



DEFENSE INFORMATION SYSTEMS AGENCY

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IN REPLY
REFER TO: Joint Interoperability Test Command (JTE)

20 Aug 08

MEMORANDUM FOR DISTRIBUTION

Subject: Special Interoperability Test Certification of the Amcom Software Inc., Computer Telephony Integration (CTI) Cisco Smart Console Workstation Release 4.0.6 with the Cisco Catalyst 2960 software version 12.2 (25)

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," 8 March 2006
(c) through (e), see enclosure 1

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Amcom Software Inc., CTI Cisco Smart Console Workstation Release 4.0.6 with the Cisco Catalyst 2960 software version 12.2 (25) is hereinafter referred to as the System Under Test (SUT). The SUT is certified for use with the Cisco CallManager (CCM) using the Cisco Internet Protocol Contact Center (IPCC). The SUT met the interface and functional requirements for an Automated Call Distributor (ACD) and is certified for joint use within the Defense Switched Network (DSN). The CTI Cisco Smart Console Workstation requires the Cisco Catalyst 2960 to meet the Service Class Tagging requirements. The SUT is certified for use specifically with the CCM using the Cisco IPCC releases listed on the DSN Approved Products List (APL). The SUT met the critical requirements for an ACD set forth in reference (c) using test procedures derived from reference (d). The SUT is certified to support DSN Assured Services over Internet Protocol with any Assured Services Local Area Network (ASLAN) on the DSN APL. The SUT is also certified for joint use with any non-ASLAN on the DSN APL. However, since non-ASLANs do not support the Assured Services Requirements detailed in reference (c), Command and Control (C2) users and Special C2 users are not authorized to be served by the SUT connected to a non-ASLAN. No other configurations, features, or functions, except those cited within this report, are certified by the JITC, or authorized by the Program Management Office for use within the DSN. This certification expires upon changes that affect interoperability, but no later than three years from the date of this memorandum.

3. This certification is based on interoperability testing and review of vendor's Letters of Compliance (LoC). Interoperability testing was conducted by JITC at the Global Information

Grid Network Test Facility, Fort Huachuca, Arizona, from 26 March through 22 April 2007. Review of the vendor's LoC was conducted on 8 May 2007. Testing was conducted in an environment that emulates the DSN. This certification was on hold pending Information Assurance testing, which is published in a separate report. The SUT was tested with the requirements set forth in reference (c). The SUT test results were reviewed to ensure they met the requirements set forth in reference (e). This review was completed on 19 August 2008. Enclosure 2 documents the test results and describes the test configuration.

4. The Functional Requirements used to evaluate the interoperability of the SUT and the interoperability statuses are indicated in table 1.

Table 1. SUT Functional Requirements and Interoperability Status

Interfaces	Critical	Certified	Functional Requirements	Status	UCR Paragraph
IP 100BaseT (IEEE 802.3-2005)	No ¹	Yes	Service Class Tagging (R)	Met ²	A3.2.9.2
			IEEE 802.3 (C)	Met	A7.5
			DISR compliance as applicable (R)	Met	A7.5
			ROUTINE precedence only in accordance with UCR, Section 3.3 (R)	Met	A7.5
			Security (R)	See note 3.	A7.6.5
LEGEND: 2W - 2-Wire 4W - 4-Wire 100BaseT - 100 Mbps (Baseband Operation, Twisted Pair) Ethernet 802.3-2005 - Local Area Network/metropolitan Area Network Carrier Sense Multiple Access/Collision Detection Access Method A - Appendix ACD - Automated Call Distributor BRI - Basic Rate Interface C - Conditional CoS - Class of Service DISA - Defense Information Systems Agency DISR - Department of Defense Information Technology Standards Registry IEEE - Institute of Electrical and Electronics Engineers IP - Internet Protocol ISDN - Integrated Services Digital Network Mbps - Megabits per second PCM-24 - Pulse Code Modulation - 24 Channels PCM-30 - Pulse Code Modulation - 30 Channels R - Required SUT - System Under Test UCR - Unified Capabilities Requirements					
NOTES: 1 The ACD requirements can be met with one of the following interfaces: IP, 2W Analog, 2W or 4W Digital Proprietary, ISDN BRI, PCM-24, or PCM-30. 2 The CoS and prioritization requirements were met by including a Cisco 2960 layer 2 switch as part of the SUT. 3 Security is tested by DISA-led Information Assurance test teams and published in a separate report.					

5. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/.gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>.

