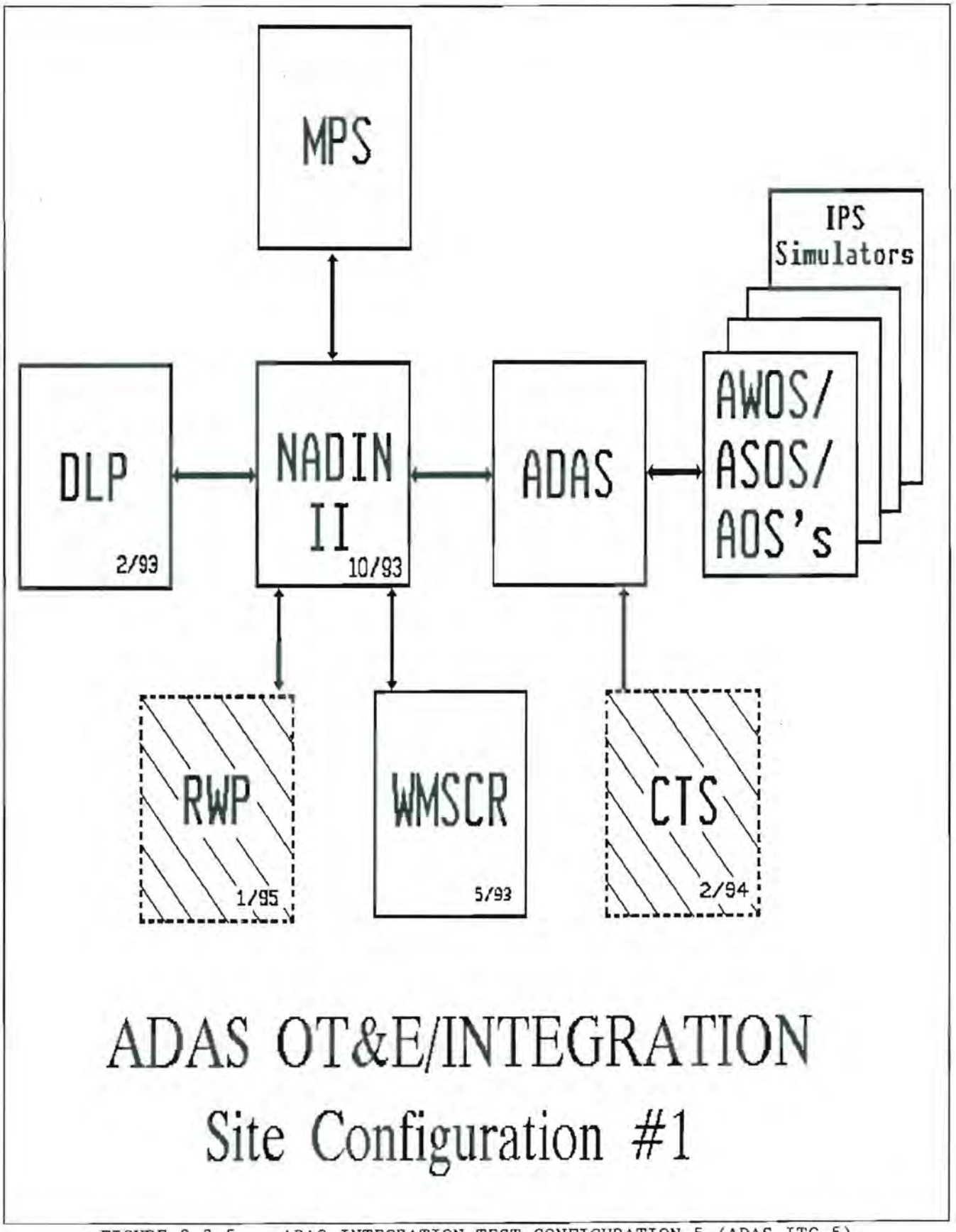

FIGURE 9.3-5. ADAS INTEGRATION TEST CONFIGURATION 5 (ADAS_ITC_5)

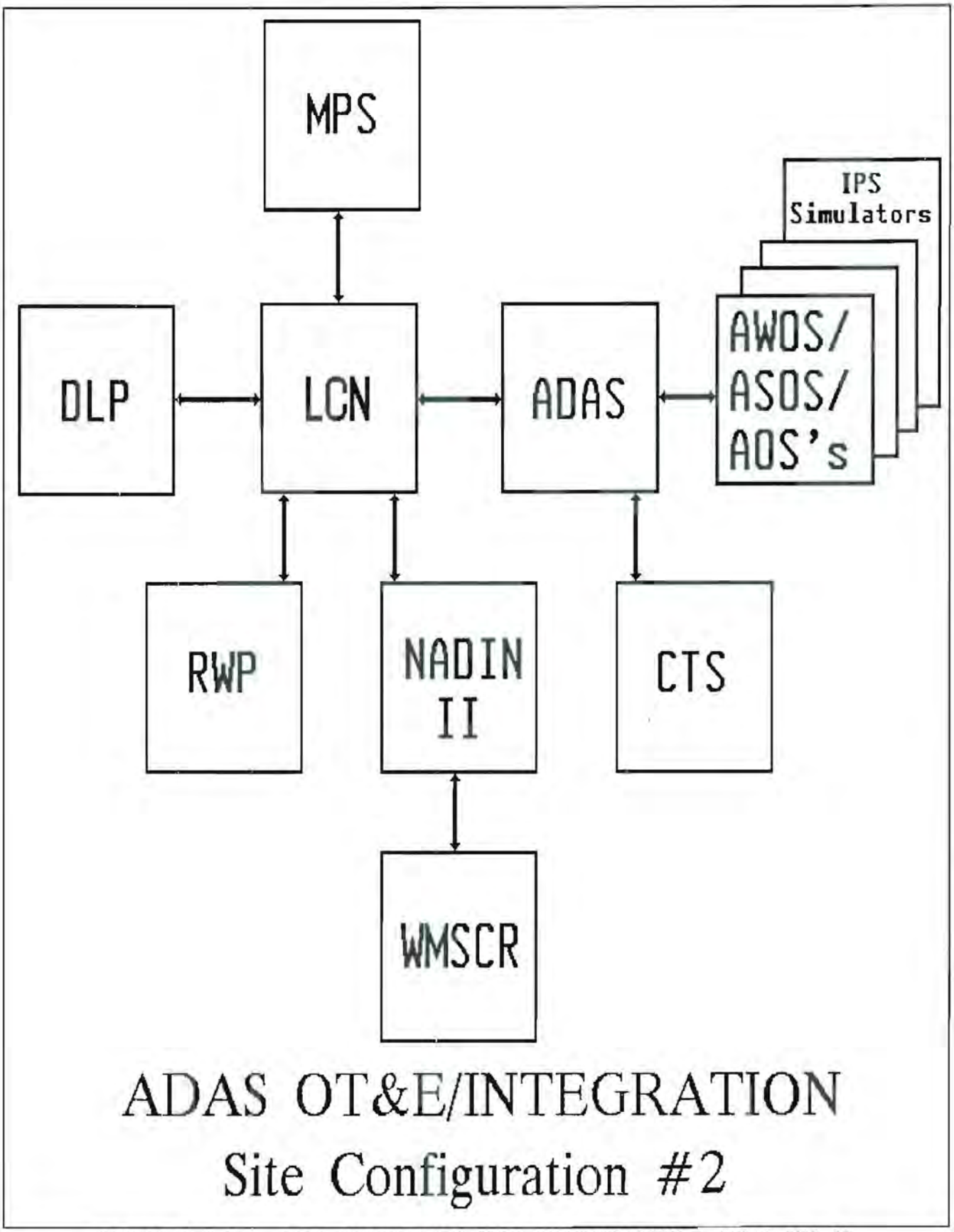

FIGURE 9.3-6. ADAS INTEGRATION TEST CONFIGURATION 6 (ADAS_ITC_6)

10. REVIEWS AND REPORTS.

The following subsections identify the reviews, meetings, and reports that will be conducted in relation to OT&E Integration testing.

