DEFENSE INFORMATION SYSTEMS AGENCY
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FORT MEADE, MARYLAND 20755-0549

IN REPLY REFER TO: Joint Interoperability Test Command (JTE) **7 Dec 11**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of the Computer Sciences Corporation (CSC) Advanced Defense Switched Network (DSN) Integrated Management Support System (ADIMSS) with Release 8.0

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 CSC ADIMSS with Software Release 8.0 Voice and Video over Internet Protocol (VVoIP) Enterprise Management Systems (EMS) hereinafter referred to as the System Under Test (SUT). The SUT meets all of its critical interoperability requirements and is certified for joint in the Defense Information System Network (DISN) as a VVoIP EMS. The SUT meets the critical interoperability requirements set forth in Reference (c), using test procedures derived from Reference (d). No other configurations, features, or functions, except those cited within this report, are certified by the JITC. This certification expires upon changes that could affect interoperability, but no later than three years from the date of the Unified Capabilities (UC) Approved Products List (APL) memorandum.

3. This finding is based on interoperability testing conducted by JITC and DISA Certifying Authority (CA) Recommendation. Interoperability testing was conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, Arizona, from 31 May through 3 June 2011. DISA CA provided a positive Recommendation on 07 December 2011 based on the security testing completed by DISA-led IA test teams. The results of the IA test are published in a separate report, Reference (e).

4. Table 1 depicts the SUT Functional Requirements used to evaluate the interoperability of the SUT and the interoperability status.

Table 1. SUT Functional Requirements and Interoperability Status

Interface	Critical	Certified	Functional Requirements	Status	UCR Reference
IEEE 802.3u Ethernet	Yes	Yes	SNMPv3 Format (R)	Met	5.3.2.17.2
			Alarm Messages (R)	Met	5.3.2.17.3.1.1
			Self-Detection of Fault Conditions (R)	Met	5.3.2.17.3.1.2
			SNMP Version 3 Format Alarm Messages (R)	Met	5.3.2.17.3.1.5
			Read-Write Access to CM Data by the VVoIP EMS (R)	Met	5.3.2.17.3.2.1
			Near-Real-Time Network Performance Monitoring (R)	Met	5.3.2.17.3.4.1
			Remote Network Management Commands (R)	Met	5.3.2.17.3.4.2
			Minimum Requirements (R)	Met	5.11.2
			Connectivity to Monitored Network Elements (R)	Met	5.11.2.1
			Segregation of NM Data into Categories (R)	Met	5.11.2.2
			IPv6 (C)	Not Tested[1]	5.3.5
			DSCP Differentiated Service Code Point	Not Met[2]	5.3.3.3.2
	Yes	Yes	Security (R)	Met [3].	Section 3

NOTES:
1. IPv6 is not supported by the SUT. In accordance with the UCR Section 5.3.5, Table 5.3.5-1, Note 3, IPv6 is not required for a Network Management Systems.
2. The SUT does not support DSCP tagging. This discrepancy was adjudicated by DISA as having a minor operational impact due to the following conditions: The vendor Plan of Action and Milestones stipulates they can have a fix for this anomaly by 9 September 2011. Furthermore, in the interim this anomaly is mitigated due to the fact that the SUT network management routes via an out of band non converged dedicated DISN IP network.
3 Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).

LEGEND:

802.3u	Standard for carrier sense multiple access with collision detection at 100 Mbps	NM	Network Management
C	Conditional	R	Required
CM	Call Manager	SNMP	Simple Network Management Protocol version
DISN	Defense Information Systems Network	SUT	System Under Test
DISA	Defense Information Systems Agency	UCR	Unified Capabilities Requirements
DSCP	Differentiated Services Code Point	VVoIP	Voice and Video over Internet Protocol
EMS	Element Management System		
IEEE	Institute of Electrical and Electronics Engineers		
IPv6	Internet Protocol version 6		

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 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 DISN 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 Capt. Stéphane Arsenault, DSN 879-5269, commercial (520) 538-5269, FAX DSN 879-4347, or e-mail to stephane.arsenault@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 1103501.

