



DEFENSE INFORMATION SYSTEMS AGENCY

P. O. BOX 549
FORT MEADE, MARYLAND 20755-0549

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

5 Jan 11

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 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01E, "Interoperability and Supportability of Information Technology and National Security Systems," 15 December 2008
(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 Information System Network (DISN). The CTI Cisco Smart Console Workstation requires the Cisco Catalyst 2960 to meet the Class of Service and prioritization requirements. The SUT is certified for use specifically with the CCM using the Cisco IPCC releases listed on the Unified Capabilities (UC) 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 Defense Switched Network (DSN) Assured Services over IP with any Assured Services Local Area Network (ASLAN) or ASLAN component on the UC APL. The SUT is also certified for joint use with any non-ASLAN on the UC APL. Non-ASLANs are "commercial grade" and provide support to Command and Control (C2) (ROUTINE only calls) (C2(R)) or non-C2 voice subscribers. When deployed in a non-ASLAN the SUT may also be used to receive all levels of precedence, but are limited to originating ROUTINE precedence only. Non-ASLANs do not need to meet the availability or redundancy requirements of the C2 or Special C2 users; therefore, C2 users and Special C2 users are not authorized as subscribers on a non-ASLAN. No other configurations, features, or functions, except those cited within this report, are certified by the JITC. This certification expires upon changes that affect

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interoperability, but no later than three years from the date of Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation.

3. This certification is based on interoperability testing conducted by JITC, review of the vendor’s Letters of Compliance (LoC), and DSAWG accreditation. 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 vendor’s LoC was completed on 8 May 2007. The SUT supports the same software, interfaces, and functionality as when it was previously tested. The only difference is that the SUT now supports either Microsoft XP or Microsoft Windows Vista operating system platform. A review of the SUT and comparison with the new requirements in Reference (c) was conducted on 19 March 2010 to determine the SUT was certified for interoperability within the DISN without additional interoperability testing. The DSAWG granted accreditation on 5 January 2011 based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (e). The Certification Testing Summary (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

Interface	Critical	Certified	Functional Requirements	Status	UCR Paragraph
IP 100BaseT (IEEE 802.3u)	No ¹	Yes	Precedence Call Diversion for above ROUTINE calls only (R)	Met	5.2.2.3
			VoIP System Service Class Tagging Requirements (R)	Met ²	5.2.12.8.2.9
			IEEE 802.3u (C)	Met	5.2.12.3.5
			Security (R)	See note 3.	3.2.3, 3.2.5, and 5.4.6.1

NOTES:

- 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.
- The CoS and prioritization requirements were met by including a Cisco 2960 layer 2 switch as part of the SUT.
- Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).

LEGEND:

2W	2-Wire	IEEE	Institute of Electrical and Electronics Engineers
4W	4-Wire	IP	Internet Protocol
100BaseT 802.3u	100 Mbps (Baseband Operation, Twisted Pair) Ethernet Standard for carrier sense multiple access with collision detection at 100 Mbps	ISDN	Integrated Services Digital Network
ACD	Automated Call Distributor	Mbps	Megabits per second
BRI	Basic Rate Interface	PCM-24	Pulse Code Modulation - 24 Channels
C	Conditional	PCM-30	Pulse Code Modulation - 30 Channels
CoS	Class of Service	R	Required
DISA	Defense Information Systems Agency	SUT	System Under Test
		UCR	Unified Capabilities Requirements
		VoIP	Voice over Internet Protocol

5. 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

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<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>. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: ucco@disa.mil.

6. The JITC point of contact is Mr. Cary Hogan, DSN 879-2589, commercial (520) 538-2589, FAX DSN 879-4347, or e-mail to cary.hogan@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0934903.