10.1 TEST READINESS REVIEW.

Prior to the start of OT&E Integration Test activities, a Test Readiness Review (TRR) shall be conducted. In this review, the test director will present justification for assessment of the readiness of the test including, but not limited to, status of all necessary documentation, the resolution of comments, questions, and problems, completion of configuration audits (software and hardware), availability of ADAS computer resources and other system facilities, potential risks, and an assessment of the overall outcome of the activity.

10.2 TEST SCHEDULE STATUS REVIEW.

Test Schedule Status Review (TSSR) meetings are scheduled on a monthly basis to track the status of testing activities and keep the ADAS Program Office (ANW-140) advised of any outstanding issues or actions. These reviews are chaired by the ACW-200A test director or a person designated by the test director.

10.3 POST-TEST REVIEW.

This review will be held upon test completion. It will be chaired by the test manager and attended by all test personnel. This meeting will review the results of the test activity. Any discrepancies, anomalies, and exceptions that were recorded during the test, and their significance to the test results, will be discussed during this review.

10.4 DEPLOYMENT READINESS REVIEW.

The Deployment Readiness Review (DRR) process will provide the status on all of the ADAS project activities, identify open issues, and enable the formulation of conclusions and recommendations to these issues. The DRR process normally begins a minimum of 180 days prior to the scheduled deployment of the ADAS at the first operational site and includes formal DRR presentations approximately 150 and 60 days prior to the deployment date.

10.5 QUICK LOOK REPORTS.

For each configuration of testing completed, (see paragraph 9.3) a Quick Look Test report will be produced. These reports will be completed by the test manager, following the analysis of the test data. This report will give early status information for the system while the analysis process is still underway. It will also contain the outcome of the tests, any test discrepancies noted during the test execution, and their significance.

10.6 FINAL TEST REPORT.

The ADAS test director will be responsible for preparing a Final Test Report. A draft report will be delivered to the project manager after the completion of testing. The Final Test Report will document the results of the detailed test analysis, and assess the conformance of each test to defined criteria. The status of problems identified previously in the Quick Look Test Reports will be updated, and a revised assessment will be made of their impact on the tested system, and the suggested corrective actions required.

11. SCHEDULES.

This section presents the ADAS T&E Activities Schedule, which is based on the ADAS Project Master Baseline Schedule (PMBS). (Note: The T&E schedule information contained in table 11-1 is a subset of the current schedule at the time of this document's release. This document will not be reissued if only the schedule has been changed.)

The function of this schedule is to provide detailed schedule direction to all T&E activities, within the parameters established by the PMBS. It identifies the tasks to be accomplished within a given test area, as listed below, and identifies test-task durations, start-stop dates, and major performance measurement point between each.

The scheduled major test areas are:

a. DT&E testing
b. PAT&E testing
c. OT&E Integration testing
d. OT&E Shakedown testing

The ADAS T&E Activities Schedule enables the test director to provide detailed schedule guidance to the test groups, and ensures that the T&E milestones are supported and fulfilled. Status is measured against this schedule and flows up to the PMBS for impact assessment. The ADAS T&E Schedule is reviewed during ADAS TSSR meetings, and is reissued approximately every other month.

12. TEST VERIFICATION REQUIREMENTS TRACEABILITY MATRIX.

The Test Verification Requirements Traceability Matrix (TVRTM) is the most essential part of the ADAS OT&E Integration test process. It reflects all of the OT&E requirements and serves as the single tracking tool accounting for their evaluation and assessment throughout the OT&E cycle.

12.1 TVRTM CONTENT DESCRIPTION.

For better user understanding of the TVRTM, the following definitions and information are provided:

TABLE 11.1. ADAS OT&E INTEGRATION ACTIVITIES SCHEDULE

Schedule Milestone	Schedule Date
Distribute OT&E Integration Test Plan (ITP) for ANW, ASM, ATR, ANS, ANM, and ASE for Final Concurrence	November 15, 1991
ADAS OT&E Integration Test Plan Approved	January 24, 1992
Distribute Draft #1 OT&E Integration Test Procedures (ITPr) to ACN, ASM, & SEI for Technical Review	December 2, 1991
ITPr Draft #1 Completed	January 21, 1992
Distribute Draft #2 ITPr to ACN, ASM, & ANW for Technical Review	July 14, 1992
OT&E Integration Test Procedures Approved	September 24, 1992
TRR Start	May 4, 1992
TRR Completed	May 7, 1992
FAT Start	June 16, 1992
FAT Completed	June 29, 1992
ACN/ASM Trip Report on FAT Completed	July 7, 1992
System Delivery to FAA Technical Center	October 16, 1992
FAA Technical Center Site Acceptance Test Start	October 19, 1992
FAA Technical Center Site Acceptance Test Completed	November 12, 1992
Contractor Acceptance Inspection (CAI)	November 13, 1992
OT&E Pre-Test Activities Start	November 16, 1992
OT&E Pre-Test Activities Completed	December 7, 1992
OT&E Integration Test Execution Start	December 8, 1992
RMS Functional Test Runs Start	December 15, 1992
OT&E Integration Test Execution Completed	December 29, 1992
RMS Functional Test Runs Completed	December 29, 1992
OT&E Integration Test Analysis Start	December 30, 1992
OT&E Shakedown Test Execution Start	January 4, 1993
ACW-200A/RMS Submit Letter of Findings to MAP	January 7, 1993
OT&E Shakedown Test Analysis Start	January 19, 1993
OT&E Shakedown Test Execution Completed	January 26, 1993
OT&E Shakedown Test Analysis Completed	January 26, 1993
OT&E Integration Test Analysis Completed	January 29, 1993
OT&E Integration Test & Analysis Complete	February 1, 1993
Shakedown Quick Look Report Completed	February 1, 1993
ACW-200A Submit Integration Quick Look Report	February 2, 1993
AOS-300 Submit Shakedown Quick Look Report	February 2, 1993
Test Director's Deployment Readiness Review (DRR) Recommendation	February 2, 1993
Submit ADAS Test Report to Program Manager	March 4, 1993
DRR Process Start	February 3, 1993
DRR Process Completed	February 11, 1993
DRR EXCOM (Production Decision)	February 12, 1993
First Operational Site Delivery	May 27, 1993
First Operational SAT Completed	June 14, 1993

Vol. - The NAS-SS-1000 Volume from which the requirement was extracted.
Paragraph # - The source paragraph number of the NAS System-Level Specification for that specific requirement.

Description - A brief description of the paragraph text, per paragraph number, that describes the testing to be completed.

CAT - This column identifies the test category, one of the six categories previously identified in paragraph 4.2, which are:

Category A - Functional/Physical Setup
Category B - Data Collection
Category C - Data Processing
Category D - Data Dissemination
Category E - Data Archiving
Category F - Maintenance Functions

Each CAT is identified by an alphabetic letter only. Explanation of each category has been previously described in paragraph 4.2 of this OT&E/Integration Test Plan.

VM - This column identifies which type of verification method - Demonstration (D) or Test (T), will be used.

CFG - This column identifies which of the six ADAS test configurations must be used to verify the requirement. The numbers 1 through 6 refer to ADAS_ITC_1 through ADAS_ITC_6, respectively. Refer to paragraph 9.3 in this plan for further information on the ADAS integration test configurations.

PLAN ID - This column references paragraphs in the OT&E Integration Test Plan that apply to a specific requirement. The number appearing in this column refers to the plan paragraph number which describes the test category with which the requirement is associated.

VOLUME XREF - Cross-reference to those paragraphs in another volume that duplicate or incorporate the same testing requirements are identified by paragraph number in this column.

SPECIFICATION XREF(s) - This column cites specific paragraphs from the ADAS System Specification, FAA-E-2804, which relate to the NAS-SS-1000 requirement.

12.2 MAINTENANCE AND CONTROL.

The TVRTM is maintained by ACW-200A. Editorial corrections, general enhancements, changes in allocation to configurations and categories due to changes in philosophies by ACW-200A will be incorporated as required. Any additions and deletions of requirements must be made as a result of an approved change in the Master Test Plan TVRTM.