FOR THE COMMANDER:

2 Enclosures a/s

for BRADLEY A. CLARK
Chief
Battlespace Communications Portfolio

Distribution (electronic mail):
Joint Staff J-6
Joint Interoperability Test Command, Liaison, TE3/JT1
Office of Chief of Naval Operations, CNO N6F2
Headquarters U.S. Air Force, Office of Warfighting Integration & CIO, AF/XCIN (A6N)
Department of the Army, Office of the Secretary of the Army, DA-OSA CIO/G-6 ASA (ALT), SAIS-IOQ
U.S. Marine Corps MARCORSYSCOM, SIAT, MJI Division I
DOT&E, Net-Centric Systems and Naval Warfare
U.S. Coast Guard, CG-64
Defense Intelligence Agency
National Security Agency, DT
Defense Information Systems Agency, TEMC
Office of Assistant Secretary of Defense (NII)/DOD CIO
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, Change 2," 31 December 2010
(d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP) Change 2," 2 October 2006
(e) Joint Interoperability Test Command, Memo, "Information Assurance (IA) Assessment of the CSC ADIMSS Voice and Video over Internet Protocol (VVoIP) Enterprise Management Systems (EMS) with Release. 8.0 (Tracking Number 1103501),"

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. Special Interoperability Test Certification of the Computer Sciences Corporation (CSC) Advanced Defense Information System Network (DISN) Integrated Management Support System (ADIMSS) with Release 8.0 hereinafter referred to as the System Under Test (SUT).

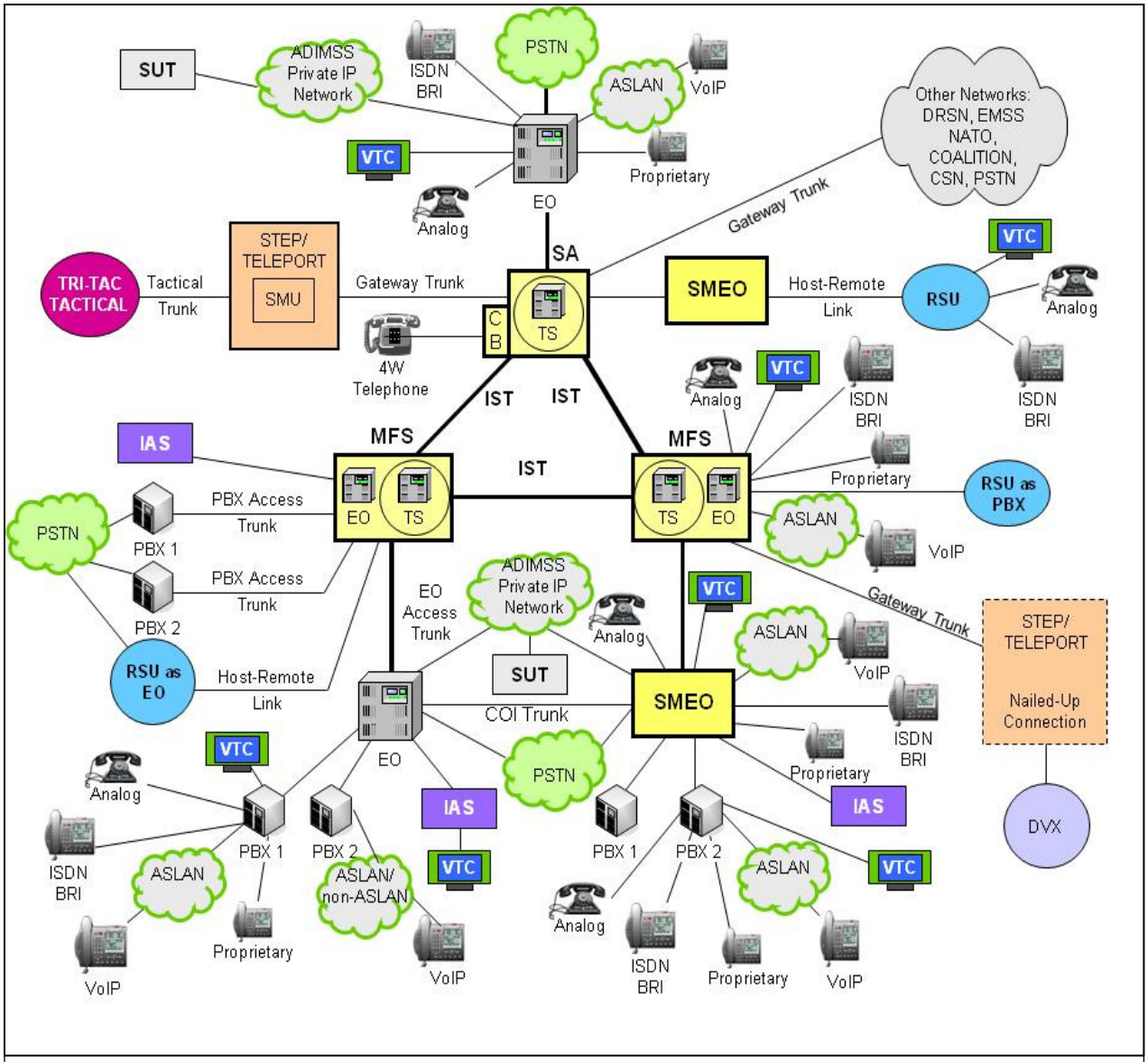
2. SPONSOR. Defense Information Systems Agency (DISA).