FOR THE COMMANDER:

2 Enclosures a/s


for RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

Distribution (electronic mail):

Joint Staff J-6

Joint Interoperability Test Command, Liaison, TE3/JT1

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Department of the Army, Office of the Secretary of the Army, DA-OSA CIO/G-6 ASA (ALT), SAIS-IOQ

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DOT&E, Net-Centric Systems and Naval Warfare

U.S. Coast Guard, CG-64

Defense Intelligence Agency

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

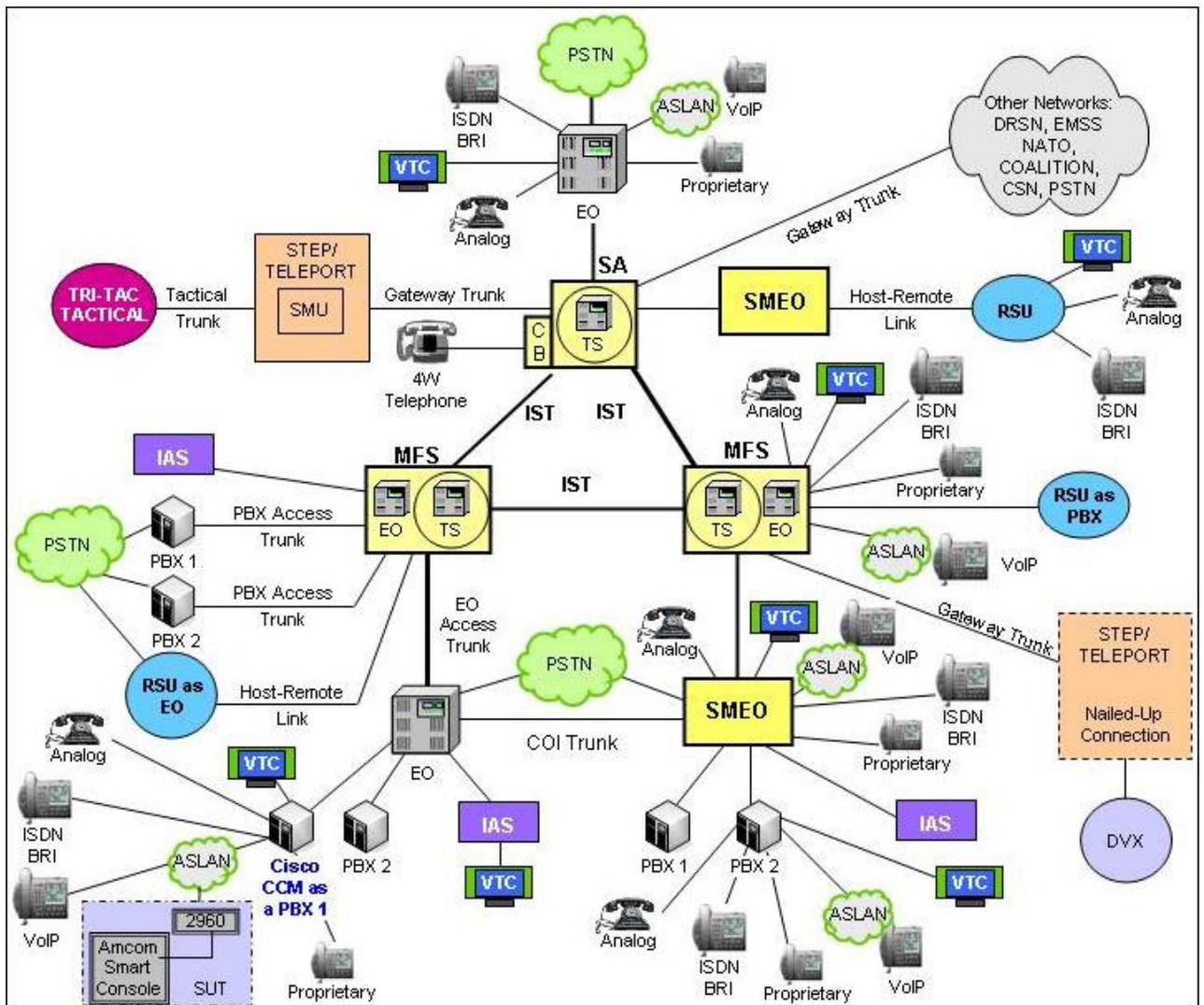
Defense Information Systems Agency, GS23

ADDITIONAL REFERENCES

- (c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008," 22 January 2009
- (d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
- (e) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of 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) (Tracking Number 0934903)," 5 January 2011

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.** Headquarters United States Army Information Systems Engineering Command (HQ USAISEC).
- 3. PROGRAM MANAGER.** Mr. Steve Austin, AMSEL-IE-IS, Building 53301, Fort Huachuca, Arizona, 85613-5300, e-mail: steven.austin@us.army.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.