JITC Memo, JTE, Special Interoperability Test Certification of the Amcom Software Inc., Computer Telephony Integration (CTI) Cisco Smart Console Workstation Release 4.0.6 with the Cisco Catalyst 2960 software version 12.2 (25)

6. The JITC point of contact is Mr. Steven Lesneski, DSN 879-5400, commercial (520) 538-5400, FAX DSN 879-4347, or e-mail to steven.lesneski@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0801006.

FOR THE COMMANDER:



RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

2 Enclosures a/s

Distribution (electronic mail):

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U.S. Joint Forces Command, Net-Centric Integration, Communication, and Capabilities Division, J68

Defense Information Systems Agency, GS23

ADDITIONAL REFERENCES

- (c) Defense Information Systems Agency, "Department of Defense Voice Networks Generic Switching Center Requirements (GSCR), Errata Change 2," 14 December 2006
- (d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
- (e) Defense Information Systems Agency, "Department of Defense Networks Unified Capabilities Requirements," 21 December 2007

CERTIFICATION TESTING SUMMARY

- 1. SYSTEM TITLE.** The Amcom Software Inc., Computer Telephony Integration (CTI) Cisco Smart Console Workstation Release 4.0.6 with the Cisco Catalyst 2960 software version 12.2 (25), is hereinafter referred to as the System Under Test (SUT).
- 2. PROPONENT.** White House Communications Agency (WHCA).
- 3. PROGRAM MANAGER.** Lt Col Alain Jones, 2743 Defense Blvd., Anacostia Annex, DC 20373, e-mail: ALJones@whmo.mil.
- 4. TESTER.** Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.
- 5. SYSTEM UNDER TEST DESCRIPTION.** Amcom Smart Console Workstations automate operator tasks and integrate caller and directory information in one robust Personal Computer (PC)-based application, enabling the call center to answer more calls in less time while reducing costs, staffing burdens, data entry requirements and operator fatigue. The SUT provides Automated Call Distributor (ACD) operations for the Cisco CallManager (CCM) with the Cisco Internet Protocol Contact Center (IPCC) through screen-based interactive functions including automatic screen displays of incoming calls, single button call transfers, conferencing, speed dialing and other telephony functions. The SUT utilizes the Cisco Telephony Application Programming Interface (TAPI) Service Provider to enable the interactive functionality between the SUT and the CCM. The Windows-based application provides access to database information, messaging and staff tracking options. The SUT provides real-time call center activity monitoring and reporting procedures including call processing statistics, messaging and paging activity. Reports may be generated for a particular day, operator, or time period. The CTI Cisco Smart Console Workstation requires the Cisco Catalyst 2960 to meet the Class of Service (CoS) and prioritization requirements. The Catalyst 2960 is a Layer 2 (L2) access switch that provides high availability, security, and Quality of Service (QoS) to meet the operational requirements of the network. Security access control lists can be implemented, as well as QoS, rate-limiting, multicast management, and IP routing. The Cisco Catalyst 2960 provides 48 10/100 Megabits per second (Mbps) copper ports and two 1-gigabit uplink ports.
- 6. OPERATIONAL ARCHITECTURE.** The Unified Capabilities Requirements (UCR) Defense Switched Network (DSN) architecture in figure 2-1 depicts the relationship of the SUT to the DSN switches.

