CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. Joint Air Defense Systems Integrator (Joint ADSI), version 11.103.4.

2. PROPONENT. United States (US) Army.

3. PROGRAM MANAGER/USER POC. LTC Brian Sutton, TOCs/AMDCCS Project Office, AMDCCS Product Manager, 4920 University Square, Huntsville, AL 35816, (256) 895-5437, DSN 788-5437, e-mail bsutton@c3s.redstone.army.mil.

4. TEST ORGANIZATIONS. Table 1 lists the major test organizations that participated in the test.

Table 1. Participating Test Organizations

SERVICE/AGENCY	ORGANIZATION
Defense Information Systems Agency	Joint Interoperability Test Command (JITC)
National Security Agency	690th Computer Systems Squadron
US Air Force	Aerospace Command and Control, Intelligence, Surveillance and Reconnaissance Center (AC2ISRC)
US Air Force	Headquarters, Air Combat Command
US Army	Aviation and Missile Command (AMCOM)
US Army	Communications-Electronics Command (CECOM)
US Marine Corps	Marine Corps Tactical Systems Support Activity (MCTSSA)
US Navy	Navy Center for Tactical Systems Interoperability (NCTSI)
US Navy	Space and Naval Warfare Systems Command (SPAWAR) Systems Center (SSC)

5. SYSTEM UNDER TEST DESCRIPTION. The Joint ADSI is a command, control, communication and intelligence system for use with a wide range of military and commercial radar, tactical data link, electronic intelligence, and other interfaces. It is in use at both strategic and tactical levels as a real-time bridge between tactical data links and intelligence data sources. Joint ADSI receives, processes, correlates, forwards, and displays up to 2000 tracks from local radars, tactical data links, and intelligence sources with minimal operator interaction. Joint ADSI processes data from four different sources to provide the warfighter a fused, correlated, and cohesive tactical picture of the battlespace for mission execution.

- Tactical data links. Data can be received from up to 16 links simultaneously, selectively forwarded to/and filtered before it is transmitted on any other link.

- Radar data. Digitized plot data can be received from a wide variety of mobile and fixed ground-based radars in many different formats. Input from up to eight radars can be simultaneously supported.

- Intelligence information. Electronic intelligence data can be received in a variety of binary and character-oriented formats.

- Non-real-time information. Data from non-real-time sources such as Air Tasking Orders and Airspace Control Orders can also be assimilated with real-time data to enhance the tactical picture.

6. OPERATIONAL ARCHITECTURE. Joint ADSI operates in the Theater Air and Missile Defense (TAMD) operational architecture depicted in Figure 1 and described in the SECRET US Joint Forces Command document, "Theater Air and Missile Defense (TAMD) Capstone Requirements Document (CRD) (U)," dated March 1, 2001. TAMD provides situation awareness, enables Command and Control (C2), and facilitates battle management functions to include warning, cueing, and enabling engagements. It provides command authorities at all levels with timely and accurate data and systems to plan, monitor, direct, execute, control, and report TAMD operations.

