

TN
94
6

COPY - 1

S

technical note

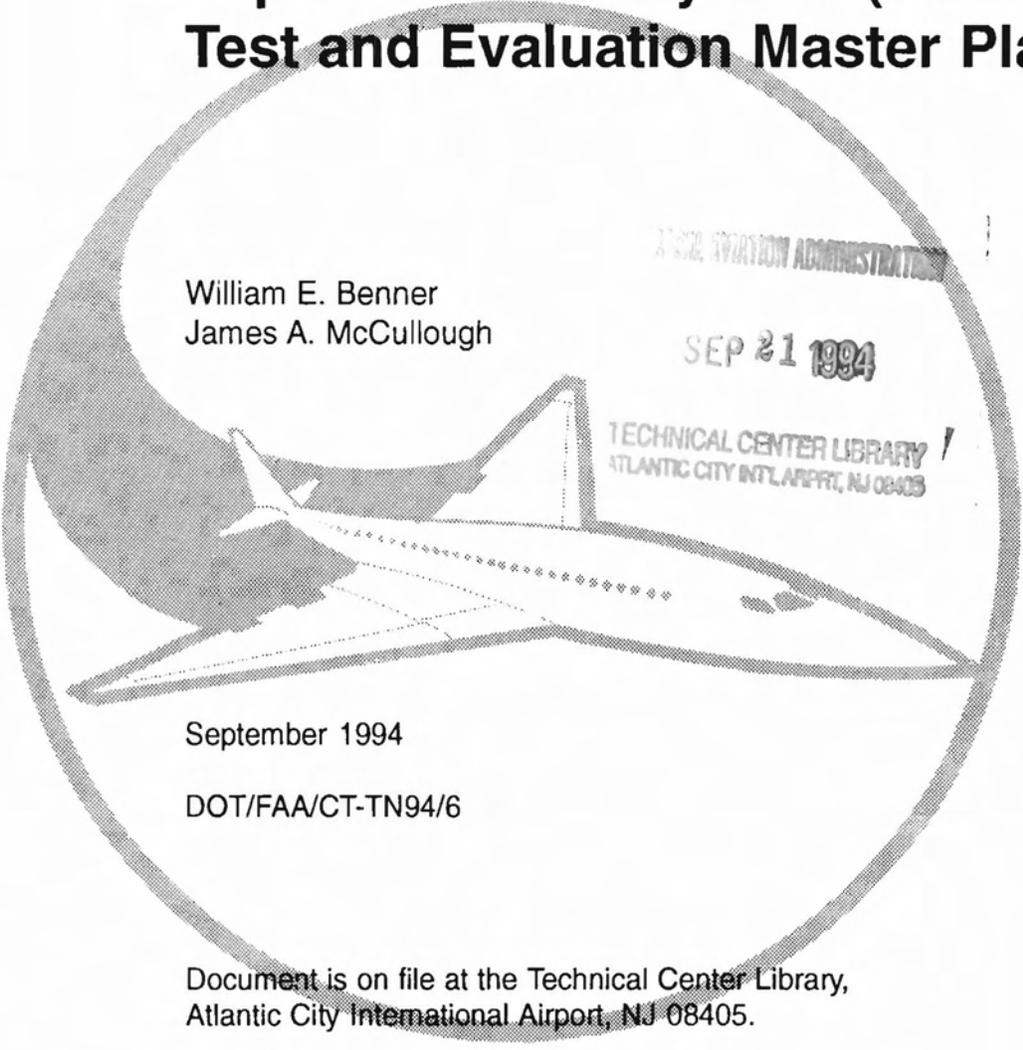
Operational and Supportability Implementation System (OASIS) Test and Evaluation Master Plan

William E. Benner
James A. McCullough

FEDERAL AVIATION ADMINISTRATION

SEP 21 1994

TECHNICAL CENTER LIBRARY
ATLANTIC CITY INTL. AIRPT, NJ 08405



September 1994

DOT/FAA/CT-TN94/6

Document is on file at the Technical Center Library,
Atlantic City International Airport, NJ 08405.

AVAILABLE IN
ELECTRONIC FORMAT



U.S. Department of Transportation
Federal Aviation Administration

Technical Center
Atlantic City Airport, NJ 08405

DOT/FAA
/CT-TN9
4/6

FAA TECHNICAL CENTER LIBRARY
00015334

DOT/FAA Benner, William E.
/CT-TN9 Operational and
4/6 supportability
implementation
system (OASIS) test

the sponsorship
in the interest of
Government
use thereof.

not endorse
manufacturers'
are considered



REC'D
MAY 2 1984

1. Report No. DOT/FAA/CT-TN94/6		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle OPERATIONAL AND SUPPORTABILITY IMPLEMENTATION SYSTEM (OASIS) TEST AND EVALUATION MASTER PLAN				5. Report Date August 1994	
				6. Performing Organization Code	
7. Author(s) William E. Benner, James A. McCullough Francis G. Hudec, UAL				8. Performing Organization Report No. DOT/FAA/CT-TN94/6	
9. Performing Organization Name and Address U.S. Department of Transportation Federal Aviation Administration Technical Center Atlantic City International Airport, NJ 08405				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No.	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Federal Aviation Administration Technical Center Atlantic City International Airport, NJ 08405				13. Type of Report and Period Covered Technical Note	
				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract This Test and Evaluation Master Plan (TEMP) is for the Operational And Supportability Implementation System (OASIS) and describes the Test and Evaluation (T&E) processes that ensure the system meets the requirements allocated to the project in the NAS-SS-1000, volumes I and II, and the NAS-SR-1000. The document defines test strategy, test requirements, and organizational roles and responsibilities. The purpose of the plan is to define the overall T&E phases necessary to ensure the integration of the OASIS within the environment of the National Airspace System (NAS). The OASIS will replace the Model 1 Full Capacity (M1FC) work station position equipment, located at the 61 Automated Flight Service Stations (AFSS) and provide a planned capability for new Flight Service Automation System (FSAS) AFSS state-of-the-art work station equipment which can be logistically supported. The hardware and software will mainly be comprised of commercial-off-the-shelf (COTS) and/or nondevelopmental item (NDI) acquisitions. The capability will include functionality to store, retrieve, display, highlight, zoom, and transfer information applying to any set of weather conditions, route of flight, or aircraft type. Weather and flight route information will be displayed simultaneously. The specialist will review visual notification of flight route problems including severe weather, and other safety concerns. Graphics displays integrated with flight plans or routes will be supported. Winds aloft and a variety of other flight planning information will be displayed. The planned capabilities will also include automated retrieval of the complete set of Federal Aviation Administration (FAA) required flight service information, including pilot, flight, weather, airport procedures, and regulations. The system capabilities will include more complete flight plan filing and advisories by flight service to decrease the Visual Flight Rules (VFR) workload of air traffic controllers and the en route automation system.					
17. Key Words FSAS M1FC Work Station Operational and Supportability Implementation System (OASIS) Automated Flight Service Station Work Station (AFSSWS)			18. Distribution Statement Document is on file at the Technical Center Library, Atlantic City International Airport, NJ 08405		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 82	22. Price

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	vii
1. PURPOSE	1
2. REFERENCE DOCUMENTS	1
2.1 FAA Documents	1
2.2 Other Standards	2
2.3 Military and Federal Publications	2
3. SYSTEM DESCRIPTION	2
3.1 Mission	3
3.2 System	3
3.3 Required Operational Characteristics	11
3.4 Required Technical Characteristics	12
3.5 Critical Test and Evaluation (T&E) Issues	13
3.6 Quality Assurance	13
4. PROGRAM SUMMARY	14
4.1 Managerial Responsibilities	14
4.2 Integrated Schedule	25
4.3 Test Plans	25
5. OPERATIONAL CAPABILITIES DEMONSTRATION (OCD)	30
5.1 OCD to Date	31
5.2 Future OCD	31
5.3 OCD Events/Scope of Testing/Basic Scenarios	31
5.4 Critical OCD Items	31
6. DEVELOPMENT TEST AND EVALUATION (DT&E)/PRODUCTION ACCEPTANCE TEST AND EVALUATION (PAT&E) OUTLINE	32
6.1 DT&E/PAT&E to Date	32
6.2 Future DT&E/PAT&E	32
6.3 DT&E/PAT&E Objectives	32
6.4 DT&E/PAT&E Events/Scope of Testing/Basic Scenarios	33
6.5 Critical DT&E/PAT&E Items	34
7. OPERATIONAL TEST AND EVALUATION (OT&E) INTEGRATION	34
7.1 Testing to Date	34
7.2 Future Testing	34
7.3 OT&E Integration Objectives	35
7.4 OT&E Integration Events/Scope of Testing/Basic Scenarios	35
7.5 Critical OT&E Integration Items	39

TABLE OF CONTENTS (Continued)

	Page
8. OT&E OPERATIONAL TESTING	39
8.1 Testing to Date	39
8.2 Future Testing	39
8.3 OT&E Operational Objectives	40
8.4 OT&E Operational Events/Scope of Testing/Basic Scenarios	40
8.5 Critical OT&E Operational Items	43
9. OT&E SHAKEDOWN TEST	43
9.1 Testing to Date	43
9.2 Future Testing	43
9.3 OT&E Shakedown Objectives	44
9.4 OT&E Shakedown Events/Scope of Testing/Basic Scenarios	44
9.5 OT&E Shakedown Critical Issues	47
10. SPECIAL RESOURCE SUMMARY	47
10.1 Test Articles	47
10.2 Special Support Requirements	47
11. DT&E/PAT&E TEST REPORTS	48
11.1 Test Reports	48
12. OT&E INTEGRATION AND OT&E OPERATIONAL TEST REPORTS	48
12.1 Test Reports	48
13. OT&E SHAKEDOWN TEST REPORTS	49
13.1 Test Reports	49
14. TEMP VERIFICATION REQUIREMENTS TRACEABILITY MATRIX (VRTM)	49
14.1 Column Definitions and Utilization	49
14.2 Qualification Methods	50
15. SCHEDULES	51
16. TEST FLOW	51
17. ACRONYMS AND ABBREVIATIONS	52
APPENDIXES	
A - Verification Requirements Traceability Matrix (NAS-SS-1000)	
B - Milestones, Test, and Installation Dates	
C - OASIS Test Flow	

LIST OF ILLUSTRATIONS

Figure		Page
3.2.2-1	OASIS Interface Diagram	8
4.3-1	OASIS Documentation Flow Diagram	26
4.3.1.1.1-1	FAA Responsibilities - OT&E Integration, OT&E Operational, OT&E Shakedown	28
7.4-1	NAS FSAS Data Flow Diagram (Existing)	36
7.4-2	NAS FSAS Data Flow Diagram (Future)	37

EXECUTIVE SUMMARY

This "Pre-Key Decision Point (KDP) 2/KDP 3" and "Pre-Specification" Operational And Supportability Implementation System (OASIS) Test and Evaluation Master Plan (TEMP) lays the foundation for test strategy, resources, and implementation responsibilities. The purpose of this TEMP is to ensure the OASIS system meets the requirements of the system and subsystem requirements allocated to the project in the NAS-SS-1000, volumes I and II and the NAS-SR-1000. The Federal Aviation Administration (FAA) TEMP further describes the Test and Evaluation (T&E) components for meeting program objectives for each acquisition phase. OASIS will follow the procedures for Operational Test and Evaluation (OT&E) stated in FAA Order 1810.4B. This TEMP will be updated with additional detail as the program progresses, from Concept through Production phases, to ensure compliance with program objectives stated in each acquisition phase. The OASIS procurement intends to meet the mission need statement requirements through the acquisition, primarily, of commercial-off-the-shelf (COTS) and/or nondevelopmental items (NDI) hardware and software. This TEMP and subsequent revisions will be submitted for approval by the Test Policy Review Committee (TPRC) prior to each KDP. The results of both Development Test and Evaluation (DT&E) and OT&E testing will be utilized as input to a deployment recommendation decision.

1. PURPOSE.

The purpose of this plan is to define the overall Test and Evaluation (T&E) phases necessary to ensure the integration of the Operational and Supportability Implementation System (OASIS) within the environment of the National Airspace System (NAS).

This Test and Evaluation Master Plan (TEMP) is for the OASIS and describes the T&E processes which shall be used to ensure the system meets the requirements allocated to the project in the NAS-SS-1000, volumes I and II, and the NAS-SR-1000. This TEMP defines test strategy, test requirements, organizational roles, and responsibilities. The roles and responsibilities comply with 1810.4B and FAA-STD-024a. A test Verification Requirements Traceability Matrix (VRTM), which presents high-level functional and performance requirements to be tested during OASIS T&E, is included in appendix A. These requirements are derived from NAS-SS-1000, volumes I and II that are allocated to the OASIS.

This plan will be updated with additional detail as the program progresses from Concept through Production phases. The original TEMP and all of its revisions will be submitted for approval by the Test Policy Review Committee (TPRC).

2. REFERENCE DOCUMENTS.

The following specifications, standards, and other documents are integral to the TEMP. Additional applicable reference documents are listed within the OASIS System Specification (FAA-E-TBD) and the Statement of Work (SOW). The latest revisions to all these documents, that are in effect at the time of issuance of the SOW, are to be considered the applicable reference document, unless otherwise specified within this TEMP.

2.1 FAA DOCUMENTS.

2.1.1 FAA Specifications.

NAS-SS-1000	National Airspace System (NAS) System Specification, Volumes I and II
NAS-SR-1000	National Airspace System (NAS) System Requirements Specification
FAA-E-TBD	Operational And Supportability Implementation System (OASIS) Specification

2.1.2 FAA Standards.

FAA-STD-024	Preparation of Test and Evaluation Plans and Test Procedures
FAA-STD-026	NAS Software Development
FAA-STD-020	Transient Protection, Grounding, Bonding and Shielding Requirements for Equipment

2.1.3 Other FAA Publications.

NAS-MD-110	Test and Evaluation (T&E) Terms and Definitions for the National Airspace System
1810.4	FAA NAS Test and Evaluation Policy
CT 1710.2	Preparation and Issuance of Formal Reports, Technical Notes, and Other Documentation
TBD	ASE-100 System Requirements Incorporation Report
TBD	ASE-100 Operational Requirements-Phase 1A/1B document

2.2 OTHER STANDARDS.

EIA-232-D	Interface between Data Terminal Equipment and Data Communications Equipment and Data Communications Equipment Employing Serial Binary Data Interchange.
-----------	---

2.3 MILITARY AND FEDERAL PUBLICATIONS.

N/A

2.3.1 Military Specification.

NONE

2.3.2 Military/DOD Standards.

MIL-STD-470	Maintainability Program Requirements (for System and Equipments)
MIL-STD-785	Reliability Program for Systems and Equipment Development and Production
MIL-STD-1472	Human Engineering Design Criteria for Military Systems, Equipment, and Facilities

3. SYSTEM DESCRIPTION.

The Flight Service Automation System (FSAS) is the data processing system utilized by Air Traffic Control Specialists (ATCS) to provide flight service functionality for the aviation community. The primary services are the filing and processing of flight plans and flight information, and providing pilots and air crew with weather data briefings. The current FSAS is the Model 1 Full Capacity (M1FC) system, comprised of two Aviation Weather Processors (AWP), 21 Flight Service Data Processing Systems (FSDPS), and the work station terminal equipment located at 61 Automated Flight Service Stations (AFSS). The OASIS primarily will replace the M1FC work station position equipment, located at the 61 AFSSs.

The OASIS planned capability is for new FSAS AFSS state-of-the-art work station equipment which can be logistically supported. The hardware and software will mainly be comprised of commercial-off-the-shelf (COTS) and/or nondevelopmental item (NDI) acquisitions. The capability will include functionality to store, retrieve, display, highlight, zoom, and transfer information applying to any set of weather conditions, route of flight, or aircraft type. Weather and flight route information will be displayed simultaneously. The specialist will review visual notification of flight route problems including severe weather and other safety concerns. Graphic displays integrated with flight plans or routes will be supported. Winds aloft and a variety of other flight planning information will be displayed. In addition, the planned capabilities will include automated retrieval of the complete set of Federal Aviation Administration (FAA) required flight service information, including pilot, flight, weather, airport procedures, and regulations.

The system capabilities will include more complete flight plan filing and advisories by flight service to decrease the Visual Flight Rules (VFR) workload of air traffic controllers and the en route automation system.

An assignable training simulator position, using operational equipment and a dynamic database, will be included. Training may be conducted locally, either on-line or off-line, with different mixes of operational realism.

Weather graphics capabilities will primarily include the ability to receive, store, and display various weather products. The receive function will permit both on-demand and scheduled weather product retrieval from an integrated subsystem. The store function will provide local archive for all available weather graphics products. The display function will provide for specialist retrieval of weather graphics products in support of flight planning and en route operations.

3.1 MISSION.

The FSAS serves as the principal information processing and retrieval source for the flight service specialist and the pilot. The OASIS will be a subsystem to the FSAS, primarily replacing the existing FSAS M1FC AFSS work station (AFSSWS) position equipment.

3.2 SYSTEM.

The capabilities, functional, and performance requirements for OASIS are defined in the system specification, FAA-E-TBD. The OASIS system will be delivered in a two-phase effort. Phase 1A will primarily provide hardware replacement for existing nonsupportable M1FC AFSSWS equipment currently fielded at each AFSS (61 total). Phase 1B will add significant functionality and features to the FSAS as required by Air Traffic (AT). An OASIS system will be deployed at all AFSSs for operational flight service, and at the FAA Technical Center in Atlantic City for FSAS test and field support. An additional OASIS system, modified from baseline for training purposes, will be installed at the FAA Academy in Oklahoma City. As part of OASIS, installations of two new OASIS type work stations (each known as a Flight Service Data Processing System Work Station (FSDPSWS), will also occur at each FSDPS.

Services supported by the OASIS-equipped FSAS system will include:

- a. processing flight plans;
- b. providing preflight and in-flight weather briefings;
- c. integrated weather graphics display;
- d. disseminating Notices to Airmen (NOTAM);
- e. processing pilot reports (PIREP);
- f. initiating search and rescue actions;
- g. providing emergency services.

3.2.1 Key Functions.

The OASIS will be capable of performing the following functional features:

3.2.1.1 Current MIFC Features.

The OASIS will continue to provide the following functions currently provided by the MIFC AFSSWS:

- a. Aviation Weather and NOTAM Data Handling. The system will handle, process, update, and distribute national aviation weather and NOTAM data.
- b. Flow Control Data and Military Data. Flow control messages and unclassified military route and area activity will be received, stored, and processed.
- c. Pilot Briefing. The specialist will have the means to retrieve weather, NOTAM, and other information required by the pilot to plan a proposed flight.
- d. Flight Assistance. The system will support search and rescue procedures.
- e. Mass Weather Dissemination. The system will provide data for mass weather dissemination.
- f. Flight Data Handling. The system will provide for entry, processing, and transfer of flight plan data.
- g. System Monitoring. The operational status of the system will be continually monitored.
- h. Administrative Message Processing. The system will process all administrative messages.
- i. Communications. The system will prepare data communication messages and provide all communication interfaces with data communication equipment.
- j. System Recording. The system will provide time-correlated data recording and event reconstruction.
- k. System Reliability. The system will be designed to operate continuously 24-hours-a-day, 7-days-a-week. Equipment redundancy and switching will provide automatic recovery from partial or total failures.