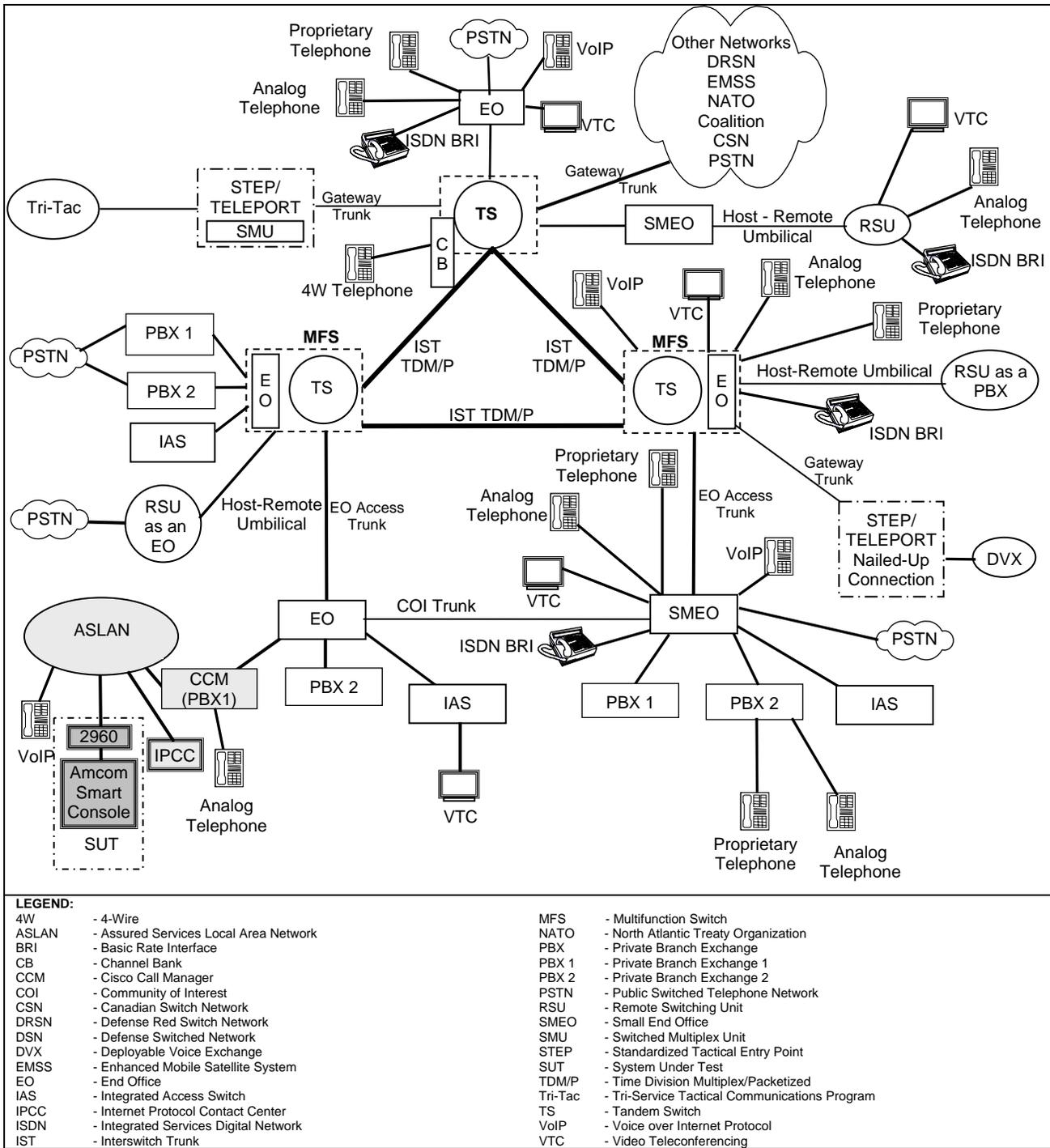


Figure 2-1. DSN Architecture

7. REQUIRED SYSTEM INTERFACES. Requirements specific to the SUT and interoperability results are listed in table 2-1. These requirements are derived from the UCR Interface and Functional Requirements (FRs) and verified through JITC testing and review of vendor Letters of Compliance.

Table 2-1. SUT Functional Requirements and Interoperability Status

Interfaces	Critical	Certified	Functional Requirements	Status	UCR Paragraph
IP 100BaseT (IEEE 802.3-2005)	No ¹	Yes	Service Class Tagging (R)	Met ²	A3.2.9.2
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LEGEND: 2W - 2-Wire 4W - 4-Wire 100BaseT - 100 Mbps (Baseband Operation, Twisted Pair) Ethernet 802.3-2005 - Local Area Network/metropolitan Area Network Carrier Sense Multiple Access/Collision Detection Access Method A - Appendix ACD - Automated Call Distributor BRI - Basic Rate Interface C - Conditional CoS - Class of Service DISA - Defense Information Systems Agency DISR - Department of Defense Information Technology Standards Registry IEEE - Institute of Electrical and Electronics Engineers IP - Internet Protocol ISDN - Integrated Services Digital Network Mbps - Megabits per second PCM-24 - Pulse Code Modulation - 24 Channels PCM-30 - Pulse Code Modulation - 30 Channels R - Required SUT - System Under Test UCR - Unified Capabilities Requirements					
NOTES: 1 The ACD requirements can be met with one of the following interfaces: IP, 2W Analog, 2W or 4W Digital Proprietary, ISDN BRI, PCM-24, or PCM-30. 2 The CoS and prioritization requirements were met by including a Cisco 2960 layer 2 switch as part of the SUT. 3 Security is tested by DISA-led Information Assurance test teams and published in a separate report.					