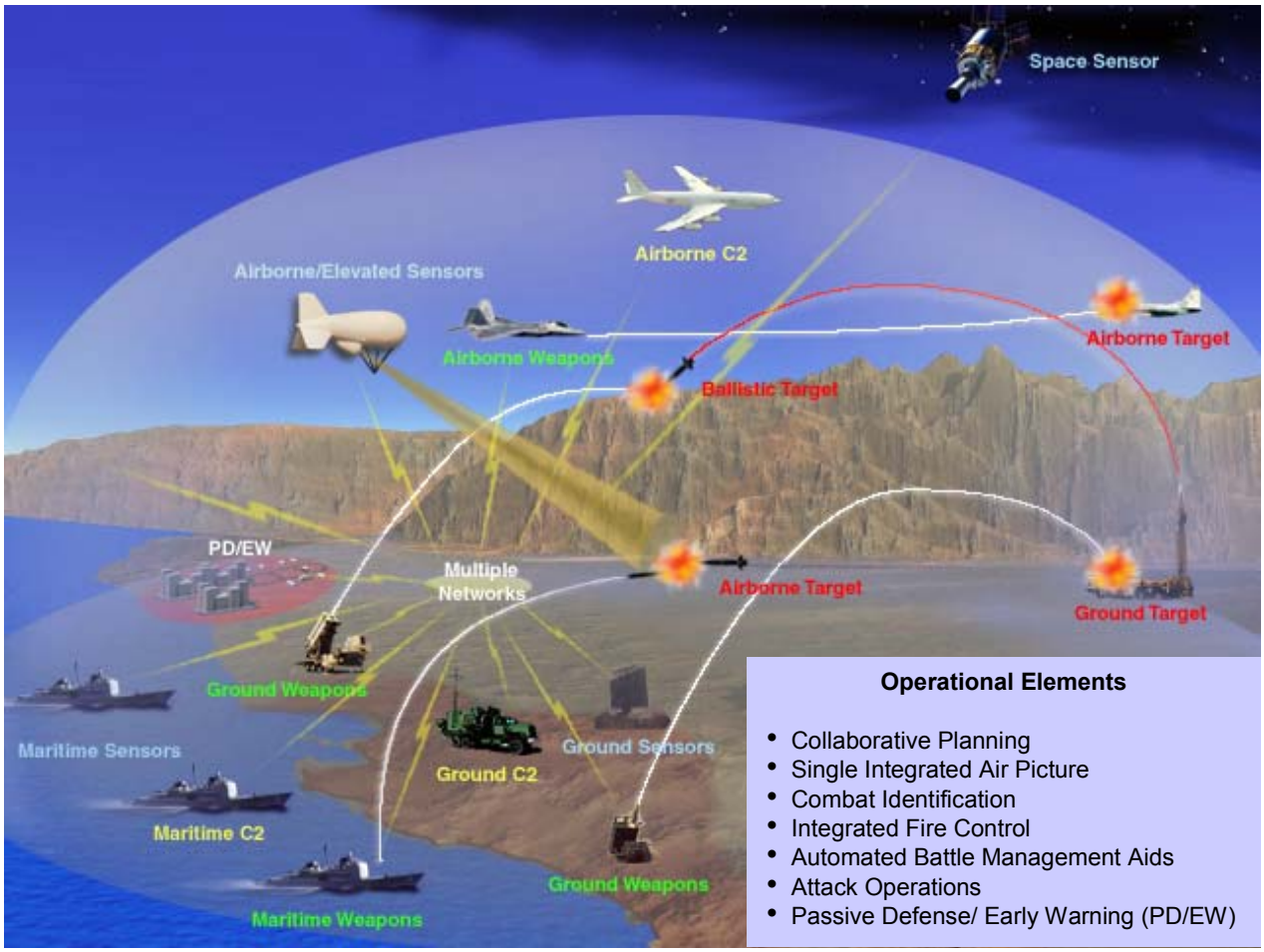
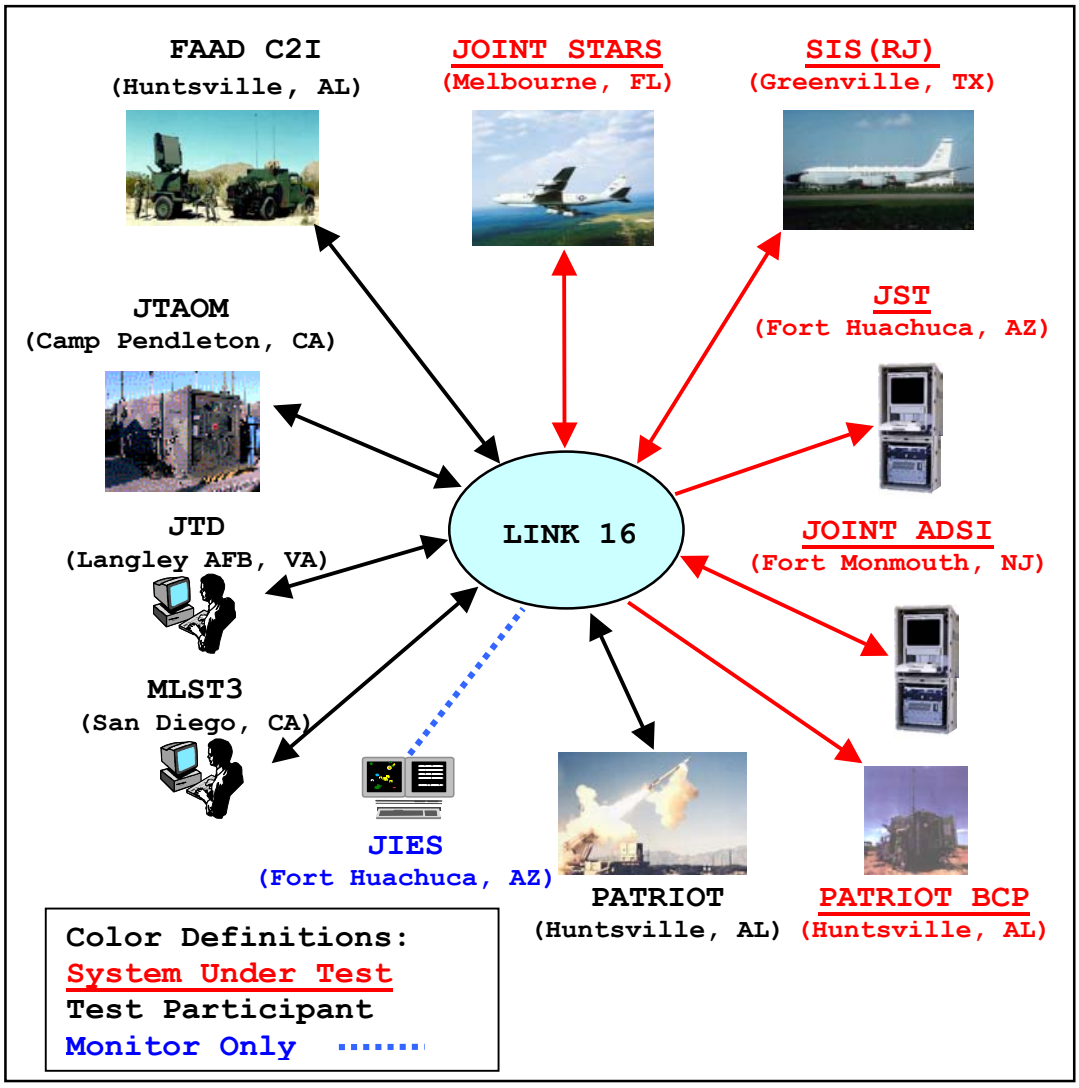