12.3 PLANNED TVRTM.

The following pages provide an initial version of the planned TVRTM. Indicated are all of the requirements of Volumes I, II, and V of NAS-SS-1000, with corresponding references to the associated paragraphs within the ADAS Specification (FAA-E-2804).

13. ABBREVIATIONS AND ACRONYMS.

ACC	Mike Monroney Aeronautical Center
ACF	Area Control Facility
ACT	FAA Technical Center
ADAS	AWOS Data Acquisition System
AOS	Automated Observing System
APME	Associate Progam Manager for Engineering
APMT	Associate Program Manager for Test
ARTCC	Air Route Traffic Control Center
ASOS	Automated Surface Observing System
AWOS	Automated Weather Observation System
CommPower	Communications and Power Engineering Inc.
CTS	Coded Time Source
DLP	Data Link Processor
DRR	Deployment Readiness Review
EXCOM	Executive Committee
FAA	Federal Aviation Administration
FAT	Factory Acceptance Test
IPS	Interactive Process Simulator
ITP	Integration Test Plan
LCN	Local Communications Network
MPS	Maintenance Processor Subsystem
MTP	Master Test Plan
NADIN	NAS Data Interchange Network
NAS	National Airspace System
NWSTG	NWS Telecommunications Gateway
OSC	Operational Site Configuration
OT&E	Operational Test and Evaluation
PMBS	Project Master Baseline Schedule
PMP	Parts, Material, and Process
PSF	Program Support Facility
PSN	Packet Switched Network
RMMS	Remote Maintenance Monitoring System
RMS	Remote Monitoring Subsystem
RWP	Real-Time Weather Processor
SAO	Synoptic Aviation Observation
SAT	Site Acceptance Test
SEIC	Systems Engineering & Integration Contract
SSF	System Support Facility
T&E	Test and Evaluation
TPRC	Test Policy Review Committee
TRR	Test Readiness Review
TSSR	Test Schedule Status Review
TVRTM	Test Verification Requirements Traceability Matrix
UTC	Coordinated Universal Time
WMSCR	Weather Message Switching Center Replacement

APPENDIX A

TEST VERIFICATION REQUIREMENTS TRACEABILITY MATRIX

ADAS OT&E Integration TVRTM: Part 1 - Requirement Descriptions

Vol.	Paragraph Number	Requirement Description
I:	3.2.1.1.1.1.h	Disseminate aeronautical/weather data to the user that directly affects flight operations;
I:	3.2.1.1.4.1.a	Accept weather information from external subsystems that support NAS specialists and users;
I:	3.2.1.1.4.1.b	Collect and/or sense weather information that pertains to the area of NAS responsibility for terminal and en route operations;
I:	3.2.1.1.4.1.c	Provide the capability and flexibility to support future growth and expandability;
I:	3.2.1.1.4.1.e	Accept input from specialists including annotations or remarks to existing weather information or commands to generate specific weather products;
I:	3.2.1.1.4.1.g	Classify weather information as hazardous which may impact flight operations;
I:	3.2.1.1.4.1.n	Archive weather information for use in event reconstruction and accident investigation;
I:	3.2.1.1.9.1.a	The NAS shall continually monitor subsystem performance to obtain the data needed by specialist for maintenance and operations support;
I:	3.2.1.1.9.1.b	The NAS shall provide the status of subsystems to specialists and shall generate an alarm upon the deviation of designated parameters from prescribed limits;
I:	3.2.1.1.9.1.g	The NAS shall provide the specialist access to the monitoring, control, and data management capabilities of the NAS as required, and as authorized by administrative directive;
I:	3.2.1.2.4.a.4.d	Collect NWS generated current weather observations, at least once every minute;

Vol.	Paragraph Number	Requirement Descriptions
I:	3.2.1.2.4.a.5	Collect DOD generated data on current surface weather observations at least once every minute;
I:	3.2.1.2.4.b.2	Current weather observation information shall be available to local area specialists and users and updates at least once per minute;
I:	3.2.1.2.4.b.4	Current surface weather observation information shall be available to non-local area specialists and users and updated at least once per hour;
I:	3.2.1.2.4.c.1	The NAS shall maintain trend weather information for the past 3 hours;
I:	3.2.1.2.4.e.4	NAS shall perform all processing required to produce and/or complete a description of current/trend/or predicted weather conditions by filtering/decoding/editing and reformatting acquired weather data to facilitate its operational use by NAS specialists and users.
I:	3.2.1.2.4.g	The NAS shall archive all weather information in accordance with section 3.2.1.2.8.3;
I:	3.2.1.2.8.4.b	ADAS shall be synchronized to within 6 seconds of UTC;
I:	3.2.1.2.8.4.c	ADAS shall provide interfacing capabilities to the coded time signal and synchronization in accordance with Volumes II through V of NAS-SS-1000;
I:	3.2.1.2.9.a	The NAS shall provide the capability to continually monitor the status, alarms/ alerts, and performance data of selected subsystems;
I:	3.2.3.1	Fault Detection/Fault Isolation (FD/FI) program i.a.w. (in accordance with) MIL-STD-2165, detecting all faults and isolating them to the correct LRU 95% of the time.
I:	3.3.1	Parts, Material, and Processes (PMP) control standardization program i.a.w. the requirements of FAA-G-2100.

Vol.	Paragraph Number	Requirement Description
I:	3.3.6.1-a	No subsystem or interfacing subsystem shall degrade operational safety or increase risk;
I:	3.3.6.1-b	Compliance shall be verified by safety analysis conducted i.a.w. MIL-STD-882 structured as appropriate to provide safety standards for each program.
I:	3.3.6.2	NAS facilities and facility subsystems shall comply with Code of Federal Regulations, Title 29.
I:	3.3.7	ADAS shall establish a human engineering program i.a.w. MIL-H-46855, to assure compliance with the requirements of MIL-STD-1472.
I:	3.5.1	Maintenance of ADAS shall comply with the NAILS Master Plan and FAA Order 6000.30.
I:	3.6.1	NAS shall provide trained personnel to operate and maintain the ADAS.
I:	3.6.2	NAS shall provide training equipment and facilities for accomplishing operator and technician training in the evolving NAS environment.
I:	30.1.1.1.H	The ADAS shall provide for the monitoring of designated subsystems performance parameters.
I:	30.1.1.2.H	The ADAS shall provide subsystem operating status data including configuration and mode of operation.
I:	30.1.1.3.H	The ADAS shall provide subsystem status reports that contain only state changes and alarms/alerts in response to a subsystem status request.
I:	30.1.1.4.H	The ADAS shall automatically provide for the accumulation of current subsystem status and performance data in a local datafile.
I:	30.1.1.5.H	The ADAS shall provide subsystem data in response to requests from RMMS subsystems.

Vol.	Paragraph Number	Requirement Description
I:	30.1.1.6.H	The ADAS shall provide an alarm when any designated NAS subsystem monitored parameter is out of tolerance.
I:	30.1.1.9.H	The ADAS shall provide a Return-To-Normal alarm when an initial alarm condition is cleared.
I:	30.1.1.10.H	The ADAS shall provide an alert when selected subsystem parameters are outside a predetermined range.
I:	30.1.1.11.H	The ADAS shall provide the capability to set or change ranges for subsystem alarm or alert parameters.
I:	30.1.1.12.H	The ADAS shall provide for the disabling of a subsystem alarm or alert by a specialist on-site.
I:	30.1.1.13.H	The ADAS shall report the disabling of a subsystem alarm or alert as performance data.
I:	30.1.1.15.H	The ADAS shall provide subsystem diagnostic data in response to a diagnostic test request.
II:	3.2.1.5.8.1.1	Collect data from federal, non-federal, and DOD AWOS and NWS ASOS.
II:	3.2.1.5.8.1.3	Maintain an adaptive data base containing such info as site location (long., lat.), site identifiers, etc., for each AWOS/ASOS assign to it. Maintain parameters and characteristics for processors interfacing with the ADAS
II:	3.2.1.5.8.1.5	The ADAS shall archive data.
II:	3.2.1.5.8.1.7	Receive and maintain system timing synchronized to UTC to support archiving, database maintenance, and dissemination.
II:	3.2.1.5.8.2.1.1.a	Accept data from Federal, non-Federal and DOD AWOS at a maximum rate of once per minute per site.
II:	3.2.1.5.8.2.1.1.b	Accept data from NWS ASOS at a maximum rate of once per minute per site, plus hourly and special observations in SAO format.