8. TEST NETWORK DESCRIPTION. The SUT was tested at JITC’s Global Information Grid Network Test Facility in a manner and configuration similar to that of the DSN operational environment. Testing the system’s required functions and features was conducted using the test configuration depicted in figure 2-2.

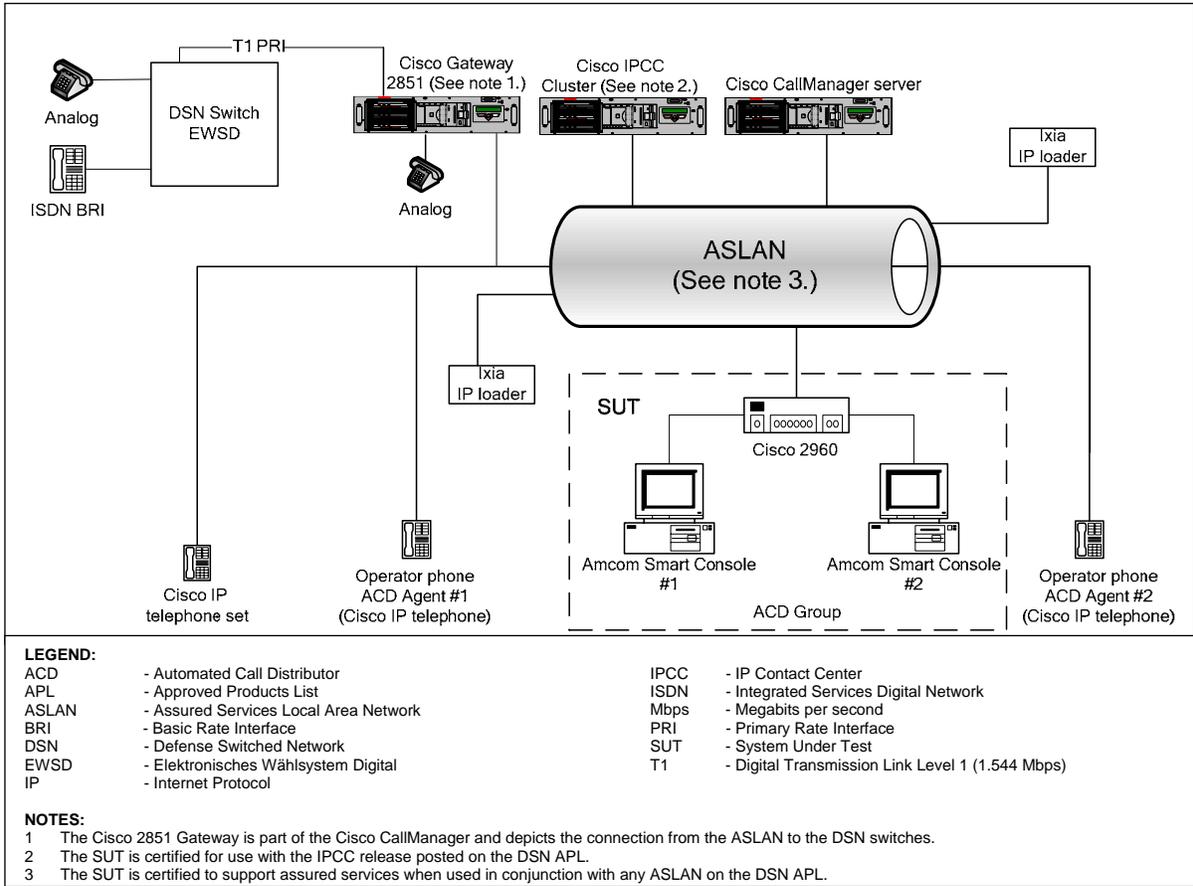


Figure 2-2. Test Configuration

9. TESTED SYSTEM CONFIGURATION. Table 2-2 provides the system configurations, hardware, and software components tested with the SUT. The SUT was tested in an operationally realistic environment to determine interoperability with a complement of DSN switches noted in table 2-2. Table 2-2 lists the DSN switches which depict the tested configuration and is not intended to identify the only switches that are certified with the SUT. The SUT is certified for use specifically with the CCM using the Cisco IPCC releases listed on the DSN Approved Products List (APL).