3.2.1.2 OASIS Added Features.

The OASIS will also be capable of performing the following features:

- a. Tiered Security System. The system will provide a tiered security (password) system which will determine the user's functional capability based on the user's security level.
- b. Off-Site Access. The system will provide a dial-up capability which will provide the ability to perform any OASIS function from an off-site location, except those specifically excluded within the system specification FAA-E-TBD or the SOW.
- c. Upload/Download Capability. The system will provide a telephone dial-up capability to upload and download all forms of electronically recorded data to and from remote facilities for inspection and analysis. This capability will include a data compression/decompression feature.
- d. Graphics. The system will have the ability to store, retrieve, and display graphics. Graphics will include raster (bit map), vector, and all combinations thereof.
- e. Local Area Network (LAN) Physical Layer Interface. The International Standards Organization (ISO) physical layer interface will conform to one of the following standards: ISO 8802-3, ISO 8802-4, or ISO 8802-5. The physical layer interface will be in adherence with section 3.2.2.4.2.6 of FAA-STD-039.
- f. Weather Graphics Products. The OASIS system will support the ability to receive, store, and display both Weather Message Switching Center Replacement (WMSCR)/AWP/FSDPS distributed, and commercially validated, weather graphic products. Graphics formats will, as a minimum, include FCM-S2 and FCM-S3.
- g. Flight Information Publications. The OASIS will provide on-line access to flight information publications as required by FAA-E-TBD and the SOW.

3.2.1.3 OASIS AFSS Work Station (AFSSWS).

The OASIS AFSSWS will provide the data entry, display, and maintenance function interface capabilities of the OASIS. The equipment will support the specialists, supervisory, and maintenance personnel in the performance of flight service functions, and will provide the functional interface between these operators and the data processing equipment.

3.2.1.4 Input Choices.

The system will provide the specialist a choice of methods to input and request data. The methods will include but are not limited to the following:

- a. pointing device select from icons, menus, lists, and buttons,
- b. to select an item or function by using a function key,
- c. to enter a MIFC command from the Command Line Interface.

3.2.1.5 Network Administration.

A distributed OASIS Management System (OMS) will be provided to allow on-site and off-site administration. The functionality of the OMS will be tiered. The user's functional capabilities will be commensurate with the user's security level. The OMS will provide network management functions.

3.2.1.6 Print.

Each OASIS will have two on-line operations printers and one on-line maintenance printer.

3.2.1.7 HELP Capabilities.

The system will provide a context sensitive HELP capability that provides explanations and examples for keywords, functions, error, and templates messages. The specialist will have a choice of accessing the HELP feature by a function key, a point and click device, or a menu selection.

3.2.1.8 History Recording.

All AFSSWS and system transactions will be history recorded. Transactions not recorded at the FSDPS subsystem will be recorded at the AFSS by the OASIS subsystem. History recording will be dual recorded on a hard drive as well as a removable storage medium.

3.2.1.9 Locally Adapted Weather Message Database.

The specialist will be able to display weather data from a locally defined weather message database. The messages will be retrieved by a specialist, or by site adaptable OASIS generated Service A queries (data requests via the AWP, such as weather data and NOTAMs).

3.2.1.10 Graphics Display Areas.

An OASIS AFSSWS will be capable of creating and displaying color graphics representations of flight plan (FP), Hazardous In-Flight Weather Advisory Service (HIWAS), and flight watch (FW) areas. Specific functionality requirements include display attributes, graphics development and update, and Local Airport Advisory (LAA) features as delineated in FAA-E-TBD.

3.2.1.11 Data Lists.

The FSAS OASIS system will support multiple data list functionality and features as delineated in FAA-E-TBD.

3.2.1.12 Operational Positions.

Each operational position display will represent a functional group of common and related tasks. Each group or display can contain several windows.

3.2.1.13 Default Position Displays.

The system will provide default displays (reconfigurable) for In-flight, Flight Data, NOTAM, Airport Advisory, Preflight, En Route Flight Advisory Service (EFAS), Broadcast, Data Coordinator, Utilities, Facility Supervisor Terminal (FST), and LAN Administrator positions. Specialists may select different position assignments dependent on stored privilege.

3.2.1.14 Dynamic Simulator.

The OASIS will provide a dynamic simulator capability. The simulator will provide for system testing, emulate all operational functions performed at OASIS level, and provide on-the-job refresher and certification training for operational personnel.

3.2.1.15 FSDPS "Blue Rack" Equipment Replacement.

NOTE: This section may be deleted dependent on the final SOW requirements.

The contractor will remove all FSDPS "blue rack" equipment (as defined in the SOW). The contractor will also install two OASIS FSDPSWSs as replacements for the MIFC Computer Operator Terminal Consoles (COTC) existing at the FSDPSs.

3.2.1.16 Weather Graphics Product Database.

Weather graphics products will be included in a locally defined weather graphics database. These products may be generated by an integrated weather graphics subsystem.

3.2.2 Interface Requirements.

This section describes the communication characteristics of all data communication for the OASIS-to-FSDPS, the OASIS-to-remote site interfaces, and other potential interfaces. With the possible exception of the FSDPSWS dial-up modems, the government will provide all other modems and modem racks. The contractor will provide all other necessary software and equipment needed for the OASIS-to-FSDPS and the OASIS-to-remote site data communication interfaces. The OT&E testing shall be accomplished on the OASIS interfaces regardless of the supplier of the system components. Additionally described within this section are several other interfaces that may be implemented at the AFSS. The OASIS support for these other interfaces, defined in the specification FAA-E-TBD, shall also be OT&E tested. Figure 3.2.2-1 depicts OASIS subsystem interfaces.

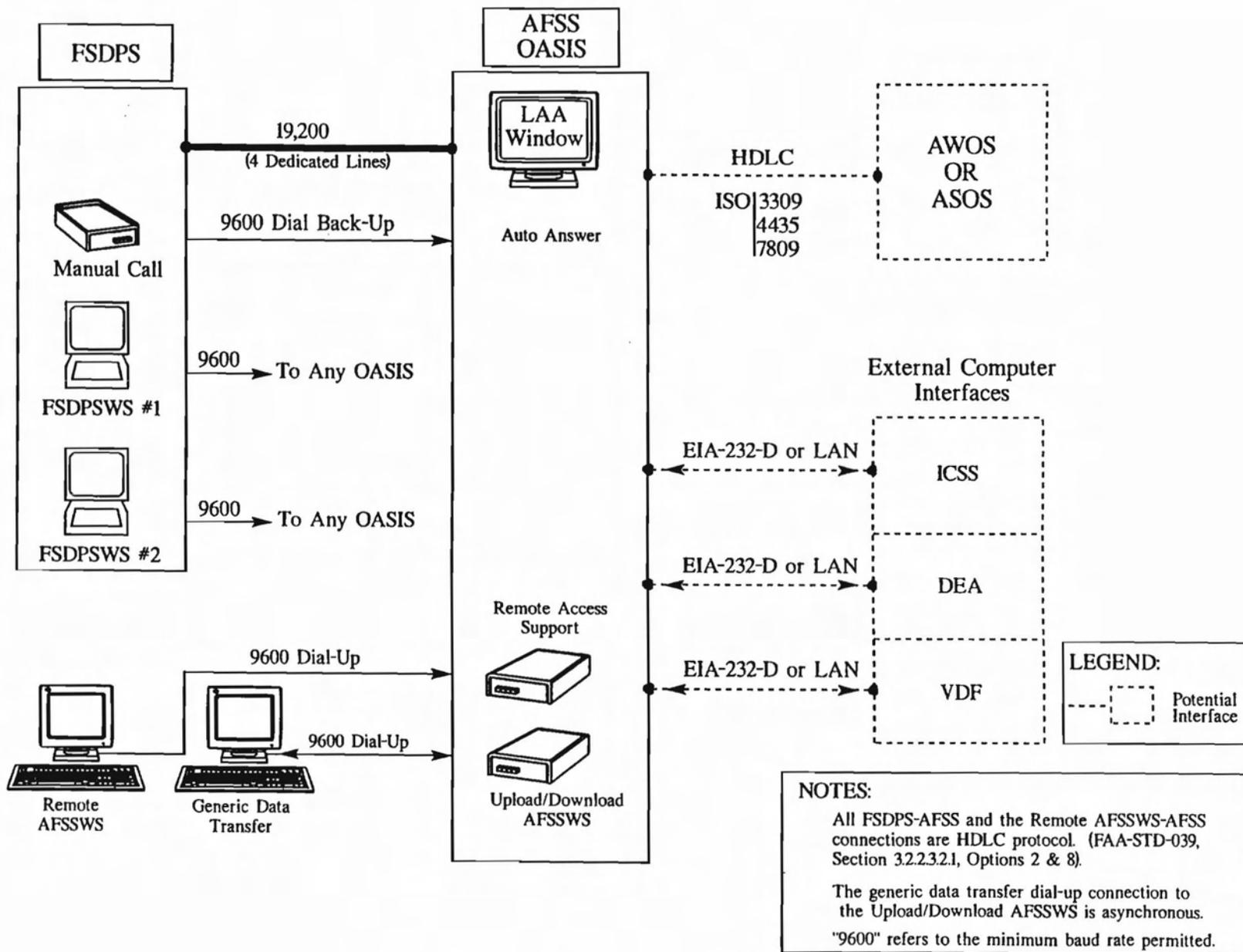


FIGURE 3.2.2-1. OASIS INTERFACE DIAGRAM

3.2.2.1 OASIS-to-FSDPS Interface.

Some of the specifications addressed within this section may change, primarily dependent on the status of the Data Multiplexing Network (DMN) project. This section will be updated when DMN details are solidified.

The FSDPS system will interface with OASISs to exchange alphanumeric data. The data interfaces will be via dedicated point-to-point lines. All data interfaces will interface to modems operating in a synchronous full duplex mode at 4800, 9600, or 19,200 bits per second (bps) channels as determined by traffic and response time requirements of the OASIS. The High-Level Data Link Control (HDLC) will be used as the communication line protocol. This interface will use HDLC options 2 and 8 as described in section 3.2.2.3.2.1 of FAA-STD-039. The 9600 bps modems will be capable of operating at a switch selectable rate of 7200 or 4800 bps under backup conditions; the 4800 bps modems will operate at their normal rates. Manual dial backup will be provided from the FSDPS to the OASIS, with automatic answer at the OASIS. A spare manually selectable modem will be provided at both the FSDPS and at each OASIS. The contractor will be responsible for ensuring that the OASIS correctly interfaces with the FSDPS. The interface will not require any changes to the FSDPS software unless contractually stated. The interface will not hinder the system's ability to meet all performance requirements contained in the OASIS specification FAA-E-TBD. The specification requirements for the current interface between the FSDPS and the AFSS are contained in appendices B and C of the Model 1 Full Capacity System Interface Control Document (SICD), E-Systems Document Control No. 416-32120 for Contract No. DTFA01-81-C-10039.

3.2.2.1.1 OASIS-to-FSDPS Modem Requirements.

All modem digital interfaces will meet the EIA-232-D requirements. The contractor will provide all adaptive hardware to conform to EIA-232-D. All modems will be government furnished. All modems will be mounted in a government supplied cabinet. All government provided modems will be easily accessible and replaceable.

3.2.2.2 Remote OASIS Access Interface with FSDPSWS Terminals.

The OASIS system will permit remote access by authorized FSDPS specialists, to specific OASIS subsystems, by using FSDPSWS equipment.

3.2.2.2.1 Remote FSDPSWS Modem Requirements.

NOTE: Requirements under this section may change dependent on the SOW.

The contractor will be responsible for providing the FSDPSWS dial-up modems. The FSDPSWS dial-up modems will allow the FSDPSWS remote off-site access to any OASIS. The FSDPSWS dial-up modem will transmit at a minimum data rate of 9600 bps. (This rate may be increased in a future TEMP revision dependent on technology available.) The FSDPSWS modem digital interfaces will meet the EIA-232-D requirements. The contractor will provide any adaptive hardware needed to conform to EIA-232-D.

3.2.2.3 Remote OASIS Access Interface with AFSSWS-Like Terminal.

The OASIS system will permit remote access by a specialist, to an OASIS subsystem, via AFSSWS-like terminals to support special events; (i.e., possibly laptops for events such as maintenance, air shows, etc.).

3.2.2.3.1 Remote AFSSWS-Like Terminal Modem Requirements.

The contractor will be responsible for providing the AFSSWS-like terminal dial-up modems. The AFSSWS-like terminals dial-up modem will transmit at a minimum data rate of 9600 bps. (This rate may increase; see 3.2.2.2.1.) The AFSSWS-like terminal modem will have a digital interface that meets the EIA-232-D requirements. The contractor will provide any adaptive hardware needed to conform to EIA-232-D.

3.2.2.4 Remote OASIS Access Interface Data Integrity.

Any Remote OASIS Access Interface, including the FSDPSWSs, will be capable of communicating data in an identical format to that implemented on the OASIS-to-FSDPS Interface of section 3.2.2.1.

3.2.2.5 Data Upload/Download Interface Capability.

The OASIS system will provide a generic telephone dial-up modem capability to upload and download all forms of electronically recorded data to and from remote facilities for inspection and analysis. This capability will include a data compression-decompression feature. This capability will be performed at a minimum data rate of 9600 bps. (This rate may increase; see 3.2.2.2.1.)

3.2.2.6 Other Interfaces.

Other systems, external to the FSAS system, may be interfaced to the OASIS subsystem at some of the AFSS sites. Provisions built into OASIS to support these other interfaces will be tested during Operational Test and Evaluation (OT&E) evaluations. Further details will be added as the scope of the OASIS requirements become known. The list below, and figure 3.2.2-1, depicts these interfaces.

- a. Automated Weather Observing System (AWOS) (or Automated Surface Observing System (ASOS)) locally installed equipment interface,
- b. Integrated Communications Switching System (ICSS) interface,
- c. Drug Enforcement Administration (DEA) interface,
- d. Very High Frequency Direction Finder (VDF) interface.

3.2.3 Unique Characteristics.

Some of the unique characteristics that differentiate the OASIS AFSSWS subsystem from the presently deployed M1FC AFSSWS subsystem are:

- a. extended logistics supportability, since the OASIS work station will be primarily composed of popular, readily available, off-the-shelf hardware as contrasted to the M1FC work station's obsolete, custom design,
- b. growth potential built into the OASIS subsystem based on the open architecture design specified versus the restrictive "direct connect" design of the M1FC AFSSWS/FSDPS subsystem,
- c. enhanced local performance, and utility, due to the "intelligent" nature of the OASIS work stations/servers as opposed to the M1FC "dumb terminal" approach,
- d. migration of functionality from the FSDPS, to the AFSS which will lessen the demand on the overall NAS system,
- e. the ability to fulfill AT requirements, not met by the M1FC implementation, in a timely and cost efficient manner,
- f. weather graphic product retrieval, storage, and display.

3.3 REQUIRED OPERATIONAL CHARACTERISTICS.

The operational OASIS system will:

- a. interface operationally with the existing FSDPS as a transparent replacement for M1FCs AFSSWSs,
- b. provide a display of multiple sets/lists,
- c. scroll, highlight, and transfer data displays,
- d. provide weather graphics associated with flight route,
- e. provide rapid access to a wide range of flight information publications,
- f. expand the database to store complete text of all current products and support known future requirements,
- g. provide a nonhostile Computer Human Interface (CHI),
- h. automate retrieval of flight planning information,
- i. automate retrieval of static pilot and aircraft data,
- j. interface with future NAS elements.

3.4 REQUIRED TECHNICAL CHARACTERISTICS.

The OASIS will provide graphic and alphanumeric weather data communication between the FSDPS and AFSS air traffic control specialists (ATCS). The test verification program will verify NAS-SS-1000 compliance of the OASIS to:

- a. interface physically, electrically, and protocol transparent with the existing FSDPS/AFSS interface,
- b. provide alphanumeric and graphic weather products generated by National Weather Service (NWS), NOTAMS, specific National Airspace Data Interchange Network-1A (NADIN-1A) interfaced NAS subsystem products, and FAA products,
- c. respond to data requests stored in its database and display them within TBD seconds mean time, TBD seconds TBD percent of the time, and within TBD seconds maximum time. Requests outside the database will be forwarded to the FSDPS within TBD seconds after receipt of request,
- d. acquire and maintain weather products for an area equal to the AFSSs Flight Service area of responsibility (only if required by the SOW),
- e. process, transfer, and store weather products locally within TBD seconds of a specialist's request,
- f. archive all transactions that are generated or disseminated to external NAS subsystems for TBD days. OASIS will also maintain a history of all transactions for the last TBD days,
- g. have data service capacity to handle the data sources and destination with peak data service demand rates,
- h. disseminate data or requests for data to/from the WMSC(R) and NADIN-1A,
- i. accumulate and maintain all data for the minimum retention time stated in NAS-SS-1000, volume II, paragraph TBD,
- j. display images in operator-selected colors from a palette of 256 colors, zoom displayed images in integer steps from 1:1 to at least 3:1 magnification, and pan any zoomed display,
- k. provide weather graphic products, on the OASIS display, supplied by an integrated subsystem
- l. integrate properly within the NAS.

3.4.1 Reliability.

The OASIS contractor will conduct a reliability program in accordance with FAA-E-TBD and the SOW. The test procedures will conform to the technical requirements of MIL-STD-785, Tasks 201, 202, and 203. Each OASIS system will meet a minimum Mean Time Between Failures (MTBF) of 2190 hours. The MTBF data will be collected throughout development, OT&E, and Shakedown testing. ACW-200B and AOS-540 will verify this reliability requirement.

3.4.2 Availability.

The contractor shall demonstrate and verify availability (inherent) of .99975006, as listed in table 3.2.2.1-1 of the NAS-SS-1000, volume I. The availability of any AFSSWS will not be less than 0.9995. For the purposes of operational availability calculations, the Mean Time To Repair (MTTR) is determined considering the total time of all interruptions of service, regardless of the cause or duration of each. Excluded from this requirement are service interruptions due to natural disasters.

3.4.3 Maintainability.

The OASIS contractor will conduct a maintainability program in accordance with FAA-E-TBD and the SOW. The program will be carried out according to the requirements of MIL-STD-470, Tasks 201, 202, and 203. The MTTR will not exceed 0.5 hour. A maximum time allowed for a single repair will be in accordance with the requirements of FAA-E-TBD and the SOW. Maintainability shall be demonstrated during Development Test and Evaluation (DT&E), Production Acceptance Test and Evaluation (PAT&E), OT&E Integration, OT&E Operational, OT&E Shakedown, and Field Shakedown testing.

3.4.4 Fault Detection and Fault Isolation.

The OMS will simultaneously provide visual and audible alarm signals for any fault detected or fault isolated network, hardware, or software failure. The system will identify the type of malfunction, and the location, nature, and recommended corrective action for the failure. The system will diagnose the specific problem by either categorizing it as one that can be locally corrected by software parameter changes (screen input) or one that requires maintenance service. The system will detect and report all component failures within 10 seconds. The audible alarm will be capable of producing different signals depending on the system failure category.

3.5 CRITICAL TEST AND EVALUATION (T&E) ISSUES.

3.5.1 Technical Issues.

No critical technical issues are currently known.

3.5.2 Operational Issues.

No critical operational issues are currently known.

3.6 QUALITY ASSURANCE.

The contractor testing delineated in this TEMP, and all references to testing therein, shall be performed in accordance with the quality assurance requirements of the OASIS contract.