Vol.	Paragraph Number	Requirement Description
II:	3.2.1.5.8.2.1.2	Accept data from up to a maximum of 137 sites per ADAS.
II:	3.2.1.5.8.2.2.1.a	Derive Minimum/Maximum temperatures over an adaptive period.
II:	3.2.1.5.8.2.2.1.b	Derive precipitation accumulation over adaptive periods.
II:	3.2.1.5.8.2.2.1.c	Derive pressure tendencies.
II:	3.2.1.5.8.2.2.2	Derive additive data remarks for pressure rising/falling rapidly, and pressure unsteady.
II:	3.2.1.5.8.2.2.3.a.1	Flag AWOS generated observations and issue a special (SP) when the ceiling forms or dissipates below, decreases to less than, or if below, increases to or exceeds 3000 feet.
II:	3.2.1.5.8.2.2.3.a.2	Flag AWOS generated observations and issue a special (SP) when the ceiling forms or dissipates below, decreases to less than, or if below, increases to or exceeds 1000 feet.
II:	3.2.1.5.8.2.2.3.a.3	Flag AWOS generated observations and issue a special (SP) when the ceiling forms or dissipates below, decreases to less than, or if below, increases to or exceeds 500 feet.
II:	3.2.1.5.8.2.2.3.b.1	Flag AWOS generated observations and issue a special (SP) when a layer of clouds or obscuring phenomena is detected at or below 1000 feet, and such condition was not reported in the preceding observation;
II:	3.2.1.5.8.2.2.3.b.2	Flag AWOS generated observations and issue a SP when a layer of cloud or obscuring phenomena aloft is at or below the highest instrument landing minimums applicable to the airport, and such condition was not reported below this height in previous observation.
II:	3.2.1.5.8.2.2.3.c.1	Flag AWOS generated observations and issue a special when reported visibility decreases to less than, or if below, increases to or exceeds 3 miles.

Vol.	Paragraph Number	Requirement Description
II:	3.2.1.5.8.2.2.3.c.2	Flag AWOS generated observations and issue a SP when reported visibility decreases to less than, or if below, increases to or exceeds 2 miles;
II:	3.2.1.5.8.2.2.3.c.3	Flag AWOS generated observations and issue a SP when reported visibility decreases to less than, or if below, increases to or exceeds 1.5 miles;
II:	3.2.1.5.8.2.2.3.c.4	Flag AWOS generated observations and issue a SP when reported visibility decreases to less than, or if below, increases to or exceeds 1 mile;
II:	3.2.1.5.8.2.2.3.d	Flag AWOS generated observations and issue a SP when a change in the average wind direction of 45° or more in less than 15 minutes, and where the wind speed exceeds 6 knots.
II:	3.2.1.5.8.2.2.3.e	Flag AWOS generated observations and issue a SP if a thunderstorm begins, increases in intensity (T to T+), or ends.
II:	3.2.1.5.8.2.2.3.f.1	Flag AWOS generated observations and issue a SP when Hail begins or ends.
II:	3.2.1.5.8.2.2.3.f.2	Flag AWOS generated observations and issue a SP when freezing precipitation begins, ends, or changes in intensity;
II:	3.2.1.5.8.2.2.3.f.3	Flag AWOS generated observations and issue a SP when Ice Pellets begin, end, or change in intensity.
II:	3.2.1.5.8.2.2.3.g	Flag AWOS generated observations and issue a SP when highest value reported for an operational runway during the preceding 10 minutes decreases to or below, or if below, increases to or exceeds, 2400 feet.
II:	3.2.1.5.8.2.2.3.h.1	Flag AWOS generated observations and issue a SP when a rise in pressure at a rate exceeding 0.005" of mercury (inHg) per minute and the rise is at least 0.02 inHg;
II:	3.2.1.5.8.2.2.3.h.2	Flag AWOS generated observations and issue a SP when a rise in pressure at a rate exceeding 0.005 inHg per minute and the pressure for 20 minutes or more following the beginning of the jump remains at least 0.02 inHg higher than at the beginning;

Vol.	Paragraph Number	Requirement Description
II:	3.2.1.5.8.2.2.3.h.3	Flag AWOS generated observations and issue a SP when a rise in pressure at a rate exceeding 0.005 inHg per minute and the beginning of the jump is distinctly separated from the beginning of any preceding jump by at least 20 minutes.
II:	3.2.1.5.8.2.2.4	Issue an urgent special (USP) when a tornado, water spout, or funnel cloud has been identified by a qualified observer at the AWOS operator terminal, and identified in the AWOS message.
II:	3.2.1.5.8.2.2.5.a.1	Generate hourly reports at an adaptive time. Append the additive data groups and report to the hourly messages: Maximum Temperature for the last 12 hours at 0000 UTC;
II:	3.2.1.5.8.2.2.5.a.2	Generate hourly reports at an adaptive time. Append the additive data groups and reports to the hourly messages: Maximum temperature for the last 24 hours at 0600 UTC.
II:	3.2.1.5.8.2.2.5.b.1	Generate hourly reports at an adaptive time. Append the additive data groups and reports to the hourly messages: Minimum temperature for the last 12 hours at 1200 UTC.
II:	3.2.1.5.8.2.2.5.b.2	Generate hourly reports at an adaptive time. Append the additive data groups and reports to the hourly messages: Minimum temperature for the last 24 hours at 1800 UTC.
II:	3.2.1.5.8.2.2.5.c	Generate hourly reports at an adaptive time. Append additive data groups and reports to the hourly messages: Pressure tendency report every 3 hours beginning at 0000 UTC, for the past 3 hours.
II:	3.2.1.5.8.2.2.5.d.1	Generate hourly reports at an adaptive time. Append the additive data groups and reports to the hourly messages: 6-hour precipitation accumulation every 6 hours beginning at 0000 UTC;

Vol.	Paragraph Number	Requirement Descriptions
II:	3.2.1.5.8.2.2.5.d.2	Generate hourly reports at an adaptive time. Append the additive data groups and reports to the hourly messages: 24-hour precipitation accumulation reported at 1200 UTC.
II:	3.2.1.5.8.2.2.5.d.3	Generate hourly reports at an adaptive time. Append the additive data groups and reports to the hourly messages: 1-hour precipitation accumulation reported hourly.
II:	3.2.1.5.8.2.2.5.e	Generate hourly reports at an adaptive time. Append the additive data and reports to the hourly messages: Pressure unsteady, reported hourly if pressure varies by 0.03 inches from the mean trend.
II:	3.2.1.5.8.2.2.5.f	Generate hourly reports at an adaptive time. Append the additive data groups and reports to the hourly messages: Pressure Rising/Falling Rapidly report hourly when pressure rises/falls at a rate of 0.06 in/hr or more with a total rise/fall of 0.02 inches.
II:	3.2.1.5.8.2.2.6	Perform format conversion of AWOS messages to SAO format for hourly and special reports for dissemination to WMSCR. Perform reasonableness checks on incoming data (time, format, etc.).
II:	3.2.1.5.8.2.3	Be capable of updating ADAS database at such rates as to be able to receive 137 surface observations per minute.
II:	3.2.1.5.8.2.4.a	Disseminate surface observations to the RWP subsystem, minute-by-minute, hourlies, and all specials in AWOS format.
II:	3.2.1.5.8.2.4.b	Disseminate surface observations to the WCP (DLP) subsystem, minute-by-minute, hourlies, and all specials, in AWOS format.
II:	3.2.1.5.8.2.4.c	Disseminate surface observations to the WMSCR subsystem, hourlies, and specials, in SAO format.
II:	3.2.1.5.8.2.5	Archive all ADAS generated messages for a period of 15 days.
II:	3.2.1.5.8.2.6.a	Disseminate specials within 5 seconds of receipt of data.