3. SYSTEM POC. Jose Clarke, P.O. Box 549, Fort Meade, MD 20755-0549 jose.clarke@disa.mil.

4. TESTER. Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.

5. SYSTEM UNDER TEST DESCRIPTION. DISA has single system management responsibility for the Unified capabilities (UC) Multifunction Soft-Switch (MFSS), Edge Boundary Controllers (EBCs) and Local Session Controllers (LSCs) to include Legacy DISN Tandem Switches (TS), Multifunction Switches (MFS), and End Office Switches (EO). The SUT provides all Voice and Video over Internet Protocol (VVoIP) Enterprise Management System (EMS) capabilities for the DISN including fault management, performance management, configuration management, accounting management, and remote access to switching platforms and key non-switch network elements.

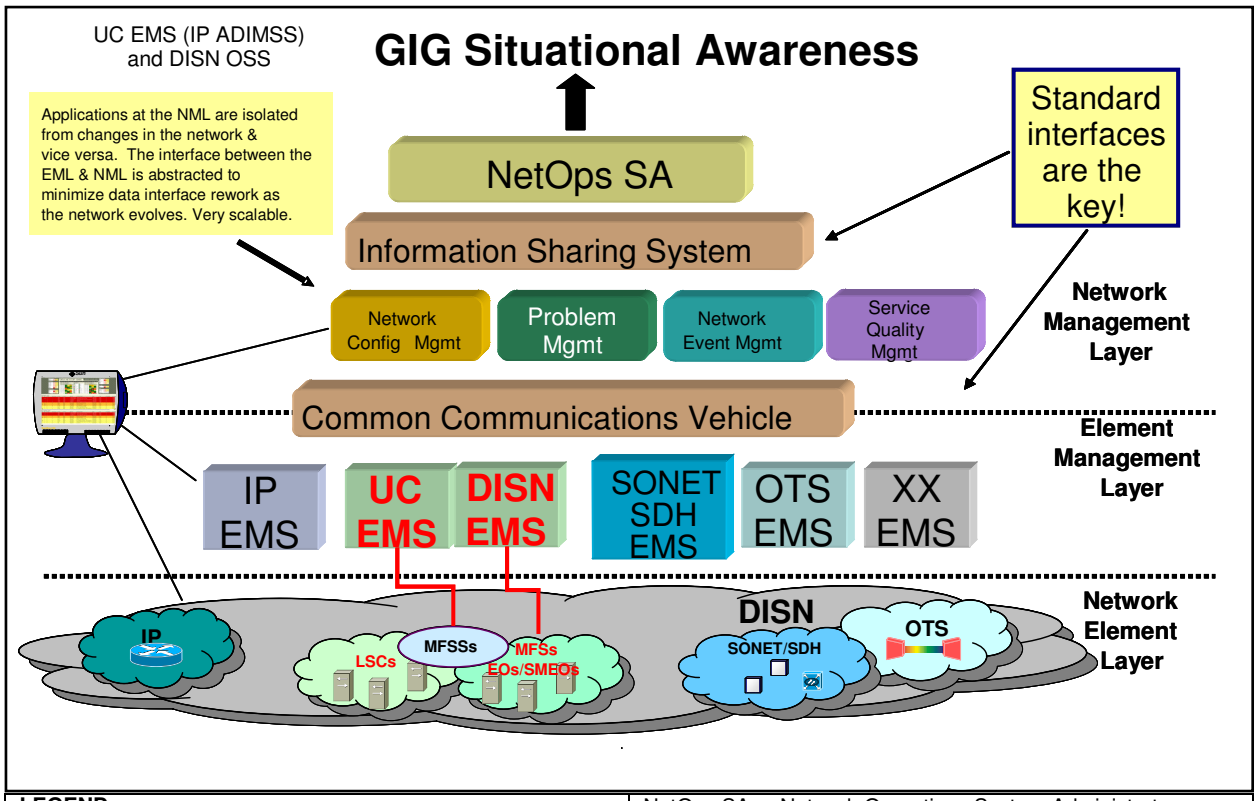
6. OPERATIONAL ARCHITECTURE. The Unified Capabilities Requirements (UCR) Legacy DISN architecture in Figure 2-1 and the Unified Capabilities notional architecture depicted in Figure 2-2 shows the relationship of the SUT to the DISN and UC architectures.