4. PROGRAM SUMMARY.

4.1 MANAGERIAL RESPONSIBILITIES.

4.1.1 Organizational Responsibilities.

Organization	Primary Roles and Functions
ANW-200	The OASIS Program Manager (PM) directs and manages all FAA activities for OASIS 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 and outside the FAA, including Congress, other government agencies, contractors, the aviation community, and the media. Develops program master plan, management plan, and project implementation plan. Develops program and budget justification documentation, and controls program funds within approved appropriation. ANW-200 may utilize contractor support (such as the Technical Assistance Contract (TAC)) where needed to meet these responsibilities.
ANW-500	The OASIS Associate Program Manager for Engineering (APME) directs, manages, and accomplishes engineering activities delineated in OASIS program directives. Approves program directives jointly with the FAA Technical Center as a key function for T&E and approves the budget to fund this testing activity. Appoints an OASIS PM who provides assistance and support to the implementation of this TEMP through the review of related test plans, procedures, test data, and test reports. ANW-500 may utilize contractor support (such as TAC) where needed to meet these responsibilities.
ASU-430	The OASIS Associate Program Manager for Quality (APMQ) directs, manages, and accomplishes quality activities delineated in OASIS program directives.
ANS-420	The OASIS Associate Program Manager for Logistics (APML) directs, manages, and accomplishes logistics and training activities delineated in OASIS program directives.
ACW-200B	The OASIS Associate Program Manager for Test (APMT) is the focal point for testing. Ensures preparation of test plans and procedures are in accordance with FAA-STD-024a and FAA Order 1810.4B. Responsible for all aspects of OT&E Integration and OT&E Operational testing, including test reports, and witnesses OASIS factory/development testing. Included are preparation of test logs, the analysis of test results, and the preparation of the final test report. Conducts Test Schedule Status Review (TSSR) meetings and provides recommendations based on test results in support of the Deployment Readiness Review (DRR) Executive Committee (EXCOM) process. ACW-200B may utilize contractor support where needed to meet these responsibilities.

- ATR-130 The OASIS Associate Program Manager for Requirements (APMR) provides test requirements for and reviews the OASIS TEMP, supports test plan development, reviews test plans and procedures, and provides personnel for conducting and/or monitoring the conduct of OT&E Integration, OT&E Operational, and OT&E Shakedown tests. Is responsible for: coordinating OT&E Shakedown test requirements; providing and reviewing requirements, plans, and procedures for, and monitoring the conduct of Field Shakedown; and providing deployment recommendation based on OT&E Shakedown results in support of the DRR.
- ASE-100 The OASIS Associate Program Manager for System Engineering (APMSE) reviews the OASIS TEMP and provides the NAS-SS-1000 system specification requirements for inclusion in the OASIS TEMP VRTM.
- AOS-540 Responsible for the development and preparation of the OASIS OT&E Shakedown Test Plan, OASIS OT&E Shakedown Test Procedures, OASIS Maintenance Handbook, and the conduct of OT&E Shakedown testing.
- OASIS Contractor Conducts factory, development, and production testing. Provides test support as requested. Resolves deficiencies related to testing.
- Regions Supports activities described in the FSAS OASIS Program Implementation Plan which lead to site acceptance and Field Shakedown testing.
- TPRC Responsible for approving TEMPs and their revisions, and resolving T&E issues that cannot be resolved at lower levels of management.
- FAA Test Team The group of FAA representatives that are designated for OASIS testing. This team may include contractor support. Details will be added in a revision to the TEMP.
- OT&E Test Team A subset group of the FAA Test Team concerned with OT&E testing. This team may include contractor support. Details will be added in a revision to the TEMP.

4.1.2 Specific Responsibilities.

The following provides specific responsibilities and authorities, consistent with FAA Order 1810.4B.

4.1.2.1 Program Manager (PM).

- a. Responsible for overall program management,
- b. Presents T&E deployment issues to DRR,
- c. Arranges with APMT for T&E support, coordination, and monitoring through an annual Program Directive (PD),
- d. Approves PDs,
- e. Tasks APMT to prepare PDs between the program office and other FAA organizations,
- f. Requests funding for project T&E, which is included in the overall program funding,
- g. Responsible for receiving TPRC approval for the FAA TEMP,
- h. Prepares test policy waiver requests and submits to Secretariat via the Service Director or Program Director, as appropriate,
- i. Coordinates T&E requirements for DOD or other government agencies on joint procurements as the project requires,
- j. Develops, or has the APMT develop, the project specification (Verification Requirements Traceability Matrix) VRTM and incorporates these requirements into the project specification prior to the Specification Review Board (SRB) approval,
- k. With APMT support, brings unresolved T&E issues before the TPRC via the TPRC Secretariat,
- l. Arranges DT&E/PAT&E test support, directs or has the APMT direct DT&E when no contractor is involved; and provides or has the APMT provide technical direction for DT&E when a contractor is involved,
- m. Prepares or has the APMT prepare DT&E and PAT&E test requirements,
- n. Approves APMT-developed DT&E test plans, procedures, and reports,
- o. Recommends to the contracting officer (CO) approval of contractor developed DT&E test plans, procedures, and reports,
- p. Review DT&E test plans, procedures, and reports,
- q. Monitors DT&E contractor conducted tests,
- r. Review OT&E Integration and OT&E Operational test requirements, plans, procedures, and reports,
- s. Approves OT&E Integration and OT&E Operational test requirements, plans, procedures, and reports,

- t. Monitors OT&E Integration and OT&E Operational tests,
- u. Monitors OT&E Shakedown,
- v. Reviews Field Shakedown requirements with the Airway Facilities Division organization,
- w. Reviews PAT&E test plans, procedures, and reports,
- x. Monitors Field Shakedown,
- y. Responsible for DT&E/PAT&E test plans, procedures, and reports distribution,
- z. Responsible for FAA TEMP distribution.

4.1.2.2 Engineering, Test and Evaluation Service (ACN)/Engineering, Integration and Operational Evaluation Service (ACW).

ACW has responsibility for:

- a. Member of TPRC,
- b. Provides APMT,
- c. Reviews OASIS TEMP,
- d. Reviews test plans and reports,
- e. Approves DT&E test procedures,
- f. Reviews OT&E Integration and OT&E Operational test requirements,
- g. Provides concurrence on OT&E Integration and OT&E Operational test plans and reports prior to review,
- h. Provides concurrence on OT&E Integration and OT&E Operational test procedures,
- i. Presents unresolved T&E issues, significant T&E test result problems, or violations of T&E policy to the TPRC,
- j. Provides T&E assessments to the DRR.

ACN has responsibility for:

- a. Member of TPRC,
- b. Provides for FAA Technical Center facility readiness,
- c. Performs Remote Maintenance Monitoring System (RMMS) test preparation and testing.

4.1.2.3 Associate Program Manager for Test (APMT).

- a. Supports development of test policy and test standards,
- b. Acts as the agent of the PM to manage the T&E Program; including establishing overall test schedules, coordinating tests, ensuring that all test requirements are satisfied and that tests are performed in accordance with approved procedures,
- c. Prepares, coordinates, and approves with the PM an annual PD which addresses all T&E task support activities and resources required for the project,
- d. Prepares appropriate T&E inputs to project documents; e.g., project procurement package, and as specifically tasked in the PD,
- e. Prepares PDs between the project office and other FAA or DOD organizations to fund and/or arrange for the organizations' participation in T&E activities,
- f. Jointly prepares and updates the FAA TEMP with the PM,
- g. Provides updates of available test results during DRR, telecons, and assists in providing the T&E assessment to ACN/ACW/ACD for the DRR,
- h. Reviews DT&E test requirements, plans, procedures, and reports,
- i. Coordinates with performing organizations and monitors DT&E, PAT&E, and OT&E activities,
- j. Reviews contractor-prepared DT&E plans, procedures, and reports,
- k. Prepares DT&E test plans, procedures, and reports when tasked by the PM to develop hardware or software instead of a contractor,
- l. Conducts DT&E testing if tasked by the PM and monitors DT&E testing performed by a contractor,
- m. Reviews PAT&E (factory and/or site acceptance) test requirements for inclusion in the FAA TEMP,
- n. Prepares OT&E Integration and OT&E Operational test requirements for inclusion in the FAA TEMP,
- o. Prepares OT&E Integration and OT&E Operational test plans, procedures and reports,
- p. Reviews OT&E Shakedown requirements, plans, and procedures,
- q. Directs and conducts OT&E Integration and OT&E Operational tests. AOS-200 and AOS-350 may optionally participate in test conduct,
- r. Reviews all OT&E Shakedown reports (information only),

- s. Reviews Field Shakedown requirements, plans, procedures, and reports,
- t. Monitors OT&E Shakedown,
- u. Monitors Field Shakedown.

4.1.2.4 Operational Support Service (AOS).

- a. Member of TPRC,
- b. Identifies and develops with the PM and APMT, OT&E Shakedown requirements for inclusion in the FAA TEMP,
- c. Optionally supplies draft PD, reviews and approves final PD,
- d. Reviews FAA TEMP,
- e. Reviews OT&E Integration and OT&E Operational test requirements, plans, and reports,
- f. Monitors DT&E tests,
- g. Monitors OT&E Integration and OT&E Operational tests and optionally participates in OT&E Integration and OT&E Operational test conduct,
- h. Prepares OT&E Shakedown requirements, plans, procedures, and reports in coordination with ATR,
- i. Approves in coordination with ATR additional OT&E Shakedown requirements that do not exceed OT&E Shakedown durations or costs as baselined in the TEMP,
- j. Approves OT&E Shakedown plans, procedures, and reports,
- k. Directs and conducts OT&E Shakedown, as applicable to OT&E requirements, ATR will support and participate in those tests that are applicable to ATR OT&E Shakedown requirements,
- l. Provides personnel for performing and/or monitoring the conduct of OT&E Shakedown,
- m. Conducts OT&E Shakedown data analysis,
- n. Provides a deployment recommendation based on OT&E Shakedown results in support of the DRR,
- o. Monitors and optionally participates in test conduct of Field Shakedown.

4.1.2.5 Air Traffic Plans and Requirements Service (ATR)/Flight Standards Service (AFS).

- a. Member of TPRC,
- b. Reviews and approves PDs,
- c. Provides requirements for and reviews the FAA TEMP,
- d. Provides operational expertise and planning for conducting and analyzing tests,
- e. Reviews DT&E requirements,
- f. Provides personnel to support monitoring and conduct of DT&E,
- g. Reviews PAT&E test requirements,
- h. Provides personnel to support monitoring and conduct of PAT&E,
- i. Provides test requirements (via the FAA TEMP), supports test plan development and reviews test plans and procedures for OT&E Integration and OT&E Operational tests,
- j. Provides and approves additional test requirements (that do not exceed OT&E Shakedown durations or costs as baselined in the FAA TEMP) not identified in the TPRC-baselined FAA TEMP for OT&E Integration and OT&E Operational tests. When change or additions are required which exceed cost or schedule previously planned, the normal process for adjusting the testing planned and resolving disagreements applies; i.e., recourse to negotiations, TPRC,
- k. Determines the operational acceptability of new ATC operational computer programs or systems prior to their delivery for operational testing and use in field facilities,
- l. Provides personnel for conducting and/or monitoring the conduct of OT&E Integration and Operational tests,
- m. Reviews OT&E Integration and OT&E Operational test reports,
- n. Provides and coordinates test requirements, supports test plan development, and reviews test plans and procedures for OT&E Shakedown,
- o. Provides personnel for conducting and/or monitoring the conduct of OT&E Shakedown,
- p. Reviews OT&E Shakedown reports,
- q. Provides and reviews requirements, plans, and procedures for Field Shakedown,

- r. Monitors the conduct of Field Shakedown,
- s. Reviews Field Shakedown reports,
- t. Provides a deployment recommendation based on OT&E Shakedown results in support of the DRR.

4.1.2.6 Office of Air Traffic System Management (ATM).

- a. Reviews Field Shakedown requirements, plans, procedures, and reports,
- b. Determines the operational acceptability of new ATC operational computer programs or systems prior to their delivery for operational testing and use in field facilities,
- c. Monitors Field Shakedown,
- d. Monitors computer program implementation schedules to ensure operational requirements are met,
- e. Manages requirements for new airspace management systems,
- f. Reviews PDs via ATR.

4.1.2.7 Air Traffic Rules and Procedures Service (ATP).

- a. Reviews Field Shakedown requirements, plans, procedures, and reports,
- b. Monitors Field Shakedown,
- c. Reviews PDs via ATR.

4.1.2.8 Office of Acquisition Support (ASU).

- a. Member of TPRC,
- b. Reviews PDs and approves PDs,
- c. Reviews FAA TEMP and contractor's TEMP,
- d. Reviews DT&E test plans, procedures, and reports,
- e. Reviews PAT&E test plans, procedures, and reports,
- f. Verifies completeness of program by reviewing the final OT&E Integration and OT&E Operational testing, and OT&E Shakedown and Field Shakedown reports from each site.

4.1.2.9 FAA Contracting Officer (CO).

- a. Approves DT&E test plans, procedures, and reports for contractual compliance,
- b. Ensures DT&E tests are conducted per contract,
- c. Approves PAT&E test plans, procedures, and reports for contractual compliance.

4.1.2.10 Contracting Officer's Technical Representative (COTR).

- a. Reviews DT&E test plans, procedures, and reports,
- b. Reviews PAT&E test plans, procedures, and reports.

4.1.2.11 Quality Reliability Officer (QRO).

Monitors DT&E tests.

4.1.2.12 Regional Airway Facilities Division.

- a. Supports PM in development of test requirements for inclusion in FAA TEMP,
- b. Supports PM in implementation of FAA TEMP at test and operational facilities,
- c. Responsible for overall Field Shakedown in cooperation with Air Traffic Division,
- d. Coapproves jointly with Air Traffic Division Field Shakedown requirements with the PM,
- e. Approves Field Shakedown plans, procedures, and reports,
- f. Participates in the conduct of OT&E Integration and OT&E Operational testing, and OT&E Shakedown as coordinated with AOS,
- g. Directs Field Shakedown that is in satisfaction of Airway Facility Division test requirements or objectives, and as coordinated with Air Traffic Division,
- h. Conducts Field Shakedown in coordination with Air Traffic Division, AOS-400/600 have option of participating in test conduct.

4.1.2.13 Airway Facilities Sectors.

- a. Participates in FAA TEMP activities as required by Airway Facilities Division,
- b. Develops Field Shakedown requirements, plans, and procedures in coordination with facility AT organization,
- c. Conducts Field Shakedown, including Joint Acceptance Inspection (JAI) and reports results in coordination with facility AT organization.

4.1.2.14 Regional Air Traffic Division.

- a. Supports PM via ATR in development of test requirements for inclusion in the FAA TEMP,
- b. Supports PM in implementation of FAA TEMP at test and operational facilities, as required by ATR,
- c. Supports Airway Facilities Division in the development of Field Shakedown requirements, plans, procedures, and reports with the inclusion of Regional Air Traffic Division objectives and interests,
- d. Provides coordination to Airway Facilities Division for Field Shakedown requirements, plans, procedures, and reports,
- e. Participates in the conduct of OT&E Integration and OT&E Operational testing, and OT&E Shakedown as coordinated with the ATR organization,
- f. Supports Field Shakedown that is in satisfaction of Regional Air Traffic Division test requirements or objectives, and as coordinated with Airway Facilities Division,
- g. Conducts Field Shakedown in coordination with Airway Facilities Division,
- h. Monitors Field Shakedown,
- i. Reviews PD via ATR.

4.1.2.15 Air Traffic Facilities.

- a. Participates in FAA TEMP activities as required by ATR through Regional Air Traffic Division,
- b. Supports development of Field Shakedown requirements plans, procedures, and reports in coordination with facility Airway Facilities organizations,
- c. Conducts and monitors Field Shakedown and reports results in coordination with facility Airway Facilities organizations and Regional Air Traffic Division,
- d. Reviews PD via ATR and Regional Air Traffic Division.

4.1.2.16 System Engineering Configuration Control Board (SE CCB).

- a. Approves test standards and definitions,
- b. Approves NAS-SS-1000 NAS Change Proposals (NCP) and Interface Requirement Documents (IRD) that affect system requirements.

4.1.2.17 NAS Configuration Control Board (CCB) (Associate Administrator for NAS Development (AND)/Associate Administrator for System Engineering and Development (ASD)/Associate Administrator for Airway Facilities (AAF)).

- a. Approves DT&E requirements contained in the project specification (e.g., project specification VRTM),
- b. Approves PAT&E requirements contained in the project specification.

4.1.2.18 Test Policy Review Committee (TPRC).

- a. Supports T&E policy, test standards, and definitions,
- b. Approves TPRC operating procedures,
- c. Approves FAA TEMP and revisions,
- d. Approves test policy waivers,
- e. Resolves disagreements on T&E issues when agreements cannot be reached at lower levels of FAA management.

4.1.2.19 Associate Administrator for System Engineering and Development (ASD).

- a. Provides Program Manager (via Research and Development Service (ARD)),
- b. Appoints Chairperson of the TPRC,
- c. Chairperson assumes responsibility of making final decisions on actions brought before the TPRC.

4.1.2.20 NAS System Engineering Service (ASE).

- a. Reviews FAA TEMP,
- b. Provides the NAS-SS-1000 system specification requirements for inclusion in the FAA TEMP VRTM or coordinates with System Engineering Service for requirements for those projects not included in the NAS-SS-1000.

4.1.2.21 Engineering Specialties and Configuration Management Division (ASE-600).

- a. Serves as TPRC Secretariat,
- b. Formulates revisions to test policy, test standards, and definitions for consideration and endorsement by the TPRC,

- c. Verifies compliance with FAA Order 1810.4B and standards,
- d. Develops and maintains the TPRC operating procedures,
- e. Provides and maintains implementation traceability for NAS verification via the VRTMs contained in the NAS-SS-1000 system specification,
- f. Develops VRTMs for new NAS-SS-1000 system specification projects and NAS IRDs.

4.1.2.22 NAS Transition and Implementation Service (ANS).

- a. Member of TPRC,
- b. Provides supportability requirements to the APMT for inclusion in the FAA TEMP, which serves as guidance to AOS for the OT&E plans,
- c. Reviews FAA TEMPs,
- d. Reviews requirements, plans, and procedures for OT&E Shakedown,
- e. Provides personnel for conducting and/or monitoring the conduct of OT&E Shakedown,
- f. Reviews OT&E shakedown reports,
- g. Reviews PDs,
- h. Approves PDs.

4.1.2.23 NAS Development Special Assistant (AND-3).

- a. Member of TPRC,
- b. Reviews FAA TEMP,
- c. Supports development of revision to test policy, test standards, and definitions.

4.2 INTEGRATED SCHEDULE.

Reference appendix B for Milestones, Test, and Installation Dates.

4.3 TEST PLANS.

Figure 4.3-1 depicts a documentation flow tree that delineates the origination of test plan requirements and the path to final test reports required for the OASIS subsystem. Terminology and definitions pertinent to NAS T&E are delineated in the NAS-MD-110 document.