Vol.	Paragraph Number	Requirement Description
II:	3.2.1.5.8.2.6.b	Disseminate current/hourlies within 10 second of receipt of data.
II:	3.2.1.5.8.2.7	The ADAS shall generate and transmit maintenance data in accordance with response times specified in 3.2.1.1.4.2.1, 3.2.1.1.4.2.2, 3.2.1.1.4.2.3, and 3.2.1.1.4.2.7 in Volume V of NAS-SS-1000.
II:	3.2.1.5.8.2.8	Synchronize to the NAS standard time reference in accordance with section 3.2.1.2.8.4 in Vol. I of NAS-SS-1000. Be capable of 1-second timing resolution.
II:	3.2.1.5.8.3-1.A	ADAS shall interface functionally and physically with the CTS as shown in figure 3.2.1.5.8.3-1. The functional interfaces are defined in table 3.2.1.5.8.3-1.
II:	3.2.1.5.8.3-1.B	ADAS shall interface functionally and physically with AWOS/ASOS as shown in figure 3.2.1.5.8.3-1. The functional interfaces are defined in table 3.2.1.5.8.3-1.
II:	3.2.1.5.8.3-1.C	ADAS shall interface functionally and physically with the WCP (DLP) as shown in figure 3.2.1.5.8.3-1. The functional interfaces are defined in table 3.2.1.5.8.3-1.
II:	3.2.1.5.8.3-1.D	ADAS shall interface functionally and physically with the DOD AWOS as shown in figure 3.2.1.5.8.3-1. The functional interfaces are defined in table 3.2.1.5.8.3-1.
II:	3.2.1.5.8.3-1.E	ADAS shall interface functionally and physically with the MPS as shown in figure 3.2.1.5.8.3-1. The functional interfaces are defined in table 3.2.1.5.8.3-1.
II:	3.2.1.5.8.3-1.F	ADAS shall interface functionally and physically with the MPS as shown in figure 3.2.1.5.8.3-1. The functional interfaces are defined in table 3.2.1.5.8.3-1.

Vol.	Paragraph Number	Requirement Description
II:	3.2.1.5.8.3-1.G	ADAS shall interface functionally and physically with the NFED AWOS as shown in figure 3.2.1.5.8.3-1. The functional interfaces are defined in table 3.2.1.5.8.3-1.
II:	3.2.1.5.8.3-1.H	ADAS shall interface functionally and physically with the RWP as shown in figure 3.2.1.5.8.3-1. The functional interfaces are defined in table 3.2.1.5.8.3-1.
II:	3.2.1.5.8.3-1.I	ADAS shall interface functionally and physically with the WMSCR as shown in figure 3.2.1.5.8.3-1. The functional interfaces are defined in table 3.2.1.5.8.3-1.
V:	3.2.1.1.2.2.4	The RMMS shall detect and present alarms and state changes from all designated NAS subsystems to NAS specialist within an average time of 10 seconds and a maximum time of 60 seconds, measured from time of detection to time of presentation.
V:	3.2.1.1.4.1.1	The RMS shall obtain subsystem status and performance data from the subsystem as determined in adaptation and in accordance with the requirements in this section.
V:	3.2.1 1.4.1:2	The RMS shall monitor subsystem performance in real-time by use of on-line (hardware sensors) and/or in-line (software sensors) monitors.
V:	3.2.1.1.4.1.3	The RMS shall automatically accumulate current status and performance data in a local data file.
V:	3.2.1.1.4.1.4	The RMS shall provide data in response to a request from other RMMS subsystems.
V:	3.2.1.1.4.1.5	The RMS shall obtain operation status data from the subsystem that includes configuration and mode of operation.
V:	3.2.1.1.4.1.6	The RMS status report shall contain only state changes and alarms/alerts in response to a subsystem status request.
V:	3.2.1.1.4.1.7	The RMS shall generate an alarm when any designated NAS subsystem monitored parameter is out of tolerance.

Vol.	Paragraph Number	Requirement Description
V:	3.2.1.1.4.1.9	The RMS shall generate a return-to-normal alarm when an initial alarm condition is cleared.
V:	3.2.1.1.4.1.10	The RMS shall generate an alert when selected parameter measurements are outside a predetermined range.
V:	3.2.1.1.4.1.11	The RMS shall have the capability to accept a predetermined range for alarm and alert parameters.
V:	3.2.1.1.4.1.12	The RMS shall provide for the disabling of an alarm or alert by a specialist on-site. This action shall only inhibit alarms or alerts generated by the specific subsystem.
V:	3.2.1.1.4.1.13	The RMS shall report the disabling of an alarm or alert as performance data.
V:	3.2.1.1.4.2.1	The RMS shall detect an alarm/alert condition, filter extraneous fluctuations, and provide an indication to the local status file within an average time of 2 seconds and a maximum time of 10 seconds.
V:	3.2.1.1.4.2.2	The RMS shall detect a change of state, filter extraneous fluctuations, and provide an indication to the local status file within an average time of 2 seconds and a maximum time of 10 seconds.
V:	3.2.1.1.4.2.3	The RMS shall collect the certification test data, diagnostic test data, monitored parameter data, or facility data for a single report within an average time of 50 seconds and a maximum time of 4 minutes. The data shall be available in the local status file.
V:	3.2.1.1.4.2.7	The RMS shall provide indication of status for all subsystem operating modes that is derived from subsystem performance monitors.
V:	3.2.1.1.4.2.8	The RMS shall transfer to the RMSC/MPS on a priority basis with the order of priority being status messages, message data, and performance data.
V:	3.2.1.1.4.3	For RMS functional/physical interfaces, refer to appropriate subsystems in Volumes II through IV of NAS-SS-1000.

ADAS OT&E INTEGRATION TVRTM: PART 2 - REQUIREMENT CHARACTERISTICS

Vol.	Paragraph Number	Cat.	VM	Cfg.	Plan ID
I:	3.2.1.1.1.1.h	D	D	1	4.2.4
I:	3.2.1.1.4.1.a	B	D	2	4.2.2
I:	3.2.1.1.4.1.b	B	D	2	4.2.2
I:	3.2.1.1.4.1.c	C	D	1	4.2.1
I:	3.2.1.1.4.1.e	B	D	2	4.2.2
I:	3.2.1.1.4.1.g	C	D	1	4.2.3
I:	3.2.1.1.4.1.n	E	D	1	4.2.5
I:	3.2.1.1.9.1.a	F	D	5	4.2.6
I:	3.2.1.1.9.1.b	F	D	5	4.2.6
I:	3.2.1.1.9.1.g	F	D	5	4.2.6
I:	3.2.1.2.4.a.4.d	B	T	2	4.2.2
I:	3.2.1.2.4.a.5	B	T	2	4.2.2
I:	3.2.1.2.4.b.2	D	D,T	1	4.2.4
I:	3.2.1.2.4.b.4	D	D,T	1	4.2.4
I:	3.2.1.2.4.c.1	D	D,T	1	4.2.4
I:	3.2.1.2.4.e.4	D	D	1	4.2.4
I:	3.2.1.2.4.g	E	T	1	4.2.5
I:	3.2.1.2.8.4.b	B	T	1	4.2.2
I:	3.2.1.2.8.4.c	B	T	1	4.2.2
I:	3.2.1.2.9.a	F	T	3	4.2.6
I:	3.2.3.1	A	A,I	2	4.2.1
I:	3.3.1	A	I	2	4.2.1
I:	3.3.6.1-a	A	A	2	4.2.1
I:	3.3.6.1-b	A	I	2	4.2.1
I:	3.3.6.2	A	I	2	4.2.1
I:	3.3.7	A	I	2	4.2.1
I:	3.5.1	A	I	2	4.2.1
I:	3.6.1	A	I	2	4.2.1
I:	3.6.2	A	I	2	4.2.1
I:	30.1.1.1.H	F	D	3	4.2.6
I:	30.1.1.2.H	F	D	3	4.2.6
I:	30.1.1.3.H	F	D	3	4.2.6
I:	30.1.1.4.H	F	D	3	4.2.6
I:	30.1.1.5.H	F	D	3	4.2.6
I:	30.1.1.6.H	F	D	3	4.2.6
I:	30.1.1.9.H	F	D	3	4.2.6
I:	30.1.1.10.H	F	D	3	4.2.6
I:	30.1.1.11.H	F	D	3	4.2.6
I:	30.1.1.12.H	F	D	3	4.2.6
I:	30.1.1.13.H	F	D	3	4.2.6
I:	30.1.1.15.H	F	D	3	4.2.6
II:	3.2.1.5.8.1.1	B	D	1	4.2.2
II:	3.2.1.5.8.1.3	F	D	1	4.2.6
II:	3.2.1.5.8.1.5	E	D	1	4.2.5
II:	3.2.1.5.8.1.7	B	T	1	4.2.2
II:	3.2.1.5.8.2.1.1.a	B	T	1	4.2.2
II:	3.2.1.5.8.2.1.1.b	B	T	1	4.2.2
II:	3.2.1.5.8.2.1.2	B	T	1,2,5	4.2.2
II:	3.2.1.5.8.2.2.1.a	D	T	1	4.2.4