NOTE: The SUT is certified with all versions of the Cisco CallManager (CCM) using the Cisco Internet Protocol contact Center (IPCC) releases listed on the Unified Capabilities (UC) Approved Products List (APL) listed on the Unified Capabilities (UC) Approved Products List (APL).

LEGEND:

- | | | | |
|-------|-------------------------------------|---------|---|
| 4W | 4-Wire | NATO | North Atlantic Treaty Organization |
| ASLAN | Assured Services Local Area Network | PBX | Private Branch Exchange |
| BRI | Basic Rate Interface | PBX 1 | Private Branch Exchange 1 |
| CB | Channel Bank | PBX 2 | Private Branch Exchange 2 |
| CCM | Cisco CallManager | PSTN | Public Switched Telephone Network |
| COI | Community of Interest | RSU | Remote Switching Unit |
| CSN | Canadian Switch Network | SA | Standalone |
| DRSN | Defense Red Switch Network | SMEO | Small End Office |
| DSN | Defense Switched Network | SMU | Switched Multiplex Unit |
| DVX | Deployable Voice Exchange | STEP | Standardized Tactical Entry Point |
| EMSS | Enhanced Mobile Satellite System | SUT | System Under Test |
| EO | End Office | Tri-Tac | Tri-Service Tactical Communications Program |
| IAS | Integrated Access Switch | TS | Tandem Switch |
| ISDN | Integrated Services Digital Network | VoIP | Voice over Internet Protocol |
| IST | Interswitch Trunk | VTC | Video Teleconferencing |
| MFS | Multifunction Switch | | |

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.

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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.