LEGEND:

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

Figure 2-1. DISN Architecture



LEGEND:	
ADIMSS Advanced Defense Switched Network Integrated Support System	NetOps SA Network Operations System Administrator
DISN Defense Switch Network	NML Network Management Layer
EMS Enterprise Management System	OSS Operational Support System
IP Internet Protocol	OTS Optical Transport System
LSC Local Session Controller	SDH Synchronous Digital Hierarchy
MFSS Multifunction Soft Switch	SONET Synchronous Optical Network
Mgmt Management	UC Unified Capabilities

Figure 2-2. UC Notional Architecture

7. REQUIRED SYSTEM INTERFACES. Requirements specific to the SUT and interoperability results are listed in Table 2-1. These requirements are derived from Reference (c) and verified through the test procedures listed in Reference (d).

Table 2-1. SUT Functional Requirements and Interoperability Status

Interface	Critical	Certified	Functional Requirements	Status	UCR Reference
IEEE 802.3u Ethernet	Yes	Yes	SNMPv3 format (R)	Met	5.3.2.17.2
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			Self-Detection of Fault Conditions (R)	Met	5.3.2.17.3.1.2
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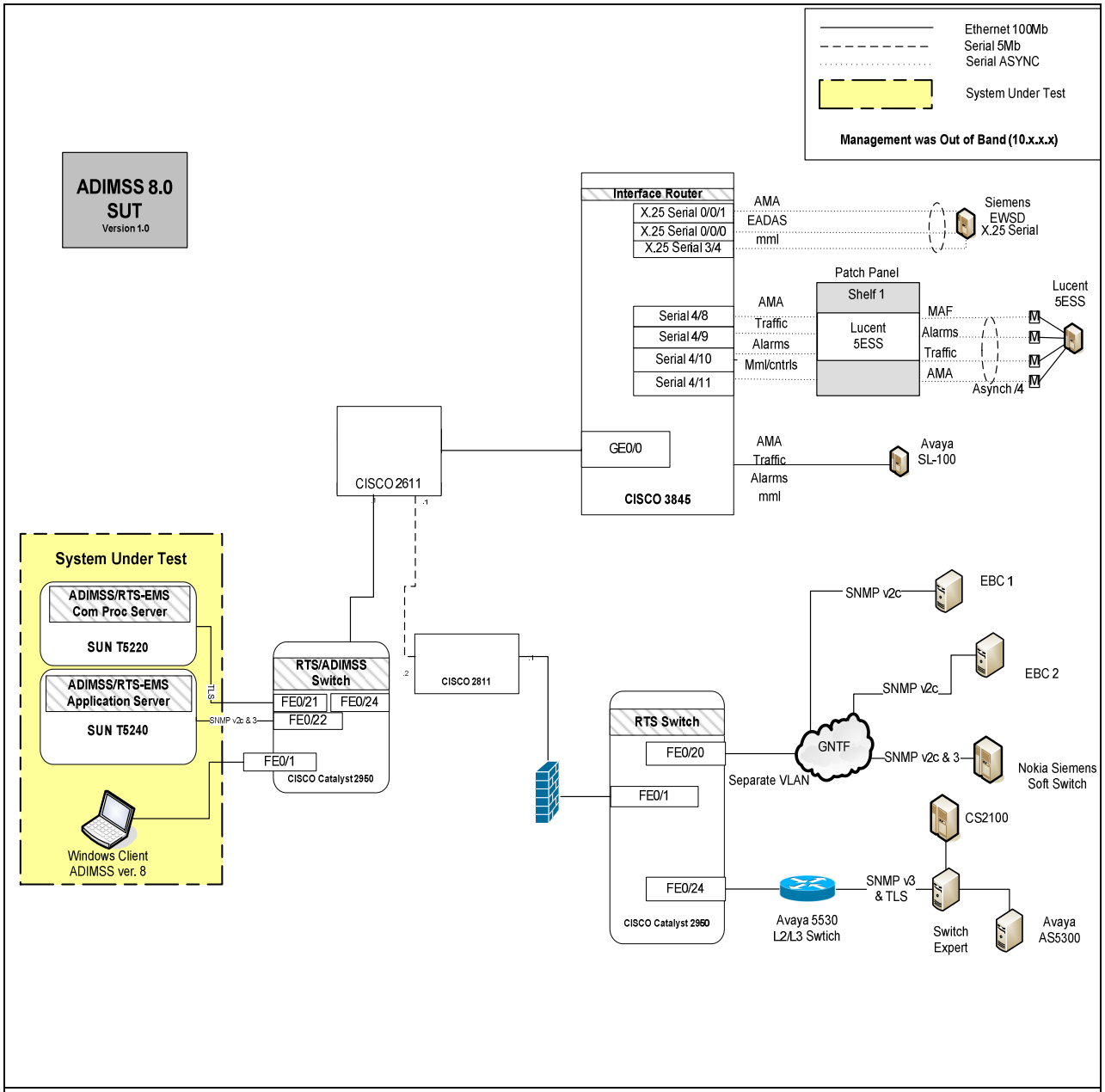
			Read-Write Access to CM Data by the VVoIP EMS (R)	Met	5.3.2.17.3.2.1
			Near-Real-Time Network Performance Monitoring (R)	Met	5.3.2.17.3.4.1
			Remote Network Management Commands (R)	Met	5.3.2.17.3.4.2
			Minimum Requirements (R)	Met	5.11.2
			Connectivity to Monitored Network Elements (R)	Met	5.11.2.1
			Segregation of NM Data into Categories (R)	Met	5.11.2.2
			IPv6 (C)	Not Met[1]	5.3.5
			DSCP Differentiated Service Code Point	Not Met[2]	5.3.3.3.2
	Yes	Yes	Security (R)	See note 3.	Section 3

NOTES:
1 IPv6 is not supported by the SUT. In accordance with the Interim Unified Capabilities (UC) IPv6 Rules of Engagement (ROE) signed by the Office of the Secretary of Defense on 31 July 2009, IPv6 is not required for a Customer Premises Equipment Telecommunications Management System. There is no risk associated with the SUT not supporting this requirement.