Vol.	Paragraph Number	Cat.	VM	Cfg.	Plan ID
II:	3.2.1.5.8.2.2.1.b	D	D	1	4.2.4
II:	3.2.1.5.8.2.2.1.c	D	D	1	4.2.4
II:	3.2.1.5.8.2.2.2	D	D	1	4.2.4
II:	3.2.1.5.8.2.2.3.a.1	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.a.2	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.a.3	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.b.1	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.b.2	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.c.1	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.c.2	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.c.3	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.c.4	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.d	C	D	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.e	C	D	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.f.1	C	D	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.f.2	C	D	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.f.3	C	D	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.g	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.h.1	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.h.2	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.3.h.3	C	T	1,4	4.2.3
II:	3.2.1.5.8.2.2.4	C	D	1,4	4.2.3
II:	3.2.1.5.8.2.2.5.a.1	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.5.a.2	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.5.b.1	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.5.b.2	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.5.c	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.5.d.1	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.5.d.2	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.5.d.3	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.5.e	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.5.f	D	T	1,5	4.2.4
II:	3.2.1.5.8.2.2.6	C	D	2,5	4.2.3
II:	3.2.1.5.8.2.3	B	T	2,5	4.2.2
II:	3.2.1.5.8.2.4.a	D	T	1,5,6	4.2.4
II:	3.2.1.5.8.2.4.b	D	T	1,5,6	4.2.4
II:	3.2.1.5.8.2.4.c	D	T	1,5,6	4.2.4
II:	3.2.1.5.8.2.5	E	T	1	4.2.5
II:	3.2.1.5.8.2.6.a	D	T	1	4.2.4
II:	3.2.1.5.8.2.6.b	D	T	1	4.2.4
II:	3.2.1.5.8.2.7	F	T	3	4.2.6
II:	3.2.1.5.8.2.8	B	T	1	4.2.2
II:	3.2.1.5.8.3-1.A	A	D	5	4.2.1
II:	3.2.1.5.8.3-1.B	A	D	2	4.2.1
II:	3.2.1.5.8.3-1.C	A	D	5,6	4.2.1
II:	3.2.1.5.8.3-1.D	A	D	2	4.2.1
II:	3.2.1.5.8.3-1.E	F	D	5,6	4.2.1
II:	3.2.1.5.8.3-1.F	F	D	5,6	4.2.1
II:	3.2.1.5.8.3-1.G	A	D	2	4.2.1
II:	3.2.1.5.8.3-1.H	A	D	5,6	4.2.1
II:	3.2.1.5.8.3-1.I	A	D	5,6	4.2.1

Vol.	Paragraph Number	Cat.	VM	Cfg.	Plan ID
V:	3.2.1.1.2.2.4	F	T	3	4.2.6
V:	3.2.1.1.4.1.1	F	T	3	4.2.6
V:	3.2.1.1.4.1.2	F	T	3	4.2.6
V:	3.2.1.1.4.1.3	F	T	3	4.2.6
V:	3.2.1.1.4.1.4	F	T	3	4.2.6
V:	3.2.1.1.4.1.5	F	T	3	4.2.6
V:	3.2.1.1.4.1.6	F	T	3	4.2.6
V:	3.2.1.1.4.1.7	F	T	3	4.2.6
V:	3.2.1.1.4.1.9	F	T	3	4.2.6
V:	3.2.1.1.4.1.10	F	T	3	4.2.6
V:	3.2.1.1.4.1.11	F	T	3	4.2.6
V:	3.2.1.1.4.1.12	F	T	3	4.2.6
V:	3.2.1.1.4.1.13	F	T	3	4.2.6
V:	3.2.1.1.4.2.1	F	T	3	4.2.6
V:	3.2.1.1.4.2.2	F	T	3	4.2.6
V:	3.2.1.1.4.2.3	F	T	3	4.2.6
V:	3.2.1.1.4.2.7	F	T	3	4.2.6
V:	3.2.1.1.4.2.8	F	T	3	4.2.6
V:	3.2.1.1.4.3	F	T	3	4.2.6

ADAS OT&E INTEGRATION TVRTM: PART 3 - REQUIREMENT CROSS-REFERENCES

Vol.	Paragraph Number	Volume Xref.	Specification Xref(s)
I:	3.2.1.1.1.1.h	3.2.1.5.8.1.4	3.1.4.1.2.b 3.1.4.1.2.c 3.1.4.1.2.d 3.1.4.1.2.e
I:	3.2.1.1.4.1.a	3.2.1.5.8.1.1	3.1.4.1.2.a
I:	3.2.1.1.4.1.b	3.2.1.5.8.1.1	3.1.4.1.2.a
I:	3.2.1.1.4.1.c	3.2.1.5.8.1	3.1.4.3.2.2.2.1.1
I:	3.2.1.1.4.1.e	3.2.1.5.8.1.1	3.1.4.3.2.2.x
I:	3.2.1.1.4.1.g	3.2.1.5.8.1.2	3.1.4.2.1.2.2 3.1.4.2.1.2.3
I:	3.2.1.1.4.1.n	3.2.1.5.8.2.5	3.1.4.2.1.3.5
I:	3.2.1.1.9.1.a	3.2.1.5.8.1.6	3.1.4.2.2.3.1
I:	3.2.1.1.9.1.b	3.2.1.5.8.1.6	3.1.4.3.2.2.6 3.1.4.2.2.3.1 3.1.4.2.2.3.5.2.1.a
I:	3.2.1.1.9.1.g	3.2.1.5.8.1.6	3.1.4.3.2.1.1 3.1.4.3.2.1.3 3.1.4.3.2.2
I:	3.2.1.2.4.a.4.d	3.2.1.5.8.2.1.1.b	3.1.4.3.3.1.1
I:	3.2.1.2.4.a.5	3.2.1.5.8.2.1.1.a	3.1.4.3.3.1.1
I:	3.2.1.2.4.b.2	3.2.1.5.8.2.4	3.1.4.3.3.1.1.1.a
I:	3.2.1.2.4.b.4	3.2.1.5.8.2.4.c	3.1.4.3.3.1.1.1.b
I:	3.2.1.2.4.c.1	3.2.1.5.8.2.2.1	3.1.4.2.1.2.3.1.a
I:	3.2.1.2.4.e.4	3.2.1.5.8.2.2.1	3.1.4.2.1
I:	3.2.1.2.4.g	3.2.1.5.8.2.5	3.1.4.2.1.3.5
I:	3.2.1.2.8.4.b	3.2.1.5.8.1.7	3.1.4.1 3.1.4.1.1.c 3.1.4.2.2.3.1
I:	3.2.1.2.8.4.c	3.2.1.5.8.1.7	3.1.4.1 3.1.4.1.1.c 3.1.4.2.2.3.1