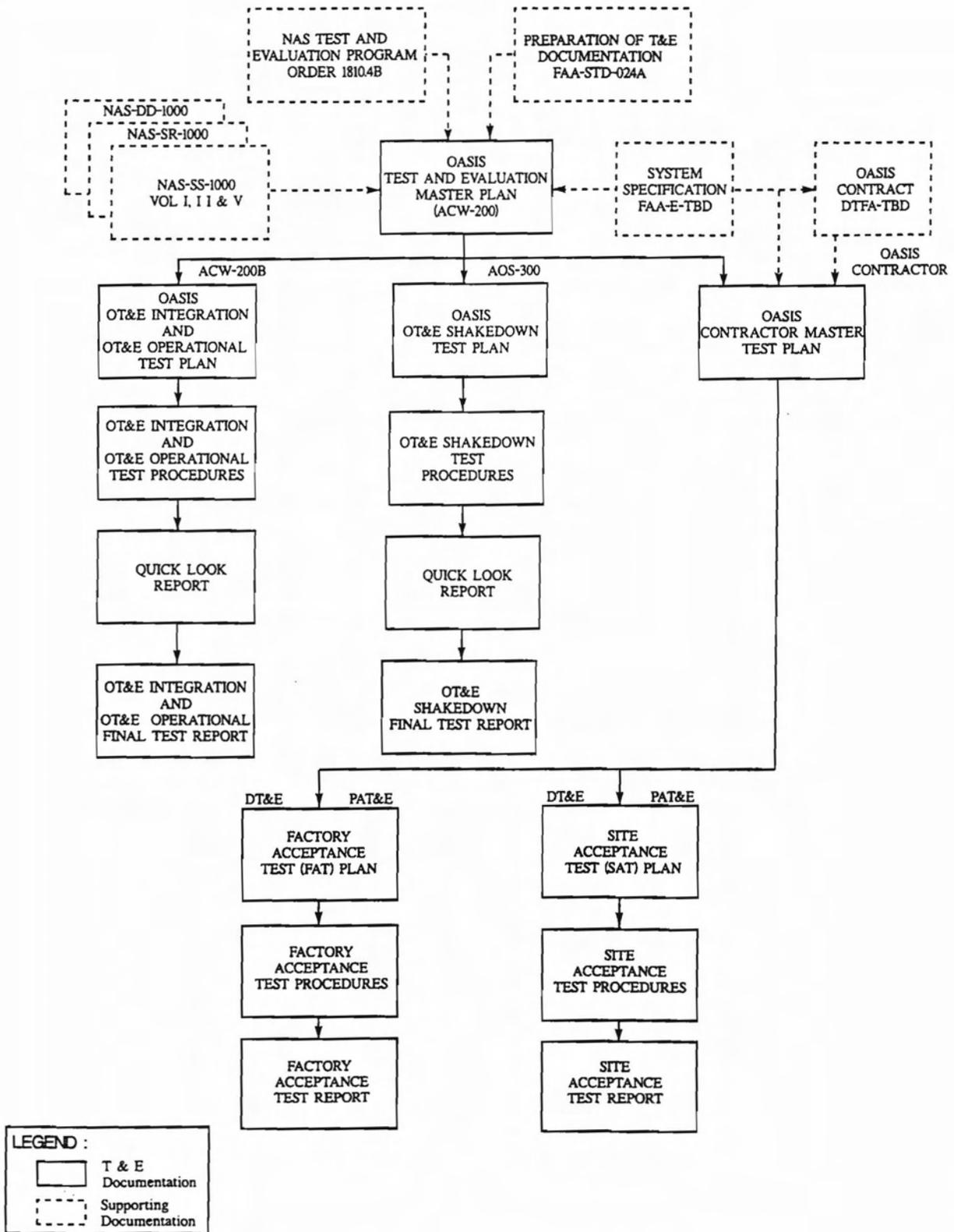


FIGURE 4.3-1. OASIS DOCUMENTATION FLOW DIAGRAM

4.3.1 FAA Developed Test Plans.

4.3.1.1 FAA Test and Evaluation Master Plan (TEMP).

This test plan basically follows FAA-STD-024a and includes FAA Order 1810.4B philosophy and organizational information. The TEMP identifies verification methods for contractor, integration, operational, and shakedown testing. Correlation between the Operational Requirements Document (ORD), the OASIS system specification FAA-E-TBD, and the respective validated NAS-SS-1000 requirements will be included in the TEMP as these documents are updated.

4.3.1.1.1 FAA OT&E Testing.

The OT&E identifies deficiencies in NAS hardware, software, human performance factors, and/or operational concepts. The OT&E also encompasses an interactive process of risk reduction demonstrations, analysis, and assures NAS functionality (as it existed prior to installation of a new subsystem) is not degraded. The OT&E consists of three test phases; (1) Integration, (2) Operational, and (3) Shakedown.

The division of responsibilities for FAA OT&E Integration, OT&E Operational, and OT&E Shakedown are illustrated in figure 4.3.1.1.1-1.

4.3.1.2 FAA Operational Capability Demonstration (OCD) Plan.

ANW-500 has the overall responsibility for developing the OCD plan. The OCD plan will describe resources and activities required to take place during the OCDs at the offerors' facilities. It will identify the capabilities to be demonstrated, how the OCD will be conducted, and the organizational responsibilities. Representatives from the FAA testing organizations may be tasked by the Program Manager to participate in the evaluation/demonstration.

4.3.1.3 FAA OT&E Integration and OT&E Operational Test Plans.

The APMT has the overall responsibility for developing the OT&E Integration and OT&E Operational Test Plan in accordance with FAA-STD-024a and FAA Order 1810.4B. The OT&E Integration consists of testing NAS System end-to-end performance, which is addressed in NAS-SS-1000, volume I (system level) and volume II (subsystem level). This testing establishes NAS baseline performance (end-to-end) and verifies that previously existing NAS performance has not been degraded. To the greatest extent possible, subsystem OT&E Integration and OT&E Operational testing will be accomplished in a NAS equivalent environment. The tests addressed in this OT&E Integration and OT&E Operational plan will be of a quantitative and qualitative nature, and are deemed successful if the results meet FAA-E-TBD and NAS-SS-1000 qualification requirements. Included are tests that verify the operation of multiple interfaces and integration with other systems in the operational environment.

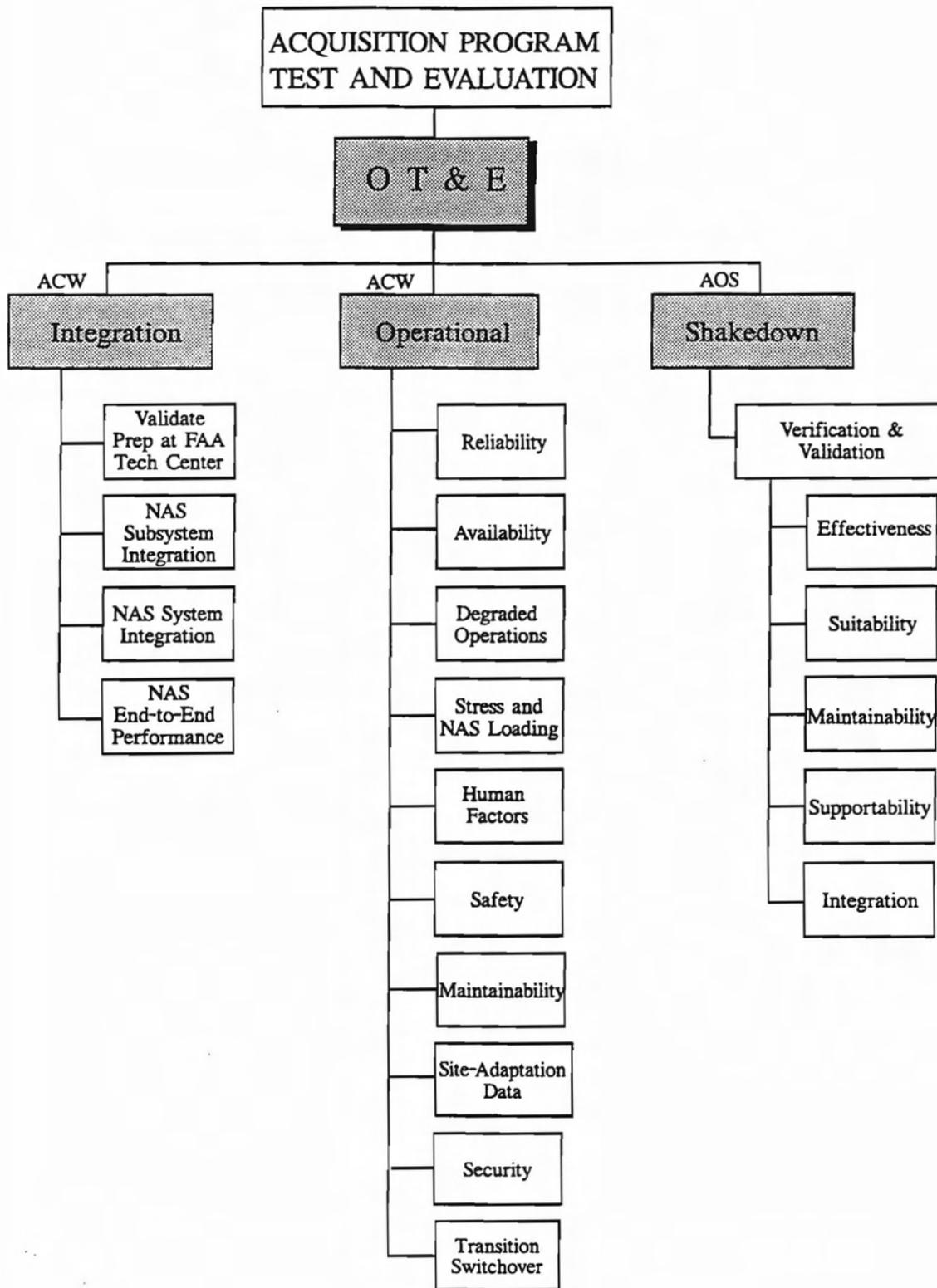


FIGURE 4.3.1.1.1-1. FAA RESPONSIBILITIES - OT&E INTEGRATION, OT&E OPERATIONAL, OT&E SHAKEDOWN

4.3.1.4 FAA OT&E Shakedown Test Plan.

AOS-540 will develop the OT&E Shakedown Test Plan in accordance with FAA-STD-024a and FAA Order 1810.4B. This plan will identify tests for operational deficiencies in training, logistics, documentation, personnel safety, security, site adaption parameters, and system failure detection and recovery procedures. Shakedown testing is a verification and validation of the OT&E Integration and OT&E Operational testing, which consists of operational effectiveness, suitability, maintainability (software, preventive, and field), supportability, and integration of a NAS subsystem.

4.3.2 Contractor Developed Test Plans.

4.3.2.1 Contractor's Master Test Plan (CMTP).

The contractor will develop this master plan which shall include DT&E (Factory/First Site) and PAT&E (Factory and Field Deployment) testing requirements in accordance with FAA-E-TBD and the OASIS SOW. The CMTP will show traceability to this OASIS TEMP's VRTM and will allocate test requirements to subsequent test plans and procedures. The CMTP will clearly delineate that every physical, performance, functional, and operational requirement contained in FAA-E-TBD is verified in DT&E and/or PAT&E. The contractor must submit the CMTP to the FAA for approval prior to plan implementation.

Factory DT&E shall include design qualification, software test, hardware test, type, system, reliability/availability/maintainability, Electromagnetic Interference (EMI), production/acceptance demonstration and Factory Acceptance Test (FAT). At First Site, design qualification, type, interface, production/acceptance demonstration and Site Acceptance Testing (SAT) shall be accomplished. Factory PAT&E shall include production qualification and FAT. The PAT&E Field Deployment shall include Installation and Checkout (ICO) and SAT.

Once the FAA approves the CMTP, it shall become a test control document. The CMTP shall include: (1) schedules of testing; (2) objectives for the each test phase; and (3) responsibilities and resources needed to support the test program. The CMTP shall include a specification compliance matrix and indicate specification paragraph, methodology and verification level for each requirement. Upon government approval of the CMTP, electronic files/databases shall be provided the government for use in tracking requirements relative to contractor testing. Specifics of the CMTP and associated plans shall be in accordance with the SOW.

4.3.2.2 Contractor's Developmental Test and Evaluation (DT&E) Test Plan.

The OASIS contractor shall develop this test plan, including the tests addressed within, to verify that the OASIS hardware and software meet the design requirements specified in FAA-E-TBD, the contract SOW, and other documents referenced therein. This plan must be presented to the FAA for approval prior to implementation.

4.3.2.3 Contractor's Production Acceptance Test and Evaluation (PAT&E) Test Plan.

The OASIS contractor's PAT&E test plan shall describe the methodology for testing and accepting production equipment. The contractor shall provide the PAT&E plan to the FAA for approval prior to implementation.

4.3.2.4 Contractor's Site Acceptance Test (SAT) Plan.

The contractor shall provide a SAT plan. The plan shall describe methodology for testing and accepting the equipment at each site. The SAT plan defines the range of tests, system initialization requirements, input data, expected output, and criteria for evaluating test results. Testing resources such as personnel, equipment, facilities, and schedules are also identified. This plan shall be provided for government approval before any installation.

System performance testing for the SAT shall be performed under:

- a. Operational conditions, including both normal and peak data flow conditions;
- b. Erroneous data input;
- c. Failure and recovery conditions.

4.3.2.5 Contractor's Reliability Plan.

The OASIS contractor shall develop a reliability program plan which describes the approach used to verify that the system meets the required MTBF reliability criteria of section 3.4.1. Results of the reliability program will be deemed successful if the contractor's failure data and reliability analysis meets the MTBF requirement.

4.3.2.6 Contractor's Maintainability Plan.

The OASIS contractor shall develop a maintainability program plan. The maintainability program will be deemed successful if the contractor's and FAA's maintainability test data and analysis meets the MTTR requirement of section 3.4.3, as demonstrated throughout DT&E, OT&E, and PAT&E test phases.

4.3.2.7 Contractor's Electromagnetic Interference (EMI) Test Plan.

This test plan shall demonstrate that the OASIS system (which includes the FSDPSWS's) will operate EMI compatibly in its intended environments. The contractor shall also perform verification testing at each installation to ensure the OASIS does not EMI interfere with other site equipments. The OASIS may be required to meet tailored portions of FAA-STD-020, MIL-STD-461, and TBD Federal Communications Commission (FCC) standards. Exact requirements will be added in a revision to the TEMP when identified by ASE-100.

5. OPERATIONAL CAPABILITIES DEMONSTRATION (OCD).

Test procedures will be developed to ensure the proposed system demonstrates the general functionality requirements of FAA-E-TBD. Interface testing, if required, will be limited to proposed system-to-FSDPS subsystem testing. The OCD will be performed as part of the technical evaluation of each offeror's proposal. The OCD is conducted at the contractors' facilities and encompasses hardware, software, and

system testing. The OCD is conducted by the contractor using FAA-developed test plans that include high-level generic procedures and contractor-developed detailed procedures. The OCD will be witnessed by the FAA. Each contractor is responsible for timely and satisfactory completion of testing in accordance with the OCD schedule.

5.1 OCD TO DATE.

No OCD testing has started on the OASIS to date.

5.2 FUTURE OCD.

5.2.1 OCD Procedures.

The FAA will develop generic OCD procedures and the offeror(s) will develop detailed procedures in accordance with the generic procedures. A suggested guideline for the format of the detailed procedures is FAA-STD-024a. Each procedure should include the following components:

- a. Test Description/Objective,
- b. Critical Issues,
- c. Test Setup,
- d. Test Method,
- e. Expected Results.

Detailed test plans/procedures for each test requirement and/or test objective must be approved by the FAA, and include a test methodology, test configuration, and manning requirements.

The offeror(s) will develop and provide specific test procedures for each test and evaluation activity identified in the Request For Proposal (RFP). Test procedures will describe the step-by-step approach for satisfying the requirement(s), including personnel, equipment, schedule, location, etc. The offerors' detailed OCD procedures must agree in style with the FAA OCD generic procedures to ensure conformity.

5.3 OCD EVENTS/SCOPE OF TESTING/BASIC SCENARIOS.

The OCD testing of the OASIS systems will be accomplished at the offeror(s)' facilities, possibly including some live interface testing with an FAA FSDPS.

5.4 CRITICAL OCD ITEMS.

There are several critical items associated with OCD testing. It must be determined whether or not an FAA FSDPS will be used as a basis of comparison for some OCD procedure steps. Coordination with FAA FSDPS sites and personnel for collection of comparison data must be performed.

6. DEVELOPMENT TEST AND EVALUATION (DT&E)/PRODUCTION ACCEPTANCE TEST AND EVALUATION (PAT&E) OUTLINE.

6.1 DT&E/PAT&E TO DATE.

No DT&E or PAT&E has started on the OASIS to date.

6.2 FUTURE DT&E/PAT&E.

6.2.1 Contractor's Test Procedures.

The contractor shall develop and provide test procedures for each physical, functional, and performance requirement identified in FAA-E-TBD, the NAS IRD's, the CMTF, and the SOW. Procedures shall be written for all test, demonstration, analysis, and inspection requirements. Requirements necessitating analysis such as reliability shall include the supporting manufacturer's data. The contractor shall identify the significant manufacturer's specifications that were used to justify analysis conclusions. Test procedures shall include required personnel (testers and observers), equipment, test configuration, schedule, location, criteria, and expected results. Formal testing shall not commence until the procedures have been reviewed and approved by the FAA.

6.2.2 Contractor's Test and Evaluation Reports.

The contractor shall provide test evaluation reports for all completed tests. The test report shall describe evaluation criteria, results (pass/fail), and all relative supporting material. Each report prepared by the contractor must be approved by the FAA before the next test begins.

6.3 DT&E/PAT&E OBJECTIVES.

The DT&E/PAT&E test objectives include:

- a. verify all physical, functional, performance and operational requirements as delineated in FAA-E-TBD and the OASIS SOW have been met,
- b. demonstrate logistic support such that test equipment and manuals are technically compatible and per directives,
- c. identify safety deficiencies,
- d. assess system reliability,
- e. collect data to determine system logistic support requirements,
- f. collect data and perform analysis regarding training requirements,
- g. verify that the requirements, the SOW, and other applicable project directives have been met.

6.4 DT&E/PAT&E EVENTS/SCOPE OF TESTING/BASIC SCENARIOS.

The contractor will design and code computer software units in compliance with the stated requirements of FAA-E-TBD, FAA-STD-026, and the SOW. Testing and integration shall continue until the final evaluation concludes that the OASIS meets FAA-E-TBD and SOW requirements. Initial contractor testing on the OASIS system will be accomplished at the contractor's facility. Once the contractor completes DT&E and PAT&E on the first article at the factory, systems shall be delivered to the FAA for OT&E Integration, OT&E Operational, and OT&E Shakedown testing.

6.4.1 Reliability.

The OASIS contractor shall develop and maintain a reliability program in accordance with FAA-E-TBD and the SOW. A reliability model developed in accordance with the technical requirements cited in section 3.4.1 shall be used to predict system reliability to the configuration item level. Failure rate analysis shall be based on previous operational failure data of similar systems and manufacturer predicted failure data. Failures occurring during contractor DT&E/PAT&E testing shall be scored as relevant or nonrelevant. The contractor shall provide system reliability predictions in the Reliability Status Report. The FAA will evaluate and approve this report. Upon completion of DT&E, the contractor will provide their reliability database to ANW-500, the OASIS project office, in a format described in the SOW. This information will also be used in the FAA's evaluation of conformance to the MTBF requirement stated in section 3.4.1. The requirements imposed in this section encompass the entire scope of the OASIS system, including both hardware and software.

6.4.2 Availability.

The contractor shall collect failure data and maintainability test results throughout DT&E, and PAT&E, which shall be used in computing OASIS system availability. The availability requirements are delineated in section 3.4.2. An interim analysis shall be issued to the program office at the end of DT&E. Final analysis shall be presented in the Final Contractor's Test Report.

6.4.3 Maintainability.

The OASIS contractor shall conduct a maintainability program in accordance with FAA-E-TBD and the SOW. A maintainability model shall be developed in accordance with section 3.4.3 requirements to predict system maintainability to the configuration item level. The OASIS will be designed to expedite restoration of system functions with the use of Line Replaceable Units (LRU). The FAA must verify/approve the maintainability design in the contractor provided Maintainability Status Report prior to implementation. Maintainability compliance to the MTTR as delineated in section 3.4.3 shall be demonstrated to the FAA.

6.4.4 DT&E.

The DT&E is conducted at the contractor's facility and encompasses hardware and software system testing and test reports. The DT&E is conducted by the contractor using FAA approved, contractor developed test plans and procedures. Testing shall be witnessed by the FAA. The contractor is responsible for timely and satisfactory completion of testing in accordance with the schedule.

6.4.5 PAT&E.

Production testing will be a subset of the development and operational testing requirements to ensure the contractor maintains a baselined system. SAT will occur at each AFSS site. The CMTF will describe methodology for testing FAA-E-TBD system requirements during DT&E and PAT&E.

6.4.5.1 PAT&E Objective.

The PAT&E verifies proper fabrication of production OASIS systems and spares and includes hardware and integrated system testing. PAT&E will be performed on the second through the last systems. Contractor manufacturing procedures, manufacturing test procedures, and FAA approved OASIS test procedures will be used.

Regression testing will be performed to ensure approved modifications do not adversely affect the system. Modifications may require reexecution of certain DT&E tests. Determination of required regression tests will be made by the FAA, following consultations with the contractor.