Figure 1. TAMD Operational Architecture

7. REQUIRED SYSTEM INTERFACES. JITC does not know of an approved Operational Requirements Document or other system requirements document that specifies interface requirements, interoperability Key Performance Parameters, or top-level Information Exchange Requirements. We derived the system interfaces from the user and other system documentation.

8. TEST NETWORK DESCRIPTION. JITC conducted Joint Interoperability Test (JIT) 01-04 in a distributed T-1 circuit laboratory network, replicating a network of Link 16 systems (Figure 2).



LEGEND:

AFB	Air Force Base
FAAD C2I	Forward Area Air Defense Command, Control and Intelligence
JIES	Joint Interoperability Evaluation System
JOINT ADSI	Joint Air Defense Systems Integrator
JOINT STARS	Joint Surveillance Target Attack Radar System
JST	Joint Interface Control Officer Support Tool
JTAOM	JTIDS Tactical Air Operations Module
JTD	JTIDS Test Device
JTIDS	Joint Tactical Information Distribution System
MLST3	Multi-Link System Test and Training Tool
PATRIOT	Patriot Missile System
PATRIOT BCP	Patriot Battery Command Post
SIS(RJ)	Special Information Systems (Rivet Joint)

Figure 2. Network Configuration

ENCLOSURE

9. PARTICIPATING SYSTEMS. All systems operated on a joint Link 16 network. Table 2 lists the test participants and the software versions used.

Table 2. Participating System Configurations

SERVICE/AGENCY	SYSTEM	VERSION
Defense Information Systems Agency	JIES	3.4
National Security Agency	SIS(RJ)	SS589-0914-12(6CP)
US Air Force	JOINT STARS	91W-USY2/E8C-F005-00A/D REV 000
US Air Force	JTD	2.1.3
US Army	JOINT ADSI	11.103.4
US Army	FAAD C2I	5.0.2
US Army	PATRIOT	PDB-5
US Army	PATRIOT BCP	5.0.2
US Joint Forces Command	JST	11.103.4
US Marine Corps	JTAOM	107.18.1P1
US Navy	MLST3	01.07.01.00

Legend:

FAAD C2I	Forward Area Air Defense Command, Control and Intelligence
JIES	Joint Interoperability Evaluation System
JOINT ADSI	Joint Air Defense Systems Integrator
JOINT STARS	Joint Surveillance Target Attack Radar System
JST	Joint Interface Control Officer Support Tool
JTAOM	JTIDS Tactical Air Operations Module
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10. TESTING LIMITATIONS. JIT 01-04 did not test all system interface capabilities. System interoperability should be verified before deployment in an operational environment that varies significantly from the test environment.

a. JIT 01-04 employed a combination of simulators and the actual Command and Control (C2) hardware and software elements to be fielded but did not employ Joint Tactical Information Distribution System/Multifunctional Information Distribution System (JTIDS/MIDS) terminals. JIT 01-04 used Space and Naval Warfare Systems Command Gateway Terminal Emulator systems in

lieu of JTIDS/MIDS terminals to facilitate Link 16 transmissions over standard communications circuits without the use of tactical radios. Simulators transmitted or received data when the Link 16 implementation of other test participants did not support the events to adequately test the systems under test (SUTs).

b. In addition, the testbed did not support sensor stimulation for all test participants; therefore, JIT 01-04 did not test MIL-STD compliance of requirements predicated by a common tactical picture, to include track correlation and sensor registration. These capabilities remain untested.

c. Finally, JIT 01-04 did not include communications loads and scenario densities that may occur in a stressed tactical environment. JIT 01-04 test scenarios used loads of less than 12 static tracks per event to support real-time message analysis.