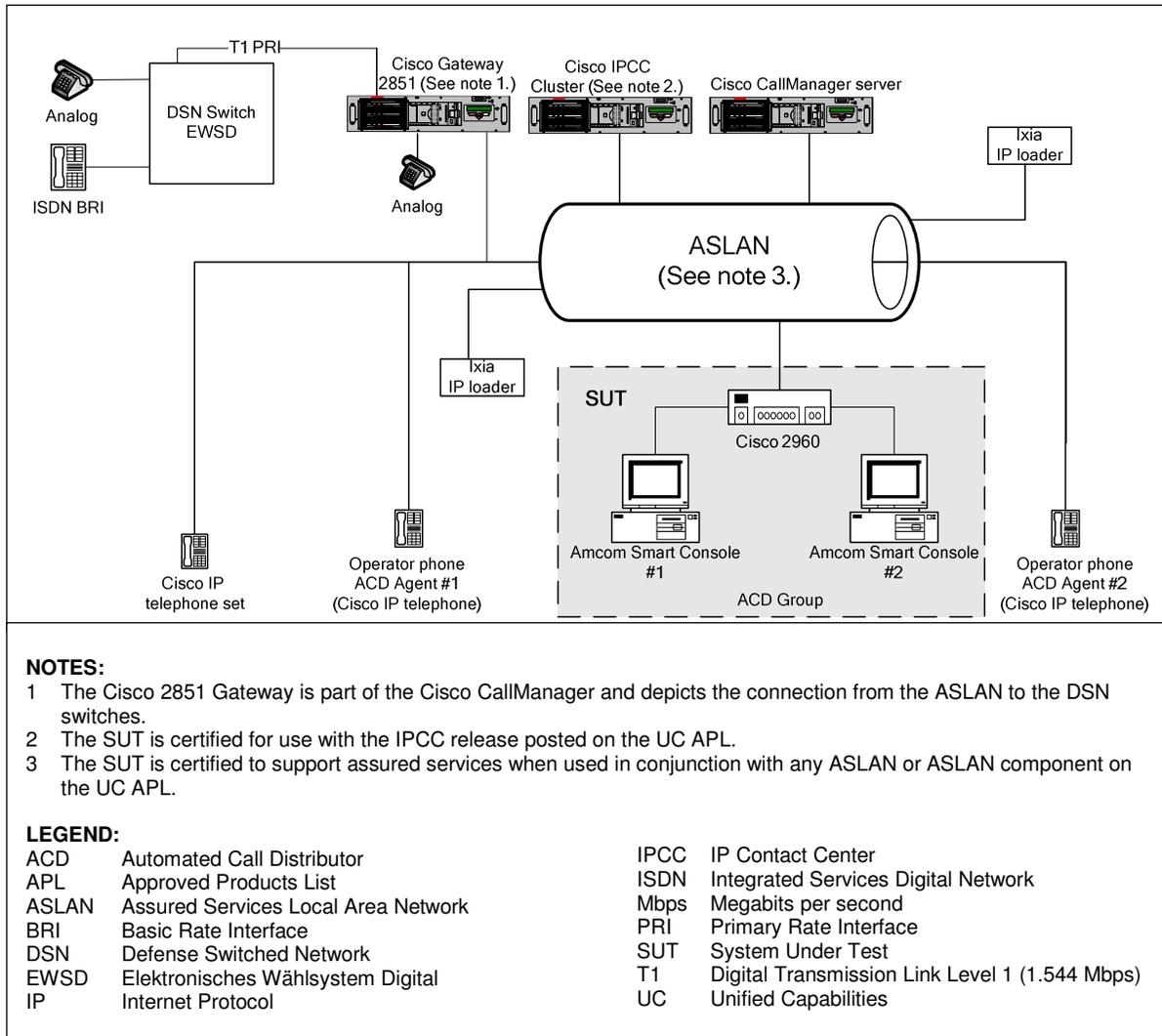


Figure 2-2. Test Configuration

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. The DSN switches listed in Table 2-2 only depict the tested configuration. Table 2-2 is not intended to identify the only switch software releases that are certified with the SUT. The SUT was tested with the Cisco CallManager using the Cisco Internet Protocol Contact Center listed on the Unified Capabilities (UC) Approved Products List (APL).

Table 2-2. Tested System Configurations

System Name		Software Release	
Nokia-Siemens 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	Native IOS 12.2 (18) SXF3	
	Cisco 4507R	IOS 12.2 (31) SG	
	Catalyst 3750	12.2 (25) SEE	
	Catalyst 3560-PoE 24	12.2 (25) SEE	
	ONS 15454	7.0	
	Catalyst 2940	12.1 (22) EA7	
	Catalyst 2950	12.1 (22) EA7	
	Catalyst 2960	12.2 (25) SEE	
Cisco VoIP Phones	CP-7940G	P00308000400	
	CP-7970G	SCCP70.8-0-4SR1S	
	CP-7971G-GE	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	
NOTES:			
1 JITC determined a minor risk with certifying the SUT with all of the Cisco IPCC releases currently on the UC APL.			
2 The SUT is certified to support Assured Services when used in conjunction with any ASLAN found on the UC APL.			
LEGEND:			
APL	Approved Products List	PC	Personal Computer
ASLAN	Assured Services Local Area Network	PRO	Professional
CP	Cisco Phone	RAM	Random Access Memory
EWSD	Elektronisches Wähler System Digital	PoE	Power over Ethernet
G	10/100BaseT Ethernet	SCCP	Skinny Client Control Protocol
GE	Gigabit Ethernet	SP	Service Pack
IOS	Internetworking Operating System	SUT	System under Test
IPCC	Internet Protocol Contact Center	TAPI	Telephony Application Programming Interface
MS	Microsoft	UC	Unified Capabilities
ONS	Optical Network System	VoIP	Voice over Internet Protocol

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, paragraph 5.2.2.3, 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, paragraph 5.2.12.8.2.9, outlines several methodologies to implement QoS such as 802.1Q CoS at the Data Link Layer (L2) and Differentiated Services Code Point (DSCP) at the Network Layer (L3). 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 Defense Information System Agency (DISA). 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 UC APL. The SUT is certified to support DSN Assured Services over IP with any ASLAN or ASLAN component on the UC APL. The SUT is also certified for joint use with any non-ASLAN on the UC APL. Non-ASLANs are “commercial grade” and provide support to Command and Control (C2) (ROUTINE only calls) (C2(R)) or non-C2 voice subscribers. When deployed in a non-ASLAN the SUT may also be used to receive all levels of precedence, but are limited to originating ROUTINE precedence only. Non-ASLANs do not need to meet the availability or redundancy requirements of the C2 or Special C2 users; therefore, C2 users and Special C2 users are not authorized as subscribers on 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>. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: ucco@disa.mil.