6.5 CRITICAL DT&E/PAT&E ITEMS.

No critical DT&E/PAT&E items have been identified.

7. OPERATIONAL TEST AND EVALUATION (OT&E) INTEGRATION.

Test procedures will be developed to ensure compliance with NAS-SS-1000, volumes I and II requirements, and any additional requirements needed to ensure successful integration of the OASIS system into the NAS.

7.1 TESTING TO DATE.

No OT&E Integration testing has been accomplished on the OASIS to date.

7.2 FUTURE TESTING.

ACW-200B will develop the test procedures for, and conduct the testing of, all OASIS physical, functional, and performance characteristics as they relate to NAS system integration. The OT&E Integration testing for the OASIS system will be conducted at the FAA Technical Center, Atlantic City International Airport, New Jersey. Test schedules are provided in appendix B, OASIS Milestone and Installation Schedule.

7.2.1 OT&E Integration Test Procedures.

The OT&E Integration test procedure development will incorporate guidance provided in FAA Order 1810.4B, appendix 1, and FAA-STD-024a and will ensure compliance with NAS-SS-1000, volumes I, II requirements. Procedures will be developed for any additional operational requirements needed to ensure successful integration of the OASIS into the NAS. The OT&E Integration test cycle may include a phased approach. All OASIS operational requirements which can be tested at the FAA Technical Center will be verified. Any operational requirements which cannot be tested at the Technical Center will have to be verified at an AFSS (and/or FSDPS) site. Each OT&E procedure will include the following components:

- a. Test Description/Objective,
- b. Critical Issues,
- c. Test Setup,
- d. Test Method,
- e. Expected Results.

Detailed test plans/procedures for each test requirement and/or test objective will include a clear statement of the test objective or test requirement, test methodology, test configuration, manning requirements, test success criteria, and data reduction and analysis requirements.

7.3 OT&E INTEGRATION OBJECTIVES.

This testing ensures the successful integration of the OASIS subsystem into the NAS. The OASIS must be operationally integrated with the other operational NAS subsystems which affect flight service. Testing will verify OASIS subsystem NAS integration and end-to-end performance requirements. To the greatest extent possible, the subsystem will be tested in a NAS system equivalent environment. Full integration scenarios will be employed which will verify all interfaces.

7.4 OT&E INTEGRATION EVENTS/SCOPE OF TESTING/BASIC SCENARIOS.

NAS integration requirements are derived from the NAS System Specification (NAS-SS-1000), and require the OASIS to primarily interface with the FSAS FSDPS. Additional interfaces that will require testing are listed herein, or will be added as the OASIS program requirements become further defined. ACW-200B will determine the methodology for testing these interfaces, either through actual connection or simulation. Subsystems that interface with the OASIS will be connected one at a time. A full and independent exercise of each interface will verify the OASIS compatibility with that interface. After individual interface testing has been completed, testing of the OASIS with multiple interfaces will occur. These test results will be used as input to make the final deployment decision.

In the event that an interface is unavailable at the time of OT&E Integration and OT&E Operational testing, ACW-200B will defer testing, and question that interface by placing an unavailable (deferred) "q" status in the VRTM remarks section. ACW-200B, if in agreement with the Program Office, may test the deferred interface when that interface becomes available.

Figure 7.4-1 depicts the existing NAS/FSAS data flow with the M1FC AFSSWS, and the NAS subsystems WMSC and NADIN 1A. Figure 7.4-2 depicts how the NAS/FSAS data will flow in the future, following OASIS AFSSWS, and NAS subsystems WMSCR and NADIN 2 implementation.

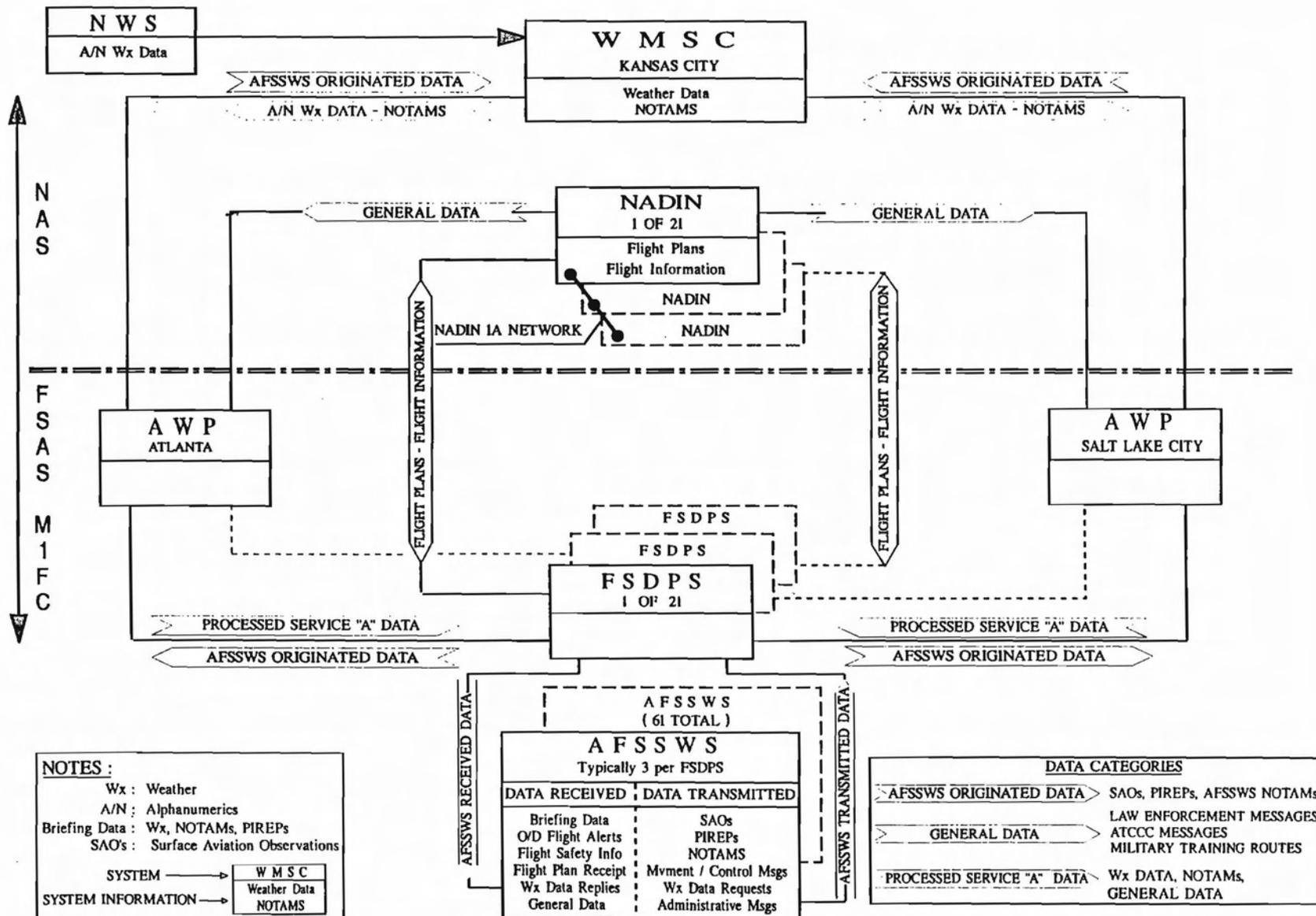


FIGURE 7.4-1. NAS FSAS DATA FLOW DIAGRAM (EXISTING)

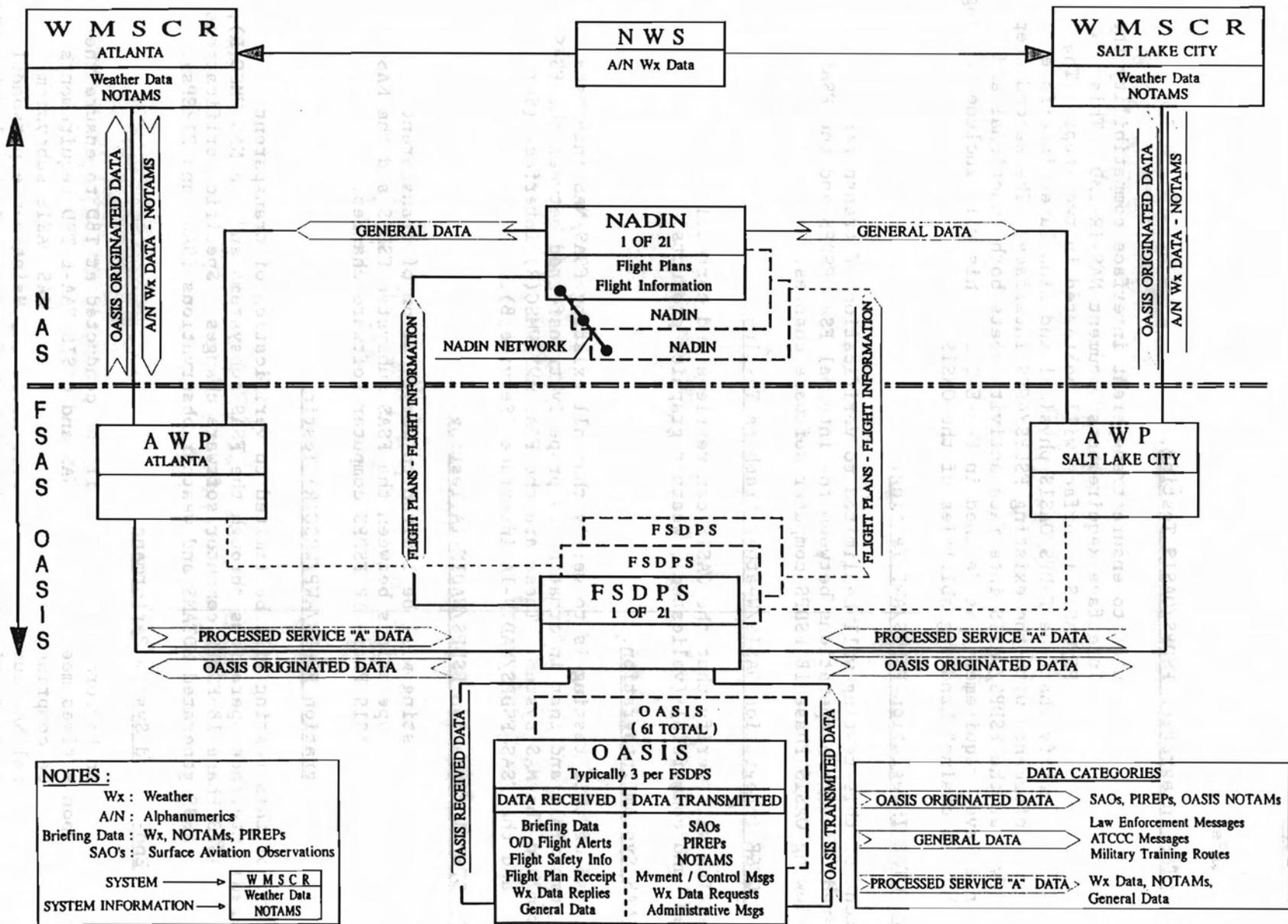


FIGURE 7.4-2. NAS FSAS DATA FLOW DIAGRAM (FUTURE)

7.4.1 NAS FSAS Subsystem Internal Integration.

This testing will verify that the interfaces internal to the FSAS subsystem are not adversely affected by the OASIS subsystem implementation.

7.4.1.1 OT&E Integration FSDPS/OASIS Testing.

This testing will be conducted to ensure transparent interface compatibility that meets the MIFC FSDPS/AFSS Interface Requirements Document NAS-IR-TBD. This internal to FSAS MIFC, FSDPS/OASIS interface will be tested in two steps. The first step will verify that the FSDPS/OASIS physical and link layer interface operates in conformance with the existing FSDPS/AFSS interface. The second step will verify that the FSDPS/OASIS interface activity meets both functional and performance level requirements as defined in FAA-E-TBD. This will include testing of the "broken chains" handling abilities of the OASIS system.

7.4.1.2 OT&E Integration FSDPS/AWP Testing.

The extent of this testing will be limited to verification of transparent (unaltered) interface operations between the internal FSAS FSDPS and the FSAS AWP following OASIS Phase 1B FSDPS computer software changes.

7.4.1.3 OT&E Integration OASIS/Weather Graphics Testing.

This testing will verify that the OASIS can retrieve and correctly display both FAA provided, and commercial (validated), weather graphics products.

7.4.2 NAS System Integration.

The purpose of this testing is to verify that all existing FSAS/NAS interfaces remain compatible and that information is properly transferred between the FSAS subsystem and the NAS system. These are the FSAS AWP/WMSC(R) interface (Service A, NOTAMs), and the FSAS FSDPS/NADIN-1A interface (Service B).

7.4.2.1 OT&E Integration FSDPS/NADIN-1A Testing.

The extent of this testing will be limited to verification of transparent (unaltered) interface operations between the FSAS subsystem FSDPS and the NAS NADIN-1A, following OASIS Phase 1B FSDPS computer software changes.

7.4.2.2 OT&E Integration FSDPS/AWP/WMSC(R) Testing.

The extent of this testing will be limited to verification of transparent (unaltered) interface operations through the FSAS subsystems and the NAS WMSC(R), following OASIS Phase 1B FSDPS computer software changes. Specific verifications will include AFSS generated NOTAMs and weather observations (SAOs and PIREPs).

7.4.3 NAS End-to-End System Performance.

The OT&E Integration Performance testing will be conducted at TBD to ensure the end-to-end response times meet applicable NAS and OASIS FAA-E-TBD requirements. This testing will be comprised of a totally operational FSAS OASIS subsystem connected to external NAS subsystems. On site ATCSs and Maintenance personnel will play a major role in evaluating end-to-end system performance. System loading will be in accordance with MIFC baseline end-to-end performance tests.

7.4.4 NAS External Interface Testing.

The OASIS will have interfaces, external to the NAS, to the ATCS and the FSDPS specialist, in accordance with the NAS-SS-1000. These interfaces will be tested in accordance with operational requirements and human factors perspectives. The human factor testing will be as per FAA Order 1810.4B direction and tailored MIL-STD-1472 guidelines. Design of the displays and operator interface will be emphasized. User performance may be assessed relative to effective system operation. This assessment may include addressing issues such as man-machine interface and operator workload. Product data flow will also be verified for these interfaces.

The OASIS may also have additional NAS external interfaces, such as a possible Drug Enforcement Administration (DEA) interface. (Provisions for these interfaces may be tested.) Additional detail will be added in a future revision to this TEMP.

7.5 CRITICAL OT&E INTEGRATION ITEMS.

A critical OT&E Integration item is the need for an FSAS internal interface Interface Requirements Document (IRD). This IRD must address the currently implemented M1FC FSDPS/AFSSWS interface. The IRD will be used by the OASIS contractor to develop an interface between the OASIS AFSSWS subsystem and the FSDPS, that is transparent in nature to the interface that exists between the M1FC AFSSWS subsystem and the FSDPS. This IRD development is being pursued by the Program Office and the OASIS Matrix Management Team.

8. OT&E OPERATIONAL TESTING.

This testing, to the maximum extent possible, will include field maintenance and field air traffic control (ATC) personnel as an integral part of the ACW-200B directed test team. The OASIS maintenance specialist will actively participate as a member with specific maintainability test responsibilities. ATCSs will be actively involved in the hands-on evaluation of OASIS equipment.

8.1 TESTING TO DATE.

No OT&E Operational testing has been done on the OASIS at this time.

8.2 FUTURE TESTING.

ACW-200B will develop and perform operational tests on the OASIS. These tests will occur at the FAA Technical Center and may include further testing at various FSDPS/AFSS facilities if all operational issues are not verified at the Technical Center. A decision on this issue will be made prior to the DRR. Test schedules for OT&E are provided in appendix B.

8.2.1 OT&E Operational Test Procedures.

The OT&E Operational test procedure development will incorporate guidance provided in FAA Order 1810.4B, appendix 1, and FAA-STD-024a. Each procedure will include the following components:

- a. Test Description/Objective,
- b. Critical Issues,
- c. Test Setup,
- d. Test Method,
- e. Expected Results.

Detailed test plans/procedures for each test requirement and/or test objective will include a clear statement of the test objective or test requirement, test methodology, test configuration, manning requirements, test success criteria, and data reduction and analysis requirements. Verification of OASIS operational requirements will be tested at the FAA Technical Center. Any operational requirements which cannot be tested at the Technical Center will be verified at an AFSS (and/or FSDPS, if appropriate) site.

8.3 OT&E OPERATIONAL OBJECTIVES.

This testing is to ensure the operational effectiveness and suitability of the equipment with user participation included in the evaluation process. The objectives of OT&E Operational testing as per 1810.4B are listed as follows:

- a. Reliability, availability, and maintainability,
- b. Degraded operations and operational utilization scenarios,
- c. Stress and NAS loading testing of all interoperable subsystems,
- d. Human factors,
- e. Safety and security,
- f. Site-adaption data,
- g. Transition switchover.

8.4 OT&E OPERATIONAL EVENTS/SCOPE OF TESTING/BASIC SCENARIOS.

8.4.1 Reliability, Availability, and Maintainability Analysis/Testing.

8.4.1.1 Reliability Analysis.

FAA Technical Center personnel will collect failure data which will be scored as a Relevant Failure or a Nonrelevant Failure (not inherent to the equipment). ACW-200B will review reliability data provided during DT&E. The testing will verify the reliability requirements delineated in section 3.4.1.

This analysis will be used by ACW-200B to predict system reliability to the configuration item level. Failure rate analysis will be based on actual operational experience, test data, experience with similar systems, and manufacturer specifications. Data may be provided to the OASIS project office for storage in an OASIS Reliability Analysis Database.

Throughout the development and test phases, the OT&E Test Team will conduct ongoing reliability analysis. An interim analysis will be issued to the program office at the end of DT&E. Final analysis will be presented in the Final OT&E Integration and OT&E Operational Test Report.

8.4.1.2 Availability Analysis.

Failure data and maintainability test results collected throughout DT&E, OT&E, and PAT&E will be used in computing OASIS system availability. The availability requirements are delineated in section 3.4.2. An interim analysis will be issued to the program office at the end of DT&E. Final analysis will be presented in the Final OT&E Integration and OT&E Operational Test Report.

8.4.1.3 Maintainability Testing.

OASIS will be designed to expedite restoration of system functions, having a MTTR as described in section 3.4.3, with the use of LRU's. A maintainability test will be conducted at the FAA Technical Center. This testing will be carried out according to the requirements delineated in section 3.4.3. A maintainability model will be developed to predict system maintainability to the configuration item level. This test will use procedures developed by the FAA Technical Center and field maintenance personnel trained on the OASIS. An interim assessment will be issued to the program office at the end of DT&E. A final assessment of this test will be presented in the Final OT&E Integration and OT&E Operational Test Report.

8.4.2 Degraded Operations and Operational Utilization Scenarios.

The OT&E Test Team will make assessments regarding failures of OASIS subsystem components and to what extent they will degrade operational capabilities of the OASIS subsystem, the FSAS subsystem, and the NAS system. These assessments will be based on actual failures occurring during testing, and simulated failure scenarios. Where applicable, these scenarios may include M1FC baseline failure scenarios.

Operational utilization will be monitored to establish the percentage peaks of server processor busy time, memory usage, etc. Capabilities evaluated will be startup and shutdown procedures, performance levels provided under degraded modes, error recovery capabilities, data integrity, system reconfiguration capabilities (customization), and backup capabilities/procedures.

8.4.3 Stress and NAS Loading Testing of all Interoperable Subsystems.

Testing to ensure system integrity and performance requirements will be performed during peak operation periods. A time window will be selected to demonstrate operational performance requirements delineated in the OASIS System Specification FAA-E-TBD. The peak operations window will be determined using field data from current M1FC baseline operations. The system will be evaluated for response under various loading scenarios.