2 The SUT does not support DSCP tagging. This discrepancy was adjudicated by DISA as having a minor operational impact due to the following conditions: The vendor Plan of Action and Milestones stipulates they can have a fix for this anomaly by 9 September 2011. Furthermore, in the interim this anomaly is mitigated due to the fact that the SUT network management routes via an out of band non converged dedicated DISN IP network.
3 Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).

LEGEND:

802.3u	Standard for carrier sense multiple access with collision detection at 100 Mbps	Mbps	Megabits per second
C	Conditional	R	Required
DISA	Defense Information Systems Agency	SNMPv3	Simple Network Management Protocol version 3
IEEE	Institute of Electrical and Electronics Engineers	SUT	System Under Test
IPv6	Internet Protocol version 6	UCR	Unified Capabilities Requirements
		VVoIP	Voice and Video over Internet Protocol

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 DISN operational environment. Testing the system's required functions and features was conducted using the test configurations depicted in Figure 2-2.



LEGEND:

ADIMSS	Advanced Defense Switched Network Integrated Support System
AMA	Automatic Message Accounting
APL	Approved Products List
ASLAN	Assured Services Local Area Network
EBC	Edge Boundary Controller
L2	Layer 2
L3	Layer 3
Mbps	Megabit per second
mml	Man Machine Language
RTS	Real Time Services
SNMPv2	Simple Network Management Protocol version 2
SUT	System Under Test
STIG	Security Technical Implementation Guide
UC	Unified Capabilities
VLAN	Virtual Local Area Network
X.25	Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit

Figure 2-2. SUT Test Configuration

9. SYSTEM CONFIGURATIONS. 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 Cisco Assured Services Local Area Network (ASLAN) core layer components. The SUT is certified with any ASLAN core layer components that are on the Unified Capabilities (UC) Approved Product List (APL).