11. ASSESSMENT RESULTS

a. Interface Results. Joint ADSI, version 11.103.4, meets some of its interoperability requirements for Link 16 and is certified as interoperable for joint use. The Link 16 interfaces tested used the system's implemented Link 16 messages as provided by the Joint ADSI Working Group and defined in the Tactical Digital Information Link (TADIL) J Message Standard (Military Standard (MIL-STD) 6016A). The messages implemented by Joint ADSI represent a subset of all Link 16 messages that satisfy its system-unique information exchange requirements and the minimum data exchange requirements identified in MIL-STD-6016A. Testing identified one interoperability problem as having a critical operational impact for which there is no alternative workaround. However, the JITC has assigned a risk assessment of low to this problem due to the extreme unlikely probability of occurrence in today's theater of operations. Joint ADSI will require a new risk assessment if its operational employment changes. The testing also identified some interoperability problems as having moderate operational impact, however operational workarounds are in place to minimize impact to the joint arena. See reference (c) for more details.

b. System Results. The overall Joint ADSI system, version 11.103.4, is not certified because of untested joint interfaces. Table 3 provides a summary of the interface certification status for Joint ADSI interface requirements tested to date.

Table 3. Joint ADSI Interoperability Status

INTERFACE	SYSTEM VERSION	TEST / CERT DATE	STATUS	REMARKS
ATDL-1	11.103.4		**Not Tested**	Future testing TBD.
FDL	11.103.4		**Not Tested**	Future testing TBD.
IDL	11.103.4		**Not Tested**	Future testing TBD.
Serial Link 11 Transmit to Joint GCCS	11.103.4	JIT 01-03 / Jul 2001	**Certified**	No deficiencies.
Link 11 to Serial Link 11 Forwarding to Joint GCCS	11.103.4	JIT 01-03 / Jul 2001	**Certified**	No deficiencies.
JST	11.103.4	JIT 01-04 / Aug 2001	**Verified**	One deficiency with moderate operational impact. Further discussions are in reference (c).
Link 11	11.103.4	JIT 01-03 / Jul 2001	**Certified**	Some deficiencies with moderate operational impact.
Link 11B	11.103.4	JIT 01-03 / Jul 2001	**Certified**	Some deficiencies with moderate operational impact.
Link 11/11B Forwarding	11.103.4	JIT 01-03 / Jul 2001	**Certified**	Two deficiencies with critical operational impact. Further discussions are in reference (c).
Link 11/16 Forwarding	11.103.4		**Not Tested**	Future testing TBD.
Link 16	11.103.4	JIT 01-04 / Aug 2001	**Certified**	Some deficiencies with critical or moderate operational impact. Further discussions are in reference (c).
Serial Link 16	11.103.4		**Not Tested**	Future testing TBD.
Satellite TADIL J	11.103.4		**Not Tested**	Future testing TBD.
NATO Link 1	11.103.4		**Not Tested**	Future testing TBD.
OTH-GOLD	11.103.4		**Not Tested**	Future testing TBD.
TIBS	11.103.4		**Not Tested**	Future testing TBD.
USMTF	11.103.4		**Not Tested**	Future testing TBD.

Legend:

ATDL-1	Army Tactical Data Link 1
FDL	Forward Area Air Defense (FAAD) Data Link
IDL	International Data Link
JST	Joint Interface Control Officer Support Tool
NATO	North Atlantic Treaty Organization
OTH-GOLD	Over the Horizon – GOLD
TADIL	Tactical Digital Information Link
TBD	To Be Determined
TIBS	Tactical Information Broadcast System
USMTF	United States Message Text Formatting

12. TEST AND ANALYSIS REPORT. Detailed results are documented in the CONFIDENTIAL JITC report, "Joint Interoperability Test 01-04 Report (U)," dated August 10, 2001. The classified JITC Tactical Data Link Forums Web site contains all JIT reports. The Joint Information Engineering Organization (JIEO) controls access to the Forums Web site. The JIEO point of contact is Mr. Howard Campbell, DSN 653-3524 or commercial (703) 735-3524.