This testing also applies to the retrieval, storage, and display of weather graphics products, and as such will be implemented for the weather graphics provisions.

8.4.4 Maintenance and Operational Human Factors Evaluation.

Human factors from both a Maintenance and an ATCS perspective will be evaluated as per FAA Order 1810.4B. The applicable reference document for the human factors evaluation is MIL-STD-1472. Usability of information (messages, displays, graphics, alarms) and data entry devices, response times of the operator and equipment and the capability to recognize and respond to situational problems will be evaluated. User workload will be evaluated specifically for effects on efficiency, productivity, and safety. The user operational environment will be evaluated for lighting, temperature, noise, and work station design.

8.4.4.1 Maintenance Human Factors Evaluation.

At least one FAA Maintenance technician, trained on the OASIS system, will evaluate the diagnostics screens for maintenance suitability. This evaluation will include both the AFSS and FSDPS available diagnostic screens. Results will be recorded on a questionnaire and included in the Final OT&E Integration and OT&E Operational Test Report. This evaluation will be accomplished at the FAA Technical Center.

8.4.4.2 Air Traffic Control Specialists (ATCS) Human Factors Evaluation.

As many ATCSs as practicable will be given questionnaires regarding the use of the OASIS work stations. These questionnaires will address ease of use, and an assessment of the system's performance and reliability in handling Flight Service alphanumeric and graphic data. Emphasis will be on comparison to current MIFC human factor considerations. Evaluations will be included by ACW-200B provided human factors specialists.

8.4.5 Safety and Security.

8.4.5.1 Safety Evaluation.

A Safety Evaluation Checklist will be developed by the OT&E Test Team, and implemented as an APMT overall T&E requirement, during all phases of OASIS testing, developmental through production. Electrical power connections, grounding, sharp edges, and maintenance safety considerations will be evaluated. The Safety Evaluation Checklist, and summary findings will be included in the Final OT&E Integration and OT&E Operational Test Report.

8.4.5.2 Security Evaluation.

A security checklist, which assesses security compliance with the NAS-SS-1000 directives, will be implemented during all phases of testing. The OT&E Test Director will coordinate the FAA Test Team's development of the security checklist. The Final OT&E Integration and OT&E Operational Test Report will indicate any area where appropriate physical or password security is lacking.

8.4.6 OASIS Site-Adaptation.

The OT&E Operational testing will verify that the selection of any OASIS available site-adaptation parameters do not degrade the operational performance of either the OASIS subsystem, or externally interfaced systems. This testing will also verify that unwanted changes are not induced into the OASIS system as a result of configuration settings.

8.4.7 Transition Switchover.

An assessment will be made which will note potential problems or similarities in operation/maintenance between existing MIFC and a newly operational OASIS. Consideration will be given to both insertion into, and removal from, the NAS architecture. Losses of functionality and performance will be highlighted. This assessment will be included in the Final OT&E Integration and OT&E Operational Test Report. As a minimum, the following considerations will be made to verify the OASIS is properly transitioned into the NAS:

a. Site Preparation. This activity determines if site preparation activities were adequate and timely by interviewing field technicians, visually inspecting the work place, and by reviewing facility records for timeliness of site preparation activities;

b. Integration. This evaluation ensures integration discrepancies, such as connectivity and communications, have been resolved to the user organization's satisfaction;

c. Switchover. This evaluation reviews the OASIS integration planning and procedures, and determines if problems have been identified which might impair transition at other locations.

8.5 CRITICAL OT&E OPERATIONAL ITEMS.

There are no critical OT&E Operational items identified at present.

9. OT&E SHAKEDOWN TEST.

Shakedown testing is planned and conducted by AOS-540. The purpose of Shakedown is to evaluate the OASIS system in an operational environment. Shakedown testing verifies the readiness of personnel, procedures, and the system to assume field operational status.

Shakedown testing focuses on suitability and system support issues. Test issues include applicable procedures and documentation. Shakedown testing is a collective evaluation of the integrated effectiveness of a program to determine system suitability and maintainability prior to integration into the NAS. Shakedown testing will be performed at the FAA Technical Center and if required, at AFSS and FSDPS sites.

9.1 TESTING TO DATE.

No OT&E Shakedown testing has been done to date.

9.2 FUTURE TESTING.

Future Shakedown testing will be conducted at the FAA Technical Center by AOS-540, and at the remaining installation sites by regional personnel. These tests will verify logistics, training, documentation, environmental, and other operational requirements, and that the OASIS is a supportable and deployable system.

9.2.1 OT&E Shakedown Test Procedures.

The OT&E Shakedown test procedure development will incorporate guidance provided in FAA Order 1810.4B, appendix 1, and FAA-STD-024a. Each procedure will include the following components:

- a. Test Description/Objective,
- b. Critical Issues,
- c. Test Setup,
- d. Test Method,
- e. Expected Results.

High-level task oriented procedures/scripts for each test requirement and/or test objective will include a clear statement of the test objective or test requirement, test methodology, test configuration, manning requirements, test success criteria, and data reduction and analysis requirements.

9.3 OT&E SHAKEDOWN OBJECTIVES.

The OT&E Shakedown testing is performed on a system to determine operational effectiveness and suitability. Operational effectiveness is defined as the degree to which a system accomplishes its mission in the context of procedures, policy, and field environment when operated as planned. Suitability issues include logistic support, documentation, human factors, training, and procedures.

Shakedown testing is conducted to:

- a. Identify and evaluate the risk associated with deployment of the system,
- b. Identify any hardware or software modifications required prior to site deployment,
- c. Identify any critical issues that may have an adverse impact on system operation in the field,
- d. Verify that the integrated readiness of the system is ready for full operation within the NAS.

9.4 OT&E SHAKEDOWN EVENTS/SCOPE OF TESTING/BASIC SCENARIOS.

Shakedown testing will evaluate a system under realistic field conditions. Testing will be designed to reflect the integrated readiness of people, procedures, and the system to assume operational status. Shakedown testing will evaluate field operations.

Shakedown testing requires a unique approach. The test must evaluate all aspects of the system use and maintenance under realistic field conditions. Previous testing has validated specification and NAS interface requirements. Shakedown planning is approached with the following assumptions:

- a. Suitability. This includes data displays, safety, labor intensiveness, and other functions.
- b. Training. People trained on the system can accomplish assigned tasks.

c. Procedures. Procedures to operate the system are in place and provide a straightforward and effective means to accomplish user requirements.

d. Other Factors. Compatibility and manpower supportability.

This approach is not intended to limit the scope of testing but does provide focus. Some functional testing may be required to satisfy specific user concerns or because previous testing was incomplete due to laboratory or resource constraints at the time.

Test results are rated in terms of operational impact. The risk of use in the field is evaluated using test results. The results are forwarded in a Quick Look Report to assist the DRR to assess the risk of system deployment.

9.4.1 Maintainability.

a. Technical Instructions. This test will account for all documentation required for fielding. Technical instruction books, equipment instruction books, facility documentation, and records will be evaluated for completeness.

b. Facility Drawings. This inspection will ensure that Electronic Equipment Modification (EEM) changes have been accurately included in the facility working drawings.

c. Facility Records. This inspection will ensure EEM activities are properly reflected in the technical documents.

d. Technical Analysis. This evaluation will verify that the field technician can isolate faults and effect repairs using provided maintenance manuals.

e. Corrective Maintenance. This evaluation will determine if the system can be maintained safely and correctly from the Maintenance Data Terminal (MDT). This evaluation will verify the MTTR requirement and determine if corrective maintenance guidance is effective.

f. Usability and Safety. This evaluation will determine if the field technician can accomplish periodic maintenance activities in an efficient, realistic, and safe manner.

g. Tools and Test Equipment. This evaluation will determine if the field technician has the necessary support tools and diagnostic equipment to perform maintenance tasks effectively.

h. Operational Accuracy. This test evaluates the system's capability to accurately present readings and system status to the maintenance technician.

i. Human Factors. This test assesses the human/machine interface to ensure Remote Monitoring System (RMS) usability in the maintenance environment.

9.4.2 Supportability.

Supportability addresses part availability, maintenance documentation, and adequacy of trained personnel, configuration management, and training.

a. Depot (Factory) Spare Parts. This evaluation will determine if sufficient spares are available for all LRU, support item spares, and expendable item spares.

b. Software Documentation. This activity will determine if documentation (and any revisions) are readily available and current.

c. Adequacy of Trained Personnel. This activity will establish AOS-TBD's capability to support field activities from a total system perspective (software/hardware maintenance, configuration management, miscellaneous technical support).

d. Maintenance Training. This evaluation will determine that OASIS certified field maintenance technicians possess adequate knowledge to operate and maintain the system effectively.

e. Manpower. This evaluation will determine if manpower requirement allotments are adequate to maintain the OASIS system.

9.4.3 System Effectiveness.

a. Operational Reliability. Shakedown test personnel will have access to the OASIS Reliability Analysis Database for their assessment regarding potential system effectiveness in providing reliable service.

b. Backup Power Effectiveness. This activity confirms system effectiveness in operating on backup power or on airport power.

9.4.4 Suitability Considerations.

a. Environmental Suitability. This assessment will determine suitability of antennas, anemometers, computer installation in their respective operational environments.

b. Electromagnetic Suitability. This test will determine that no detrimental EMI occurs between the OASIS and other close proximity equipment.

c. Safety suitability. This inspection will determine suitability of grounding, wiring, cable installation, and lightning protection circuits.

d. Communications Security. An assessment will be made regarding the access to critical computer databases via modem connection.

e. Access Authorization. An assessment will be made to determine suitability of password access to authorized personnel at the FSDPS and AFSS.

f. Physical Security. Suitability of physical security will be assessed.

9.4.5 System Integration.

a. Resolution of Test Deficiencies. Determines if Integration/Shakedown discrepancies have been satisfactorily resolved.

b. Operational Considerations. Determines if equipment operation will have any negative impact upon the existing ATC environment, e.g., tower operation.

9.5 OT&E SHAKEDOWN CRITICAL ISSUES.

The critical OT&E Shakedown issues are as follows:

- a. Documentation,
- b. Training,
- c. Human Factors,
- d. Procedures.

10. SPECIAL RESOURCE SUMMARY.

During OT&E Integration and OT&E Operational testing, resources needed will include an FSDPS, an AWP, a WMSC(R), and NADIN-1A(-2) support. Support from additional interface resources may be required for testing, if implemented, including AWOS (or ASOS), ICSS, DEA, VDF, and a weather graphics product source.

10.1 TEST ARTICLES.

The primary test article/System Under Test (SUT) will be the OASIS system. Additional testing/verification will be accomplished on the FSDPS (and its interfaces) following OASIS Phase 1B implemented FSDPS software changes.

10.2 SPECIAL SUPPORT REQUIREMENTS.

10.2.1 Protocol Analyzer.

A protocol analyzer will be used during testing to assist in verifying proper communication across subsystem interfaces. ACW-200B will provide any required protocol analyzers used in testing.

10.2.2 OASIS AFSSWS-Like Remote-Site Work Station.

A portable OASIS AFSSWS-like system, laptop computer in nature, will be required for remote system support testing. This work station must have OASIS system software installed, with all the remote capability as required by FAA-E-TBD.

10.2.3 Generic Upload/Download Off-Site Equipment.

This equipment will consist of a personal computer with 9600 bps modem dial-up capability and a communication package that supports upload/download of generic data.

11. DT&E/PAT&E TEST REPORTS.

11.1 TEST REPORTS.

11.1.1 Quick Look Report.

The OASIS contractor will conduct DT&E and PAT&E testing. The OASIS contractor will generate a Quick Look Report within 10 to 15 days after the completion of DT&E, PAT&E, and again for any additional regression testing. The Quick Look Report will contain a preliminary synopsis of the results of DT&E and PAT&E testing. Further data analysis study will be required after the Quick Look Report is generated before Conclusions and Recommendations are made.

11.1.2 Final DT&E/PAT&E Test Report.

The Final DT&E and PAT&E Test Reports will be completed by the OASIS contractor within 90 working days after completion of DT&E testing, and again after PAT&E testing, including regression, and will be in Technical Note format. The Technical Note will be approved by the Division Manager/APMT prior to release. CT 1710.2B, Preparation and Issuance of Formal Reports, Technical Notes, and Other Documentation, provides guidance regarding Technical Note formats. A Technical Note requires clearly stated objectives, accurate technical content, Conclusions, and Recommendations. One Technical Note will address all aspects of OT&E Integration and OT&E Operational testing.

12. OT&E INTEGRATION AND OT&E OPERATIONAL TEST REPORTS.

12.1 TEST REPORTS.

12.1.1 Quick Look Report.

ACW-200B will conduct OT&E Integration and OT&E Operational testing and generate a Quick Look Report within 10 to 15 days after the completion of the OT&E Integration and OT&E Operational testing and again for any additional regression testing. The Quick Look Report will contain a preliminary synopsis of the results of OT&E Integration and OT&E Operational testing and can have Conclusions and Recommendations included. However, further data analysis may be required, after the Quick Look Report is generated, before Conclusions and Recommendations are made.

12.1.2 Final OT&E Integration and OT&E Operational Test Report.

The Final OT&E Integration and OT&E Operational Test Report will be completed by ACW-200B within 90 working days after completion of all testing including regression, and will be in Technical Note format. The Technical Note will be approved by the Division Manager/APMT prior to release. CT 1710.2B, Preparation and Issuance of Formal Reports, Technical Notes, and Other Documentation, provides guidance regarding Technical Note formats. A Technical Note requires clearly stated objectives, accurate technical content, Conclusions, and Recommendations. One Technical Note will address all aspects of OT&E Integration and OT&E Operational testing.

13. OT&E SHAKEDOWN TEST REPORTS.

13.1 TEST REPORTS.

13.1.1 Quick Look Report.

AOS-540 will conduct OT&E Shakedown testing and may generate a Quick Look Report within 5 days, to accommodate the DRR schedule, after the completion of the OT&E Shakedown testing. The Quick Look Report will contain a preliminary synopsis of the results of OT&E Shakedown testing. Further data analysis study will be required after the Quick Look Report is generated before Conclusions and Recommendations are made.

13.1.2 Final OT&E Shakedown Test Report.

The Final OT&E Shakedown Test Report will be completed by AOS-540 within 90 working days after completion of Shakedown testing.

14. TEMP VERIFICATION REQUIREMENTS TRACEABILITY MATRIX (VRTM).

The TEMP VRTM presents high-level functional and performance requirements to be tested during OASIS test and evaluation. These requirements are derived from NAS-SS-1000, volumes I and II, that are allocated to the FSDPS and AFSSWS subsystems. These subsystems are categorized by NAS-SS-1000 as NAS subsystems within the ATC element of the NAS architecture, specifically the Automated Flight Planning and the Weather Processing Subelements.

Identification of applicable NAS system-level functional (3.2.1.1.x, volume I) and performance (3.2.1.2.x, volume I) requirements that are allocated to OASIS were provided by the Requirements Allocation Matrix in appendix I of NAS-SS-1000, volume I. NAS subsystem-level requirements for OASIS are provided by NAS-SS-1000, volume II, and the ASE-100 System Requirements Incorporation Report, OASIS Operational Requirements-Phase 1A/1B documents. These requirements are identified in the VRTM. The VRTM will also provide correlation between NAS-SS-1000 subsystem-level requirements and the corresponding OASIS project-level requirements provided by the OASIS System Specification, FAA-E-TBD.

Allocation of "Verification Level and Method" for the requirements listed were obtained from tables 4.1-1 included in both volumes I and II of NAS-SS-1000.

The TEMP VRTM will be updated upon changes to the System Engineering NAS-SS-1000 requirements (per 1810.4B).

14.1 COLUMN DEFINITIONS AND UTILIZATION.

Column Definitions for the VRTM are provided as follows:

a. Requirement Identification. Unique identification number is assigned to each testable requirement which is used to reference each requirement throughout the series of OASIS test documents produced by ACW-200B. NAS system-level requirements are identified with 1000 series identification numbers. NAS subsystem-level requirements are identified with 2000 series identification numbers.

b. NAS Requirement. Provides the applicable paragraph number of NAS-SS-1000 for each requirement. NAS system-level requirements (1000 series IDs) are provided by volume I of NAS-SS-1000; NAS subsystem-level requirements (2000 series IDs) are provided by volume II of NAS-SS-1000.

c. Specification Requirement. Provides the corresponding OASIS project specification FAA-E-TBD requirement that is associated with the NAS-SS-1000 requirement.

d. Description. Describes or restates the NAS-SS-1000 requirement.

e. Verification Level and Method. Presents the levels of testing described in the TEMP and identifies the qualification method that is used to verify the NAS-SS-1000 requirement. Verification levels are as follows:

OCD - Operational Capabilities Demonstration

FAT - Factory Acceptance Test

OT&E INT - OT&E Integration Test

OT&E OPER - OT&E Operational Test

OT&E S/D - OT&E Shakedown Test

SAT - Site Acceptance Test

The qualification methods assigned to each requirement are detailed later in this section.

f. NAS Status. Identifies whether the requirement is critical (C) or noncritical (N). If a requirement cannot be verified due to the unavailability of other NAS subsystems, testing of it is deferred. Those requirements that are not subject to testing are identified with the letter Q inside this column.

g. Remarks. Provides additional information about the requirement.

14.2 QUALIFICATION METHODS.

Four qualification methods are used to verify NAS-SS-1000 requirements: Inspection, Analysis, Demonstration, and Test.

Test (T). Test is validation, through systematic exercising of an item under all appropriate conditions, along with collection, analysis, and evaluation of quantitative data for predetermined performance characteristics. Acceptability is determined by the comparison of the data with preestablished quantitative requirements and occurrences.

Demonstration (D). Demonstration is a noninstrument test, where success is determined from observation alone. Included in this category are tests whose results can easily be determined on a pass-fail basis.

Analysis (A). Analysis is validation by technical/mathematical evaluation or simulation using mathematical representations and representative data to prove that specified requirements are met. Representative data may include data collected from previous or other equipment and system verification.

Inspection (I). Inspection is validation by visual examination of the item, reviewing descriptive documentation, and comparing the appropriate characteristics with a predetermined or reference standard, to determine compliance with requirements, without the use of special laboratory equipment or procedures.

15. SCHEDULES.

Schedule dates are provided in appendix B.

16. TEST FLOW.

Appendix C presents OASIS Test Flow Events from project conception to the Production Test and Evaluation Phase.