Vol.	Paragraph Number	Volume Xref.	Specification Xref(s)
I:	3.2.1.2.9.a	3.2.1.5.8.1.6	3.1.4.2.2.3.1
I:	3.2.3.1	3.2.1.5.8.1.6	3.4.2.1
I:	3.3.1	No Vol. II Xref	3.2.4
I:	3.3.6.1.a	No Vol. II Xref	3.2.8
I:	3.3.6.1.b	No Vol. II Xref	3.2.8
I:	3.3.6.2	No Vol. II Xref	3.2.8
I:	3.3.7	No Vol. II Xref	3.2.9
I:	3.5.1	No Vol. II Xref	3.5.1.2
I:	3.6.1	No Vol. II Xref	3.5.4.1
I:	3.6.2	No Vol. II Xref	3.5.5
I:	30.1.1.1.H	3.2.1.5.8.1.6	3.1.4.2.2.3.1 3.1.4.2.2.3.2
I:	30.1.1.2.H	3.2.1.5.8.1.6	3.1.4.3.1.2.a 3.1.4.2.2.3.5.2.1
I:	30.1.1.3.H	3.2.1.5.8.1.6	3.1.4.3.3.1.2.1 3.1.4.3.3.1.2.2
I:	30.1.1.4.H	3.2.1.5.8.1.6	3.1.4.2.2.3.1 3.1.4.3.1.3.b
I:	30.1.1.5.H	3.2.1.5.8.1.6	3.1.4.2.2.3.5 3.1.4.3.1.2.a
I:	30.1.1.6.H	3.2.1.5.8.1.6	3.1.4.2.2.3.5.2.1.a 3.1.4.2.2.3.2.2.c
I:	30.1.1.9.H	3.2.1.5.8.1.6	3.1.4.2.2.3.5.2.1.c 3.1.4.3.2.2.6.2.d
I:	30.1.1.10.H	3.2.1.5.8.1.6	3.1.4.2.2.3.5.2.1.b 3.1.4.2.2.3.2.2.d
I:	30.1.1.11.H	3.2.1.5.8.1.6	3.1.4.3.2.2.2.2.1.e
I:	30.1.1.12.H	3.2.1.5.8.1.6	3.1.4.3.2.2.6.1
I:	30.1.1.13.H	3.2.1.5.8.1.6	3.1.4.2.2.3.5.2.1.e

Vol.	Paragraph Number	Volume Xref.	Specification Xref(s)
I:	30.1.1.15.H	3.2.1.5.8.1.6	3.1.4.2.2.3.2.2.5 3.1.4.2.2.3.5.1.1
II:	3.2.1.5.8.1.1	3.2.1.1.4.1	3.1.4.1
II:	3.2.1.5.8.1.3	3.2.1.1.4.1.a	3.1.4.3.2.2.2.1.1
II:	3.2.1.5.8.1.5	3.2.1.2.4.g	3.1.4.2.1.3.5
II:	3.2.1.5.8.1.7	3.2.1.2.8.4	3.1.4.1.2.f 3.1.4.2.1.2.1 3.1.4.3.1.1.4
II:	3.2.1.5.8.2.1.1.a	3.2.1.1.4.1.a	3.1.4.3.3.1.1
II:	3.2.1.5.8.2.1.1.b	3.2.1.2.4.a.4.d	3.1.4.3.3.1.1
II:	3.2.1.5.8.2.1.2	3.2.1.1.4.1.a	3.1.4.2.1.2.3
II:	3.2.1.5.8.2.2.1.a	3.2.1.2.4.e	3.1.4.2.1.2.3.1.d 3.1.4.2.1.2.3.1.e
II:	3.2.1.5.8.2.2.1.b	3.2.1.2.4.e	3.1.4.2.1.2.3.1.b 3.1.4.2.1.2.3.1.c 3.1.4.2.1.2.3.1.f
II:	3.2.1.5.8.2.2.1.c	3.2.1.2.4.e	3.1.4.2.1.2.3.1.a
II:	3.2.1.5.8.2.2.2	3.2.1.2.4.e	3.1.4.2.1.2.3.2
II:	3.2.1.5.8.2.2.3.a.1	3.2.1.1.4.1.g	3.1.4.2.1.2.2.1.a
II:	3.2.1.5.8.2.2.3.a.2	3.2.1.1.4.1.g	3.1.4.2.1.2.2.1.c
II:	3.2.1.5.8.2.2.3.a.3	3.2.1.1.4.1.g	3.1.4.2.1.2.2.1.d
II:	3.2.1.5.8.2.2.3.b.1	3.2.1.1.4.1.g	3.1.4.2.1.2.2.2.a
II:	3.2.1.5.8.2.2.3.b.2	3.2.1.1.4.1.g	3.1.4.2.1.2.2.2.b
II:	3.2.1.5.8.2.2.3.c.1	3.2.1.1.4.1.g	3.1.4.2.1.2.2.3.a
II:	3.2.1.5.8.2.2.3.c.2	3.2.1.1.4.1.g	3.1.4.2.1.2.2.3.b
II:	3.2.1.5.8.2.2.3.c.3	3.2.1.1.4.1.g	3.1.4.2.1.2.2.3.c
II:	3.2.1.5.8.2.2.3.c.4	3.2.1.1.4.1.g	3.1.4.2.1.2.2.3.d
II:	3.2.1.5.8.2.2.3.d	3.2.1.1.4.1.g	3.1.4.2.1.2.2.5
II:	3.2.1.5.8.2.2.3.e	3.2.1.1.4.1.g	3.1.4.2.1.2.2.6

Vol.	Paragraph Number	Volume Xref.	Specification Xref(s)
II:	3.2.1.5.8.2.2.3.f.1	3.2.1.1.4.1.g	3.1.4.2.1.2.2.7.a
II:	3.2.1.5.8.2.2.3.f.2	3.2.1.1.4.1.g	3.1.4.2.1.2.2.7.b
II:	3.2.1.5.8.2.2.3.f.3	3.2.1.1.4.1.g	3.1.4.2.1.2.2.7.c
II:	3.2.1.5.8.2.2.3.g	3.2.1.1.4.1.g	3.1.4.2.1.2.2.8
II:	3.2.1.5.8.2.2.3.h.1	3.2.1.1.4.1.g	3.1.4.2.1.2.2.9.a
II:	3.2.1.5.8.2.2.3.h.2	3.2.1.1.4.1.g	3.1.4.2.1.2.2.9.b
II:	3.2.1.5.8.2.2.3.h.3	3.2.1.1.4.1.g	3.1.4.2.1.2.2.9.c
II:	3.2.1.5.8.2.2.4	3.2.1.1.1.1.h	3.1.4.2.1.2.2.11
II:	3.2.1.5.8.2.2.5.a.1	3.2.1.2.4.e	3.1.4.2.1.2.3.1.d.1
II:	3.2.1.5.8.2.2.5.a.2	3.2.1.2.4.e	3.1.4.2.1.2.3.1.d.2
II:	3.2.1.5.8.2.2.5.b.1	3.2.1.2.4.e	3.1.4.2.1.2.3.1.e.1
II:	3.2.1.5.8.2.2.5.b.2	3.2.1.2.4.e	3.1.4.2.1.2.3.1.e.2
II:	3.2.1.5.8.2.2.5.c	3.2.1.2.4.e	3.1.4.2.1.2.3.1.a
II:	3.2.1.5.8.2.2.5.d.1	3.2.1.2.4.e	3.1.4.2.1.2.3.1.b
II:	3.2.1.5.8.2.2.5.d.2	3.2.1.2.4.e	3.1.4.2.1.2.3.1.f
II:	3.2.1.5.8.2.2.5.d.3	3.2.1.2.4.e	3.1.4.2.1.2.3.1.c
II:	3.2.1.5.8.2.2.5.e	3.2.1.2.4.e	3.1.4.2.1.2.3.2.a
II:	3.2.1.5.8.2.2.5.f	3.2.1.2.4.e	3.1.4.2.1.2.3.2.b
II:	3.2.1.5.8.2.2.6	3.2.1.2.4.e	3.1.4.2.1.2 3.1.4.2.1.2.1
II:	3.2.1.5.8.2.3	3.2.1.1.4.1	3.1.4.3.3.1.1
II:	3.2.1.5.8.2.4.a	3.2.1.1.1.1.h	3.1.4.1.2.b
II:	3.2.1.5.8.2.4.b	3.2.1.1.1.1.h	3.1.4.1.2.b
II:	3.2.1.5.8.2.4.c	3.2.1.1.1.1.h	3.1.4.1.2.c 3.1.4.1.2.d
II:	3.2.1.5.8.2.5	3.2.1.2.8.3.c.2	3.1.4.2.1.3.5
II:	3.2.1.5.8.2.6.a	3.2.1.1.1.1.h	3.1.4.2.1.3.3.a