Table 2-2. Tested System Configurations

System Name		Software Release	
EWSD		19d with Patch Set 46	
Cisco CallManager		4.2(3) Service Release 1 IOS 12.4(9)T1	
Cisco IPCC (See note 1.)		Load 7.0, Service Release 1, Build 14833	
Cisco ASLAN (See note 2.)	Cisco 6509 Cisco 4507R Catalyst 3750 Catalyst 3560-PoE 24 ONS 15454 Catalyst 2940 Catalyst 2950 Catalyst 2960	Native IOS 12.2 (18) SXF3	
		IOS 12.2 (31) SG	
		12.2 (25) SEE	
		12.2 (25) SEE	
		7.0	
		12.1 (22) EA7	
		12.1 (22) EA7	
		12.2 (25) SEE	
Cisco VoIP Phones	CP-7940G CP-7970G CP-7971G-GE	P00308000400	
		SCCP70.8-0-4SR1S	
		SCCP70.8-0-4SR1S	
SUT Release 4.0.6		Hardware/	SUT Software
		Hewlett-Packard Compaq PC: Pentium 4 Processor 2.66 Gigahertz, 256 Megabytes RAM, MS Windows XP-PRO with SP 2	Amcom Software Smart Console Product Version 4.0.0.0, File Number 4.0.5.8 Amcom Software Phone Server Product Version 4.0.6.10, File Number 4.1.8.7 Cisco TAPI Service Provider (TSP), Product Version 4.2(0.5) File Version 4.2.0.5
		Cisco Catalyst 2960	12.2 (25) SEE
LEGEND: APL - Approved Products List ASLAN - Assured Services Local Area Network CP - Cisco Phone EWSD - Elektronisches Wählsystem Digital G - 10/100BaseT Ethernet GE - Gigabit Ethernet IOS - Internetworking Operating System IPCC - Internet Protocol Contact Center MS - Microsoft ONS - Optical Network System PC - Personal Computer PRO - Professional RAM - Random Access Memory PoE - Power over Ethernet SCCP - Skinny Client Control Protocol SP - Service Pack SUT - System under Test TAPI - Telephony Application Programming Interface VoIP - Voice over Internet Protocol			
NOTES: 1 JITC determined a minor risk with certifying the SUT with all of the Cisco IPCC releases currently on the DSN APL. 2 The SUT is certified to support Assured Services when used in conjunction with any ASLAN found on the DSN APL.			

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion.

(1) The SUT was tested by placing ROUTINE precedence calls over the test configuration as shown in figure 2-2. Calls were placed both ways to insure call routing and connection. All calls placed to the SUT received the proper ringing cadence and connection. All calls originated from the SUT routed correctly via the simulated DSN. Testing also verified that SUT-established calls preempted within the DSN received the proper release supervision. In accordance with the UCR, appendix 7, ACD interfaces do not have to support Multi-Level Precedence and Preemption. Therefore, the serving DSN switching system is required to route only ROUTINE calls to ACD systems such as the SUT.

(2) The UCR, appendix 3, section A3.2.9.2, states that Differentiated Services Code Point (DSCP) is required at the Network Layer (L3) and 802.1Q CoS at the Data Link Layer (L2) is conditional. The SUT meets the UCR requirement for QoS by assigning both an L2 802.1Q priority tag and a DSCP L3 value using the Cisco Catalyst 2960 access switch. In addition, the Cisco Catalyst 2960 switch provided separate Virtual Local Area Networks (VLANs) for voice media and signaling in one VLAN and Data traffic in another VLAN. Voice and Signaling VLAN traffic was assigned to a high priority queue, ensuring voice traffic took precedence over data traffic as required by the UCR. The Ixia IP loader equipment was used to load the Assured Services Local Area Network (ASLAN) with data 1.2 times the total link aggregate and proved that prioritization was met with no degradation in voice quality.

b. Test Summary. The SUT met the interface and functional requirements and is certified for joint use within the DSN. The SUT met the interface and functional requirements for an ACD system as set forth in reference (c). The SUT is certified for use specifically with the CCM using the Cisco IPCC releases listed on the DSN Approved Products List (APL). The SUT is certified to support DSN Assured Services over Internet Protocol with any ASLAN on the DSN APL. The SUT is also certified for joint use with any non-ASLAN on the DSN APL. However, since non-ASLANs do not support the Assured Services Requirements detailed in reference (c), Command and Control (C2) users and Special C2 users are not authorized to be served by the SUT connected to a non-ASLAN.

12. TEST AND ANALYSIS REPORT. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>.