17. ACRONYMS AND ABBREVIATIONS.

AAF	Associate Administrator for Airway Facilities
ACN	Engineering, Test and Evaluation Service
ACW	Engineering, Integration and Operational Evaluation Service
AFS	Flight Standards Service
AFSS	Automated Flight Service Station
AFSSWS	Automated Flight Service Station Work Station
A/N	Alphanumeric
AND	Associate Administrator for NAS Development
ANS	NAS Transition and Implementation Service
ANW	Program Director for Weather and Flight Service Systems
AOS	Operational Support Service
APME	Associate Program Manager for Engineering
APML	Associate Program Manager for Logistics
APMQ	Associate Program Manager for Quality
APMR	Associate Program Manager for Requirements
APMSE	Associate Program Manager for System Engineering
APMT	Associate Program Manager for Test
ARD	Research and Development Service
ARTCC	Air Route Traffic Control Center
ASD	Associate Administrator for System Engineering and Development
ASE	NAS System Engineering Service
ASOS	Automated Surface Observing System
ASU	Office of Acquisition Support
AT	Air Traffic
ATC	Air Traffic Control
ATCS	Air Traffic Control Specialist
ATM	Air Traffic System Management
ATP	Air Traffic Rules and Procedures Service
ATR	Air Traffic Plans and Requirements Service
AWOS	Automated Weather Observing System
AWP	Aviation Weather Processor
bps	bits per second
CCB	Configuration Control Board
CDR	Critical Design Review
CHI	Computer Human Interface
CMTP	Contractor Master Test Plan
CO	Contracting Officer
COTC	Computer Operator Terminal Console
COTR	Contracting Officer's Technical Representative
COTS	Commercial-Off-The-Shelf
DEA	Drug Enforcement Administration
DMN	Data Multiplexing Network
DRR	Deployment Readiness Review
DT&E	Development Test and Evaluation
EEM	Electronic Equipment Modification
EFAS	En Route Flight Advisory Service
EIA	Electronic Industries Association
EMI	Electromagnetic Interference
EXCOM	Executive Committee
FAA	Federal Aviation Administration
FAT	Factory Acceptance Test

FCC Federal Communications Commission
 FP Flight Plan
 FSAS Flight Service Automation System
 FSDPS Flight Service Data Processing System
 FSDPSWS Flight Service Data Processing System Work Station
 FST Facility Supervisor Terminal
 FW Flight Watch
 HDLC High-Level Data Link Control
 HIWAS Hazardous In-Flight Weather Advisory Service
 ICO Installation and Checkout
 ICSS Integrated Communications Switching System
 IRD Interface Requirements Document
 ISO International Standards Organization
 JAI Joint Acceptance Inspection
 KDP Key Decision Point
 LAA Local Airport Advisory
 LAN Local Area Network
 LRU Line Replaceable Unit
 M1FC Model 1 Full Capacity
 MDT Maintenance Data Terminal
 MPS Maintenance Processor Subsystem
 MTBF Mean Time Between Failure
 MTTR Mean Time to Repair
 NADIN-1A National Airspace Data Interchange Network-1A
 NAS National Airspace System
 NCP NAS Change Proposal
 NDI Nondevelopmental Item
 NOTAM Notice To Airmen
 NWS National Weather Service
 OASIS Operational And Supportability Implementation System
 OCD Operational Capability Demonstration
 O/D Overdue
 OMS OASIS Management System
 ORD Operational Readiness Date (Operational Readiness Demonstration complete)
 ORD Operational Requirements Document
 OT&E Operational Test and Evaluation
 PAT&E Production Acceptance Test and Evaluation
 PD Program Directive
 Phase 1A OASIS hardware/software providing FSAS AFSSWS supportability
 Phase 1B OASIS software providing operational capability enhancement
 PIREP Pilot Report
 PM Program Manager
 QRO Quality Reliability Officer
 RFP Request for Proposal
 RMMS Remote Maintenance Monitoring System
 RMS Remote Monitoring Subsystem
 SAO Surface Aviation Observation
 SAT Site Acceptance Test
 SE CCB System Engineering Configuration Control Board
 SICD System Interface Control Document
 SOW Statement of Work
 SRB Specification Review Board

SUT	System Under Test
TAC	Technical Assistance Contract
TBD	To Be Determined
T&E	Test And Evaluation
TEMP	Test and Evaluation Master Plan
TPRC	Test Policy Review Committee
TRR	Test Readiness Review
TSSR	Test Schedule Status Review
TVRTM	Test Verification Requirements Traceability Matrix
VDF	Very High Frequency Direction Finder
VFR	Visual Flight Rules
VRTM	Verification Requirements Traceability Matrix
WMSC	Weather Message Switching Center
WMSC(R)	Weather Message Switching Center (Replacement)
Wx	Weather

APPENDIX A

VERIFICATION REQUIREMENTS TRACEABILITY MATRIX (NAS-SS-1000)

OASIS TEMP VRTM - PHASE 1A - AFSSWS REQUIREMENTS

VRTM PRELIMINARY NOTES: [(Numbers) in the VRTM "Remarks" column refer to the following notes.]

- (1) The OASIS Volume I requirements were derived from the NAS-SS-1000 VOL I Appendix I Allocation Matrix utilizing the AFSSWS sub-element.
- (2) The OASIS "DRAFT" Specification Requirements Traceability was defined in the "ASE-100 Requirements Traceability Report" Attachment #2.
- (3) Some of the NAS-SS-1000 requirements were not allocated in the ASE-100 Report, but were allocated in Appendix I. For these requirements the VRTM "Specification Paragraph #" column does not include any specification paragraph numbers.
- (4) The ASE-100 Report identified various NAS-SS-1000 "non-shall" statements as requirements and correlated OASIS "DRAFT" Specification paragraph numbers to these "non-requirements".

I-V

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT,
X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - AFSSWS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
—	3.1.1.1.3.1.A	Phase 1B: 1, 1.1 & 1.2	Flight Planning Subsystem: FSDPS								Sub-Element Description (2,4)
—	3.1.1.1.3.1.B	1.3.2.1 3.2.7 3.3.2.4 3.3.9.1.1 3.3.11.1.1 thru 12 3.3.12 3.3.12.1 3.3.12.1.1 thru 13 3.3.12.2 3.3.12.2.1 thru 5 3.3.12.2.7 thru 11 3.3.12.3 3.3.12.3.1 thru 5 3.3.12.4 3.3.12.4.1 thru 11 3.3.12.5 3.3.12.5.1 thru 6 3.3.12.6 3.3.12.6.1 thru 8 3.3.12.7 3.3.12.7.1 thru 5 3.3.12.8 3.3.12.8.1 thru 7 3.3.12.9 3.3.12.9.1 thru 5 3.3.12.10 3.3.12.10.1 thru 4	Flight Planning Subsystem: AFSSWS								Sub-Element Description (2, 4)
—	3.1.1.1.14.1.B	3.3.9.2.1	Surface Weather Observation Subsystem: ADAS								Sub-Element Description (2, 4)

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - AFSSWS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
---	3.1.1.1.1.4.3.B	3.3.8.1	Workstations And Processing: AWP								Sub-Element Description (2, 4)
---	3.1.1.1.1.4.3.C	3.3.8.2 3.3.8.3	Workstations And Processing: WMSCR								Sub-Element Description (2, 4)
---	3.1.1.1.1.4.3.K		Workstations And Processors: FSDPS								Sub-Element Description (3, 4)
---	3.1.1.1.1.4.3.L		Workstations And Processors: AFSSWS								Sub-Element Description (3,4)
---	3.1.4	3.6.1.3	Interface Definition								(2,4)
1001	3.2.1.1.1.1.F		Assistance To Aircraft In Emergency	X		D				D	(3)
1002	3.2.1.1.1.1.G		User Requests For Flight Following	X		D				D	(3)
1003	3.2.1.1.1.1.H.1		Support Search/Rescue Operations	X		D				D	(3)
1004	3.2.1.1.1.1.H.2		Activate Search/Rescue Operations	X		D				D	(3)
1005	3.2.1.1.1.1.J		Support Military Operations	X		D				D	(3)

A-3

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - AFSSWS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1006	3.2.1.1.3.1.A	3.3.10.1 3.3.10.2 3.3.10.2.1 thru 4 3.3.10.2.4.1 3.3.10.3.1 3.3.10.3.1.1 thru 4 3.3.10.3.2 3.3.11.1 3.3.11.1.1 thru 12 3.3.11.2 3.3.12 3.3.12.1 3.3.12.1.1 thru 13 3.3.12.2 3.3.12.2.1 thru 4 3.3.12.2.9 thru 11 3.3.12.3.4 & 5 3.3.12.4 3.3.12.4.1 3.3.12.4.4.thru 11 3.3.12.5 3.3.12.5.1 3.3.12.5.4 thru 6 3.3.12.6 3.3.12.6.1 3.3.12.6.3 thru 8	F/P File, Amend, Activate, Close	X		D			D		

A-4

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT,
X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - AFSSWS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1006 (Cont'd)	3.2.1.1.3.1.A	3.3.12.7 3.3.12.7.1 3.3.12.7.4 & 5 3.3.12.8 3.3.12.8.3 thru 5 3.3.12.8.7 3.3.12.9 3.3.12.9.1 3.3.12.9.4 & 5 3.3.12.10 3.3.12.10.1 & 4	F/P File, Amend, Activate, Close (Cont'd)	X		D			D		
1007	3.2.1.1.3.1.B	3.3.9.2 3.3.9.2.2.1 & 2 3.3.9.2.3.1 thru 3	Disseminate Traffic Advisory	X		D			D		
1008	3.2.1.1.3.1.C	3.2.6	Law Enforcement Support	X		D			D		
1009	3.2.1.1.3.1.D		Flight Following Aircraft Services	X		D			D		(3)
1010	3.2.1.1.3.1.E	3.3.12.1.4	Search and Rescue	X		D			D		
1011	3.2.1.1.3.1.F		Event Reconstruction	X		D			D		(3)

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - AFSSWS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1012	3.2.1.1.3.1.G	3.3.9.1.1.1 thru 4 3.3.9.2 3.3.9.2.1 & 2 3.3.9.2.2.1 & 2 3.3.9.2.3 3.3.9.2.3.1 thru 3 3.3.10.3.1 3.3.10.2.5 3.3.10.2.5.1 3.3.11.1.1 thru 12 3.3.12.1 3.3.12.1.1 thru 13 3.3.12.2.7 3.3.12.3 3.3.12.3.1 & 2 3.3.12.3.4 & 5 3.3.12.4 3.3.12.4.1 3.3.12.4.4 thru 11 3.3.12.5 3.3.12.5.1 3.3.12.5.4 thru 6 3.3.12.6 3.3.12.6.1 & 2 3.3.12.6.4 thru 8 3.3.12.7 3.3.12.7.1 3.3.12.7.4 & 5 3.3.12.8 3.3.12.8.1 3.3.12.8.3 thru 5 3.3.12.8.7	Current Alphanumeric And Graphic Weather Information	X		D			D		

A-6

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - AFSSWS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1012 (Cont'd)	3.2.1.1.3.1.G	3.3.12.9 3.3.12.9.1 3.3.12.9.4 & 5 3.3.12.10 3.3.12.10.1 & 4	Current Alphanumeric And Graphic Weather Information (Cont'd)	X		D			D		
1013	3.2.1.1.3.1.H		Forecast Alphanumeric And Graphic Weather Information	X		D			D		(3)
1014	3.2.1.1.3.1.1	3.3.1.2.c 3.4.4 3.3.9.1.1.5	<u>User Inputs</u> : Coordinate flight plan data between the NAS and user input/output devices.	X		D			D		(3)
1015	3.2.1.1.4.1.D	3.3.9.1.2	Display Weather Information	X		D			X		
1016	3.2.1.1.4.1.E	3.3.9.1.2.1 thru 3	Accept Input From Specialists	X		D			X		(2)
1017	3.2.1.1.4.1.H		Alert Specialists Of Hazardous Weather/NOTAM	X		D			X		(3)
1018	3.2.1.1.4.1.I		Disseminate Weather/NOTAM Information	X		D			X		(3)
1019	3.2.1.1.4.1.J		Accept Request From Specialists/Users	X		D			X		(3)
1020	3.2.1.1.4.1.K		Generate Weather Products to Sup. Interp.	X		D			X		(3)
1021	3.2.1.1.4.1.L		Access To Specific Weather Information	X		D			X		(3)
1022	3.2.1.1.4.1.N		Archive Weather Information	X		D			X		(3)
1023	3.2.1.1.8.1.3		Data And Voice Archiving	A		D			D		(3)
1024	3.2.1.1.9.1.A		Continually Monitor Subsystems	X		D			X		(3)
1025	3.2.1.1.9.1.B		Status And Alarms	X		D			X		(3)
1026	3.2.1.1.9.1.C		On-site, Off-Site Control	X		X			X		(3)

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - AFSSWS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1027	3.2.1.1.9.1.D		Identify Malfunctioning LRU	X		X			X		(3)
1028	3.2.1.1.9.1.G		Specialist Access To Subsystem	X		D			D		(3)
1029	3.2.1.2.1.F		Accept Flight Following Requests	A		T			X		(3)
1030	3.2.1.2.2.G		Airport Reservation For Scheduling Support	X		T			X		(3)
1031	3.2.1.2.3.A		Validate/Process Proposed Flight Plans	X		T			X		(3)
1032	3.2.1.2.3.B		Validate/Process Active Flight Plans	X		T			X		(3)
1033	3.2.1.2.3.C		Flow Control & Delay Advisory Information	X		T			X		(3)
1034	3.2.1.2.3.D		Alert On Detection Of Stolen Aircraft	X		T			X		(3)
1035	3.2.1.2.3.E		Estimated Time Of Arrival Alerts - Surv	X		T			X		(3)
1036	3.2.1.2.3.F		Estimated Time Of Arrival Alerts - Flight Plans	X		T			X		(3)
1037	3.2.1.2.3.G		Determine Location Of An Aircraft	X		T			T		(3)
1038	3.2.1.2.3.H		Receive And Store Ground/Ground Communications	X		D/T			X		(3)
1039	3.2.1.2.3.I		Provide Weather Information	X		T			X		(3)
1040	3.2.1.2.3.J		Maintain Current Weather Surface Observation	X		D			D		(3)
1041	3.2.1.2.3.K		Maintain Current Hazardous Weather Information	X		D			D		(3)
1042	3.2.1.2.3.L		Acquire/Maintain Weather Forecast Information	X		D/T			X		(3)
1043	3.2.1.2.4.A.6		Collect All Pilot Reported Data	X		T			X		(3)
1044	3.2.1.2.4.A.7		Collect NOTAM Information	X		T			X		(3)
1045	3.2.1.2.4.B.1.B		Disseminate Hazardous Weather Information: En Route	X		T			X		(3)

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - AFSSWS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1046	3.2.1.2.4.B.2		Disseminate Current Surface Weather Observation Information	X		D/T			T		(3)
1047	3.2.1.2.4.B.8		Support Mass Weather Information Dissemination	X		D			X		(3)
1048	3.2.1.2.4.C.3		Maintain Satellite Imagery Data	X		T			X		(3)
1049	3.2.1.2.4.C.4.A		<u>Maintain Hazardous Weather Information:</u> Terminal Operations	X		T			X		(3)
1050	3.2.1.2.4.C.5		Maintain NOTAM Purge In 1 Hour After Expired	X		I			X		(3)
1051	3.2.1.2.4.E.3		Expand Coded Weather Data	X		D			X		(3)
1052	3.2.1.2.8.3.A		Record Operational Voice And Data	X		D			X		(3)
1053	3.2.1.2.8.3.B.1		Playback And Retrieve Voice Recordings	X		T			T		(3)
1054	3.2.1.2.8.3.B.2		Playback And Retrieve Data Recordings	X		D			D		(3)
1055	3.2.1.2.9.A		<u>M&OS Performance:</u> Detect and Present Alarm To Specialist	X		T			X		(3)
1056	3.2.1.2.9.F		Provide Subsystems for the MCC	X		I			X		(3)

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT,
X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1B - AFSSWS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
—	3.1.1.1.3.1.A	1.0 & 1.1	Flight Planning Subsystem: FSDPS								Sub-Element Description (2, 4)
—	3.1.1.1.3.1.B	1.0 & 1.1	Flight Planning Subsystem: AFSSWS								Sub-Element Description (2, 4)
—	3.2.1.1.3	5.6 6.0 thru 6.2 7.0 thru 7.3 8.0 thru 8.8 9.0 thru 9.3 10.0 & 10.1 11.0 thru 14.0 16.0 17.0 thru 17.2 18.0 thru 18.2 19.0	Flight Planning General Requirements								Description (2, 4)
1057	3.2.1.1.3.1.A	5.6 8.0 thru 8.8 9.0 thru 9.3 10.0 & 10.1 14.0	Flight Plan File, Amend, Activate and Close	X		D				D	(2)
1058	3.2.1.1.3.1.C	5.2 11.0 thru 13.0	Law Enforcement Support	X		D				D	(2)
1059	3.2.1.1.3.1.E	5.3 & 5.4	Search and Rescue	X		D				D	(2)
1060	3.2.1.1.3.1.G	2.0 & 2.1 2.1.1 thru 2.1.6 2.2.1 thru 2.2.21 4.0 thru 4.2	Current Alphanumeric and Graphic Weather Information	X		D				D	(2)

A-10

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - WEATHER GRAPHICS REQUIREMENTS

VRTM PRELIMINARY NOTES: [(Numbers) in the VRTM "Remarks" column refer to the notes on page A-1 and below.]

(1) The following OASIS Volume I requirements were derived from the NAS-SS-1000 VOL I Appendix I Allocation Matrix utilizing the Weather Graphics sub-element.

33 15 1
33 15 2
33 15 3
33 15 4
33 15 5
33 15 6
33 15 7
33 15 8
33 15 9
33 15 10
33 15 11
33 15 12
33 15 13
33 15 14
33 15 15
33 15 16
33 15 17
33 15 18
33 15 19
33 15 20
33 15 21
33 15 22
33 15 23
33 15 24
33 15 25
33 15 26
33 15 27
33 15 28
33 15 29
33 15 30
33 15 31
33 15 32
33 15 33
33 15 34
33 15 35
33 15 36
33 15 37
33 15 38
33 15 39
33 15 40
33 15 41
33 15 42
33 15 43
33 15 44
33 15 45
33 15 46
33 15 47
33 15 48
33 15 49
33 15 50
33 15 51
33 15 52
33 15 53
33 15 54
33 15 55
33 15 56
33 15 57
33 15 58
33 15 59
33 15 60
33 15 61
33 15 62
33 15 63
33 15 64
33 15 65
33 15 66
33 15 67
33 15 68
33 15 69
33 15 70
33 15 71
33 15 72
33 15 73
33 15 74
33 15 75
33 15 76
33 15 77
33 15 78
33 15 79
33 15 80
33 15 81
33 15 82
33 15 83
33 15 84
33 15 85
33 15 86
33 15 87
33 15 88
33 15 89
33 15 90
33 15 91
33 15 92
33 15 93
33 15 94
33 15 95
33 15 96
33 15 97
33 15 98
33 15 99
33 15 100

A-11

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - WEATHER GRAPHICS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1101	3.2.1.1.3.1.G	3.3.9.1.1.1 thru 4 3.3.9.2 3.3.9.2.1 & 2 3.3.9.2.2.1 & 2 3.3.9.2.3 3.3.9.2.3.1 thru 3 3.3.10.3.1 3.3.10.2.5 3.3.10.2.5.1 3.3.11.1.1 thru 12 3.3.12.1 3.3.12.1.1 thru 13 3.3.12.2.7 3.3.12.3 3.3.12.3.1 & 2 3.3.12.3.4 & 5 3.3.12.4 3.3.12.4.1 3.3.12.4.4 thru 11 3.3.12.5 3.3.12.5.1 3.3.12.5.4 thru 6 3.3.12.6 3.3.12.6.1 & 2 3.3.12.6.4 thru 8 3.3.12.7 3.3.12.7.1 3.3.12.7.4 & 5 3.3.12.8 3.3.12.8.1 3.3.12.8.3 thru 5 3.3.12.8.7	Flight Planning Functional Characteristics - Current Alphanumeric And Graphic Weather Information	X		D			D		(2)

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT,
X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - WEATHER GRAPHICS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1101 (Cont'd)	3.2.1.1.3.1.G	3.3.12.9 3.3.12.9.1 3.3.12.9.4 & 5 3.3.12.10 3.3.12.10.1 & 4	Flight Planning Functional Characteristics - Current Alphanumeric And Graphic Weather Information (Cont'd)	X		D			D		(2)
1102	3.2.1.1.3.1.H		Flight Planning Functional Characteristics - Forecast Alphanumeric And Graphic Weather Information	X		D			D		(3)
1103	3.2.1.1.4.1.A		Weather Functional Characteristics - Accept Information From External Subsystems	X		D			D		(3)
1104	3.2.1.1.4.1.B		Weather Functional Characteristics - Collect/Sense Weather Information	X		D			D		(3)
1105	3.2.1.1.4.1.C		Weather Functional Characteristics - Provide For Growth/Expansion	A		D			D		(3)
1106	3.2.1.1.4.1.D	3.3.9.1.2	Weather Functional Characteristics - Display Weather Information	X		D			X		(2)
1107	3.2.1.1.4.1.E	3.3.9.1.2.1 thru 3	Weather Functional Characteristics - Accept Input From Specialists	X		D			X		(2)
1108	3.2.1.1.4.1.F		Weather Functional Characteristics - Maintain Current/Trend/Forecast Weather Information	X		D			X		(3)
1109	3.2.1.1.4.1.I		Weather Functional Characteristics - Disseminate Weather/NOTAM Information	X		D			X		(3)
1110	3.2.1.1.4.1.J		Weather Functional Characteristics - Accept Request From Specialists/Users	X		D			X		(3)
1111	3.2.1.1.4.1.K		Weather Functional Characteristics - Generate Weather Products to Sup. Interp.	X		D			X		(3)