Vol.	Paragraph Number	Volume Xref.	Specification Xref(s)
II:	3.2.1.5.8.2.6.b	3.2.1.1.1.1.h	3.1.4.2.1.3.3.b
II:	3.2.1.5.8.2.7	3.2.1.2.8.4	3.1.4.3.3.1.2.1
II:	3.2.1.5.8.2.8	3.2.1.2.8.4	3.1.4.3.1.1.4.e
II:	3.2.1.5.8.3-1.A	3.2.1.2.8.4	3.1.4.1.1.a 3.1.7.1.1.a
II:	3.2.1.5.8.3-1.B	3.2.1.1.4.1	3.1.4.1.1.a 3.1.7.1.1.g
II:	3.2.1.5.8.3-1.C	3.2.1.1.1.1.h	3.1.4.1.1.b 3.1.7.1.1.f
II:	3.2.1.5.8.3-1.D	3.2.1.1.4.1	3.1.4.1.1.a 3.1.7.1.1.g
II:	3.2.1.5.8.3-1.E	30.1.1.xx.H	3.1.4.1.1.c 3.1.7.1.1.d
II:	3.2.1.5.8.3-1.F	30.1.1.xx.H	3.1.4.1.1.c 3.1.7.1.1.d
II:	3.2.1.5.8.3-1.G	3.2.1.1.4.1	3.1.4.1.1.a 3.1.7.1.1.g
II:	3.2.1.5.8.3-1.H	3.2.1.1.1.1.h	3.1.4.1.1.b 3.1.7.1.1.c
II:	3.2.1.5.8.3-1.I	3.2.1.1.1.1.h	3.1.4.1.1.b 3.1.7.1.1.e
V:	3.2.1.1.2.2.4	3.2.1.1.4.2.1	3.1.4.3.3.1.2.1
V:	3.2.1.1.4.1.1	30.1.1.1.H	3.1.4.2.2.3.1
V:	3.2.1.1.4.1.2	30.1.1.1.H	3.1.4.2.2.3.1
V:	3.2.1.1.4.1.3	30.1.1.4.H	3.1.4.2.2.3.3
V:	3.2.1.1.4.1.4	30.1.1.5.H	3.1.4.2.2.3.5
V:	3.2.1.1.4.1.5	30.1.1.2.H	3.1.4.2.2.3.2.2.5
V:	3.2.1.1.4.1.6	30.1.1.3.H	3.1.4.2.2.3.5.2.1
V:	3.2.1.1.4.1.7	30.1.1.6.H	3.1.4.2.2.3.4.2 3.1.4.2.2.3.4.3
V:	3.2.1.1.4.1.9	30.1.1.9.H	3.1.4.2.2.3.5.2.1

Vol.	Paragraph Number	Volume Xref.	Specification Xref(s)
V:	3.2.1.1.4.1.10	30.1.1.10.H	3.1.4.2.2.3.4.2 3.1.4.2.2.3.4.3
V:	3.2.1.1.4.1.11	30.1.1.11.H	3.1.4.3.2.2.2.2.1
V:	3.2.1.1.4.1.12	30.1.1.12.H	3.1.4.2.2.1 3.1.4.3.2.2.6.1
V:	3.2.1.1.4.1.13	30.1.1.13.H	3.1.4.2.2.3.5.2.1
V:	3.2.1.1.4.2.1	3.2.1.5.8.2.7	3.1.4.3.3.1.2.1
V:	3.2.1.1.4.2.2	3.2.1.5.8.2.7	3.1.4.3.3.1.2.2
V:	3.2.1.1.4.2.3	3.2.1.5.8.2.7	3.1.4.3.3.1.2.3
V:	3.2.1.1.4.2.7	3.2.1.5.8.2.7	3.1.4.2.2.3.2.2.5
V:	3.2.1.1.4.2.8	N/A	3.1.4.2.2
V:	3.2.1.1.4.3	N/A	3.1.7.1.1

APPENDIX B

SAMPLE FORMS

B-1	Test Conduct Log
B-2	Test Observer/Monitor Record
B-3	Software Discrepancy Report
B-4	Hardware Discrepancy Report
B-5	Problem Trouble Report

ADAS OT&E / INTEGRATION TEST CONDUCT LOG

Test Site : **FAA Technical Center**

Test ID : _ _ _ _ _ / _ _ _

Test Title : _____

Procedure # : _____ Date : _ _ / _ _ / _ _

Step # : _____ Time : _ _ : _ _ am / pm

SIGNATURES:

Test Manager : _____

Test Operator : _____

ADAS Test Configuration:

Interface	Live	Simulated	Not Connected
# of AWOS:			
Fed	____	____	N/A
DOD	____	____	N/A
Non-Fed	____	____	N/A
# of ASOS	____	____	N/A
WMSCR	☐	☐	☐
DLP	☐	☐	☐
RWP	☐	☐	☐
MSP	☐	☐	☐
CTS	☐	☐	☐

Actions / Responses / Output Produced : _____

Observations Noted : _____

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Page ____ of ____

Test Conduct Log

ADAS TEST OBSERVER / MONITOR RECORD

Site : _____ Date : __/__/__ Test ID : _____/___

Device / Position : _____ Test Category : _____

Time	PROCEDURES		Resolution	PASS	FAIL
	Page/ Para.	Observed / Monitored			

Test Obersever / Monitor : _____
PRINT Signature

Page ____ of ____

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Test Observer/Monitor Record

PLEASE TYPE	ADAS SOFTWARE DISCREPANCY REPORT	☐ DUPLICATE SDR/PTR EXISTS

SITE:	☐ FAA Technical Center ☐ FAA Academy ☐ Other _____	Type of Report : ☐ Trouble ☐ Improvement

Suspected Subsystem _____ Section _____ Model _____ Version _____	TAPE/DISK ID : ☐☐☐☐☐☐☐☐ PRIORITY CODE :
REFERENCE(S)	ATTACHMENT(S)

DESCRIPTION OF PROBLEM

ACTION TAKEN

ORIGINATOR'S NAME, SIGNATURE AND ROUTING SYMBOL

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Software Discrepancy Report

PLEASE TYPE	ADAS HARDWARE DISCREPANCY REPORT	☐ DUPLICATE HDR EXISTS

SITE: ☐ FAA Technical Center ☐ FAA Academy ☐ Other _____

HARDWARE:	Subsystem:	TAPE / DISK ID :
	Type:	
	Model:	PRIORITY CODE :

REFERENCE(S)	ATTACHMENT(S)

DESCRIPTION OF PROBLEM

ACTION TAKEN

ORIGINATOR'S NAME, SIGNATURE AND ROUTING SYMBOL

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Hardware Discrepancy Report

ADAS PROBLEM TROUBLE REPORT

REPORT NO.	DATE:	TEST ID:	REPORT BY :

CATEGORY OF FAILURE:	TEST STEP :
____ PASS ____ FAIL : Critical ____ FAIL : Non-Critical	

DESCRIPTION OF DISCREPANCY:

DISPOSITION INSTRUCTIONS :

FINAL DISPOSITION :

APPROVALS :

Test Director _____

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Problem Trouble Report