A-13

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - WEATHER GRAPHICS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1112	3.2.1.1.4.1.L		Weather Functional Characteristics - Access To Specific Weather Information	X		D			X		(3)
1113	3.2.1.1.4.1.M		Weather Functional Characteristics - Provide Hardcopy Of Weather Information	X		D			X		(3)
1114	3.2.1.1.4.1.N		Weather Functional Characteristics - Archive Weather Information	X		D			X		(3)
1115	3.2.1.2.3.I		Provide Weather Information	X		T			X		(3)
1116	3.2.1.2.3.J		Maintain Current Weather Surface Observation	X		D			D		(3)
1117	3.2.1.2.3.K		Maintain Current Hazardous Weather Information	X		D			D		(3)
1118	3.2.1.2.3.L		Acquire/Maintain Weather Forecast Information	X		D/T			X		(3)
1119	3.2.1.2.3.M		Maintain National Aeronautical And Weather Database	A		T/D			X		(3)
1120	3.2.1.2.4.A.3		Collect Satellite Imagery Data	X		T			X		(3)
1121	3.2.1.2.4.B.7		Support 24 Hour Access To Geographical Weather/Aeronautical Information	?		T/A			X		(3)
1122	3.2.1.2.4.B.8		Support Mass Weather Dissemination To Users Within 150 nmi Of A Weather Phenomenon	X		D			X		(3)
1123	3.2.1.2.4.C.1		Archive Trend Weather Information	X		D/T			X		(3)
1124	3.2.1.2.4.C.2.A		Forecasted Weather Information - Terminal Forecasts	X		T			X		(3)
1125	3.2.1.2.4.C.2.B		Forecasted Weather Information - Area Forecasts	X		T			X		(3)

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

OASIS TEMP VRTM - PHASE 1A - WEATHER GRAPHICS REQUIREMENTS

NAS-SS-1000 VOLUME I SYSTEM LEVEL REQUIREMENTS				VERIFICATION LEVEL AND METHOD						NAS STAT	REMARKS/ VOL II TRACE
REQ ID #	NAS-SS-1000 VOLUME I PARAGRAPH #	FAA-E-TBD SPECIFICATION PARAGRAPH #	DESCRIPTION	OCD	FAT	OT&E INT	OT&E OPER	OT&E S/D	SAT		
1126	3.2.1.2.4.C.2.C		Forecasted Weather Information - Winds Aloft Forecasts	X		T			X		(3)
1127	3.2.1.2.4.C.2.D		Forecasted Weather Information - En Route Area Advisories	X		T			X		(3)
1128	3.2.1.2.4.C.4.B		Hazardous Weather Information - En Route Operations	X		T			X		(3)
1129	3.2.1.2.4.C.4.C		Hazardous Weather Information - National	X		T			X		(3)
1130	3.2.1.2.4.D.1		Classify All Weather Information - Route-Oriented Retrievals	X		D			D		(3)
1131	3.2.1.2.4.D.2		Classify All Weather Information - Area-Oriented Retrievals	X		D/T			T		(3)
1132	3.2.1.2.4.D.3		Classify All Weather Information - Information By Location, Weather-Type, Time	X		D			X		(3)
1133	3.2.1.2.4.E.1		Weather Processing - Derived Weather Products From Raw Data	X		D			X		(3)
1134	3.2.1.2.4.E.5		Weather Processing - Composite Weather Data Overlay Animate	X		D			X		(3)
1135	3.2.1.2.4.F.2		Construct Real-Time Weather Depiction - Real-Time Depiction Of Weather Conditions	X		A			T		(3)
1136	3.2.1.2.4.G		Archive All Weather Data	X		T			X		(3)

VERIFICATION METHOD: T=TEST, D=DEMONSTRATION, A=ANALYSIS, I=INSPECTION, L= VERIFIED BY LOWER LEVEL PARAGRAPH REQUIREMENT, X= NOT APPLICABLE

NAS STATUS: Q=DEFERRED (NOT PRESENT IN NAS)

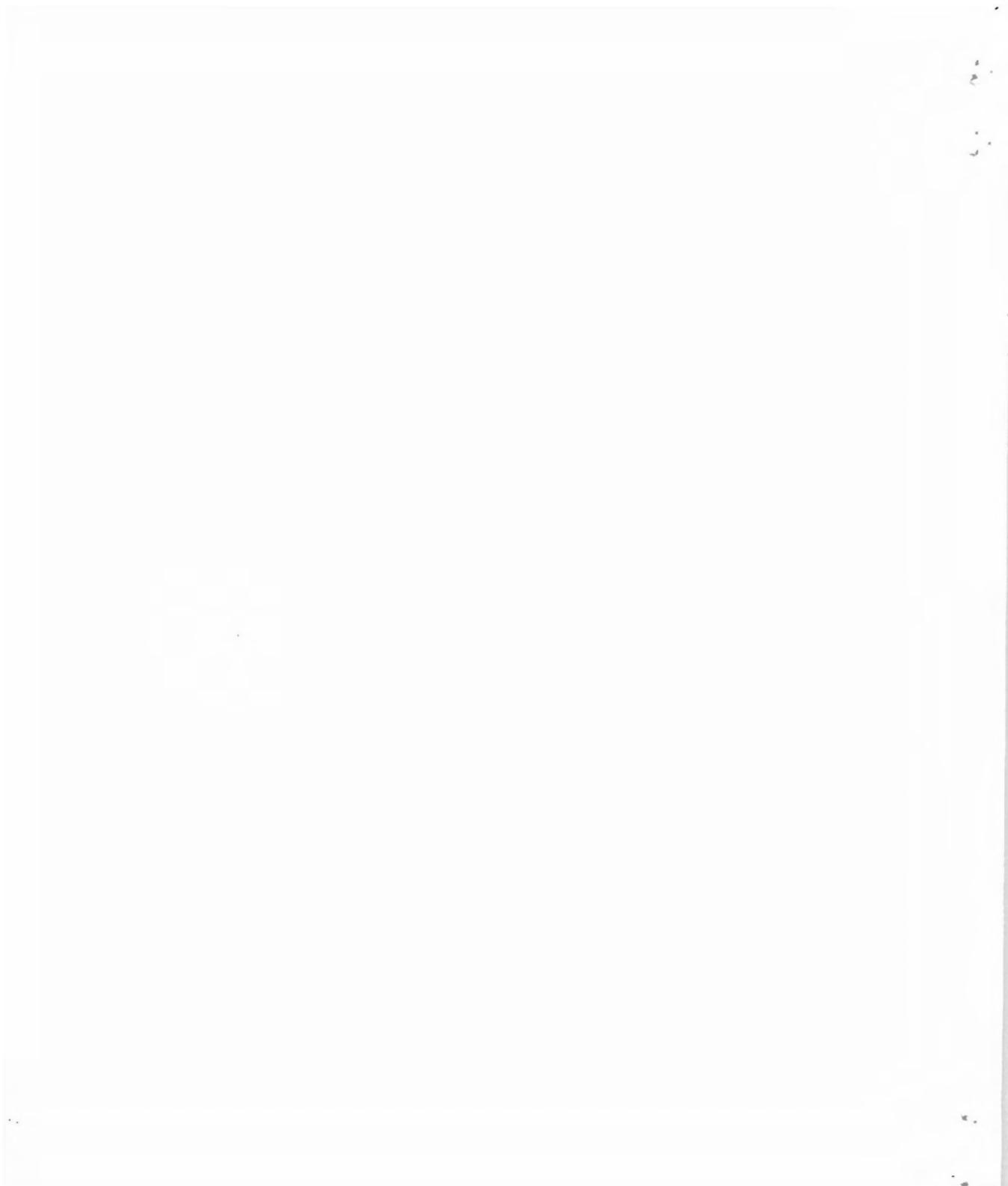
APPENDIX B

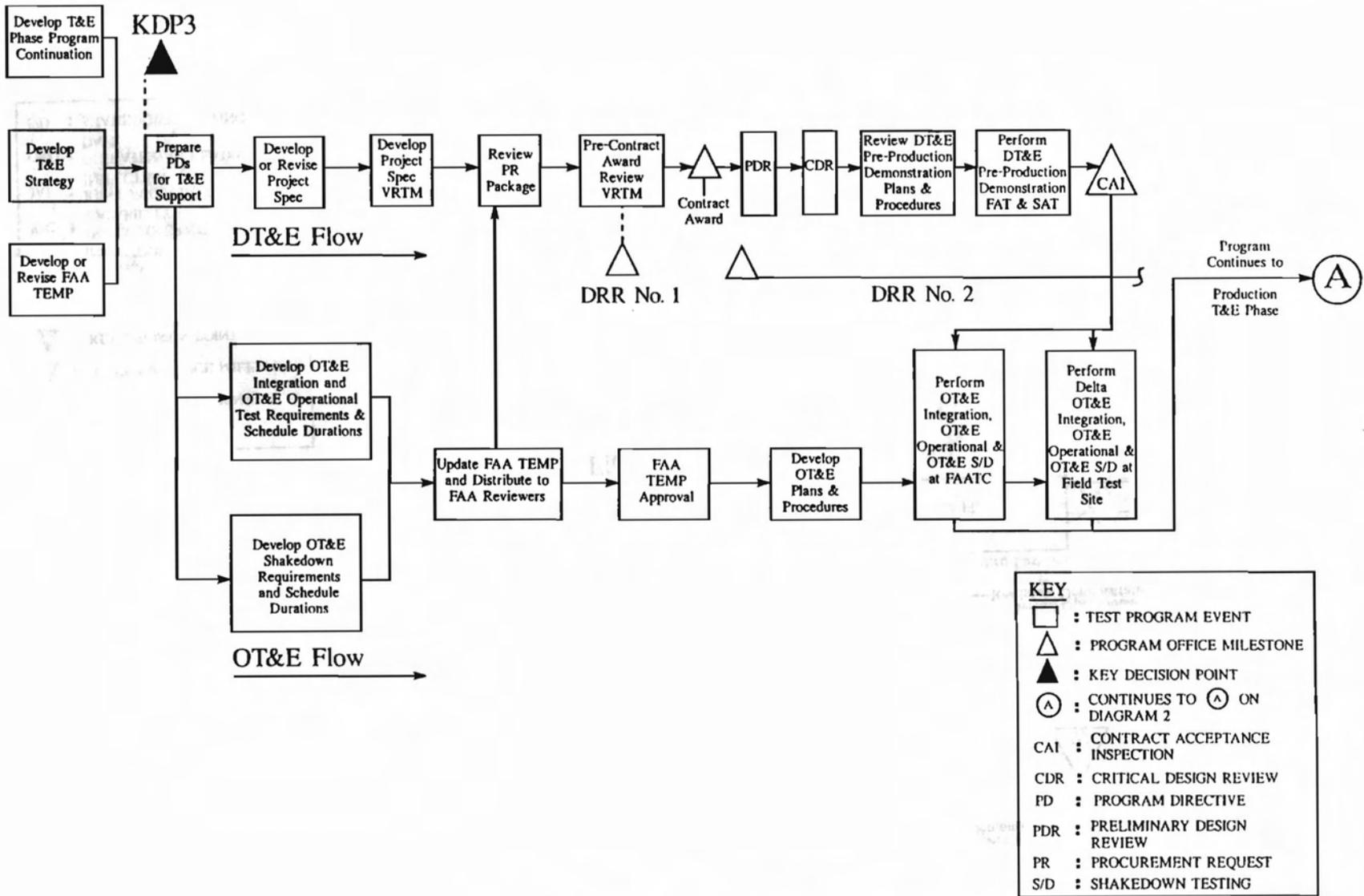
MILESTONES, TEST, AND INSTALLATION DATES

Activity	Location	Date	Working Days
KDP 1 Mission Need Approved	Washington, DC	Jul 92	.
DRAFT Specification to Industry	Washington, DC	Dec 92	.
TPRC approval of pre-KDP 2/KDP 3 TEMP	TBD	Jul 93	.
OASIS ICD Review	FAATC	Aug 93	2
KDP 2/KDP 3 Approval Request	Washington, DC	Sep 93	.
Specification Review Board (SRB)	Washington, DC	Feb 94	TBD
Procurement Readiness Review (PRR)	Washington, DC	Feb 94	TBD
Request For Proposal (RFP) release	Washington, DC	Jun 94	.
Proposals/OCDs Evaluation complete	Washington, DC	Dec 94	TBD
Source Selection	Washington, DC	May 95	TBD
Contract Award	Washington, DC	Jun 95	.
Systems Requirement Review (SRR)	TBD	Jul 95	TBD
Preliminary Design Review (PDR)	TBD	Sep 95	TBD
DT&E Test Plan complete	Contractor	Nov 95	TBD
Reliability Plan complete	Contractor	Dec 95	TBD
Maintainability Plan complete	Contractor	Dec 95	TBD
Critical Design Review (CDR)	TBD	Dec 95	TBD
DT&E Test Procedure complete	Contractor	Jan 96	TBD
OT&E Integration Test Plan complete	FAATC	Jan 96	TBD
OT&E Operational Test Plan complete	FAATC	Jan 96	TBD
OT&E Shakedown Test Plan complete	FAATC	Feb 96	TBD
OT&E Integration Test Procedures complete	FAATC	Feb 96	TBD
OT&E Operational Test Procedures complete	FAATC	Feb 96	TBD
OT&E Shakedown Procedures complete	FAATC	Mar 96	TBD
Test Readiness Review (TRR)	TBD	Mar 96	TBD
DT&E FAT (validated) : Phase 1A complete	Factory (1st OASIS)	Mar 96	15
DT&E SAT (validated) : Phase 1A complete	TBD (1st OASIS)	Mar 96	5
OT&E Integration Test: Phase 1A complete	FAATC	Apr 96	20
OT&E Operational Test: Phase 1A complete	FAATC	May 96	20
OT&E Shakedown Test : Phase 1A complete	FAATC	Jun 96	20
TPRC approval of pre-KDP 4 TEMP updates	TBD	Jun 96	.
KDP 4 Approval Request	WASHINGTON, DC	Jun 96	.
Deployment Readiness Review (DRR) EXCOM	WASHINGTON, DC	Jun 96	TBD
OASIS Phase 1A delivered to 1st Site	1st Site	Aug 96	TBD
Field Shakedown : Phase 1A start	1st Site	Aug 96	.
1st ORD Phase 1A	1st Site	Nov 96	TBD
PAT&E FAT Phase 1A (conformance) start	Factory (2nd thru Last)	TBD	.
PAT&E SAT Phase 1A start	2nd thru Last Sites	TBD	.

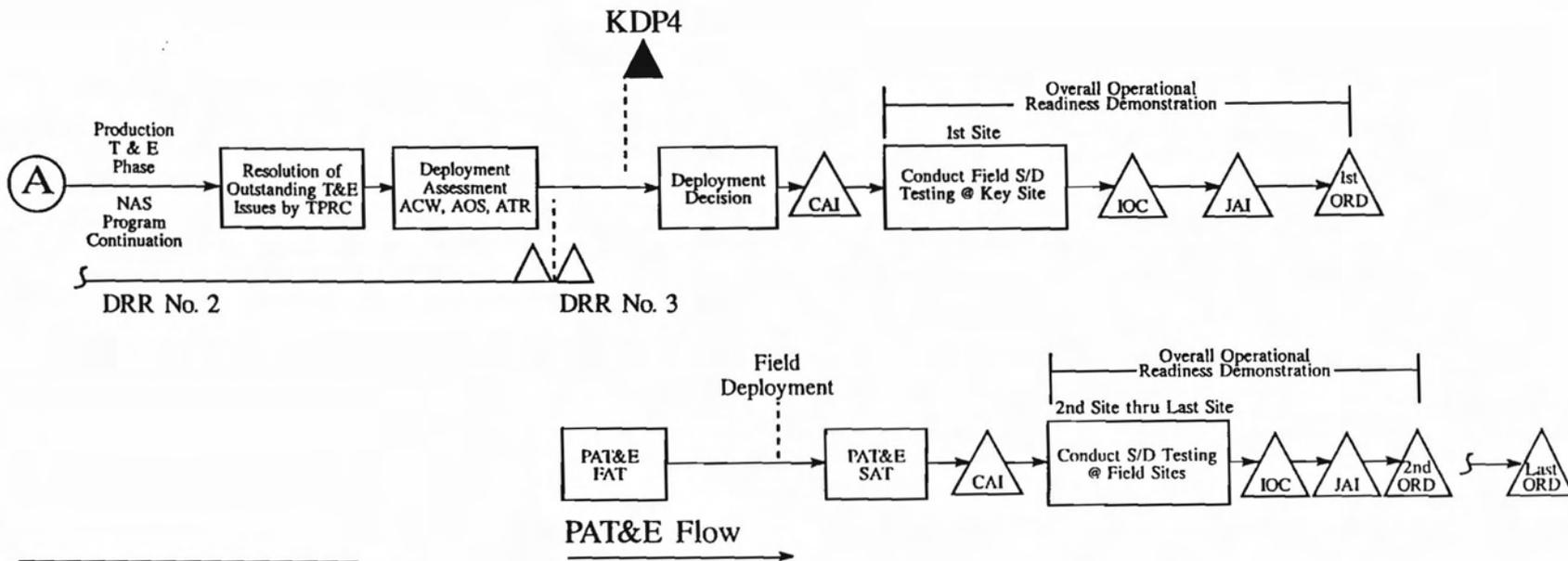
DT&E FAT follow-on	: Phase 1B complete	Factory	Mar 97	10
DT&E SAT follow-on	: Phase 1B complete	TBD (1st OASIS)	Apr 97	5
OT&E Integration follow-on:	Phase 1B complete	FAATC or 1st Site	May 97	15
OT&E Operational follow-on:	Phase 1B complete	FAATC or 1st Site	Jun 97	15
OT&E Shakedown follow-on	: Phase 1B complete	FAATC or 1st Site	Jul 97	15
OASIS Phase 1B delivered to	1st Site	1st Site	Aug 97	.
Field Shakedown	: Phase 1B start	1st Site	Aug 97	.
1st ORD Phase 1B		1st Site	Nov 97	TBD
PAT&E FAT Phase 1B (conformance) start		Factory (2nd thru Last)	TBD	.
PAT&E SAT Phase 1B start		2nd thru Last Sites	TBD	.
Data Reduction & Analysis		FAATC	TBD	.
Quick Look Test Report (OT&E Shakedown)		FAATC	TBD	5
Draft Test Report		FAATC	TBD	30

APPENDIX C
OASIS TEST FLOW





Test Program Flow Diagram 1



KEY	
□	: TEST PROGRAM EVENT
△	: PROGRAM OFFICE MILESTONE
▲	: KEY DECISION POINT
Ⓐ	: CONTINUED FROM Ⓐ ON DIAGRAM 1
CAI	: CONTRACT ACCEPTANCE INSPECTION
IOC	: INITIAL OPERATING CAPABILITY
JAI	: JOINT ACCEPTANCE INSPECTION
ORD	: OPERATIONAL READINESS DATE
S/D	: SHAKEDOWN TESTING

Test Program Flow Diagram 2