Table 2-2. Tested System Configurations

System Name	Hardware/Software Release
Nortel Networks CS2100	Succession Enterprise (SE)09
Alcatel-Lucent 5ESS	5E16.2 BWM 10-0001
Siemens EWSD MFS/EO	19d with Patch Set 46
Avaya AS5300	Aura 2.0 Patch Bundle 10
Nokia Siemens HiQ 8000 Soft Switch	13.90.02.10 Patch Set (PS)12, Patch (P)90
Acme Packet 3820 EBC	6.2.0 MR-5
Acme Packet 4500 EBC	6.2.0 MR-5

SUT	Hardware	Cards	Software/Firmware
ADIMSS Version 8	Management Workstation	NA	Windows Client ADIMSS Version 8
	Sun T5240 ADIMSS/RTS-EMS Application Server	NA	ADIMSS v8.0, Solaris 10, Oracle 11g, SunSSH 1.1.3, JRE/JDK 1.6.0_24, JBOSS 5.1.0, McAfee 6.0.3.356
	Sun T5220 ADIMSS/RTS-EMS Com Proc Server		Solaris 10, JRE/JDK 1.6.0_24 SunSSH 1.1.3, McAfee 6.0.3.356

LEGEND:

ADIMSS	Advanced Defense Switched Network Integrated Support System
ASLAN	Assured Services Local Area Network
BWM	Broadcast Warning Message
CS2100	Communications Server 2100
EBC	Edge Boundary Controller
EMS	Element Management System
EWSD	Elektronisches Wählsystem Digital
MFS	Multifunction Switch
NA	Not Applicable
R	Release
RTS	Real Time Services
SP	Service Pack
SUT	System Under Test
V	Version
WS	Workgroup Station

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion. The requirements listed in the UCR 2008 Change 2, Sections 5.3.2 and 5.11, are detailed as VVoIP EMS requirements for UC switches. The SUT was tested with these requirements as the EMS system connected to the DISN and UC switches.

(1) In accordance with the UCR 2008, Change 2, Sections 5.3.2 and 5.11, UC switching systems shall provide UC VVoIP EMS data to the ADIMSS via Ethernet.

(2) In accordance with the UCR 2008, Change 2, Section 5.11, the DISN telephone switching systems shall detect fault conditions and generate alarm notifications. The SUT met all critical interoperability certification requirements for Fault Management. Alarm notifications and log messages were captured and saved to an ADIMSS file.

(3) In accordance with the UCR 2008, Change 2, Section 5.11, the SUT met all critical interoperability requirements for Configuration Management by connecting to the switching systems remotely and emulating their local maintenance terminals. The SUT must install Switch Expert on the Windows Client in order to perform configuration management on the Avaya AS5300.

(4) In accordance with the UCR 2008, Change 2, Sections 5.3.2 and 5.11, the Automated Message Accounting (AMA) process in a switching system provides usage related data to perform customer billing and Call Detail Recording (CDR). The SUT met all critical interoperability requirements for AMA by collecting and storing CDR data.

(5) In accordance with the UCR 2008, Change 2, Sections 5.3.2 and 5.11, the UC switches must meet the switch performance data requirements in the UCR 2008, Change 2, Table 5.3.2.17-1. The SUT met all critical interoperability requirements for Performance Management by collecting and accurately storing traffic data measurements every five or fifteen minutes.

(6) The UCR 2008, Change 2, Sections 5.3.2 and 5.11, manual network management controls are those controls that are implemented by the personnel at a network management center. Manual controls supplement the automatic controls, and they are used to handle the network problems that require flexibility and human judgment. The SUT met all critical interoperability certification requirements for Features and Functions.

(7) In accordance with the UCR 2008, Change 2, Sections 5.3.2 and 5.11, the UC switching system shall be able to receive remote commands for configuring the network related entries within the switch. The SUT met all critical interoperability requirements for Remote Access by successfully connecting through the respective switching systems access channels.

(8) In accordance with UCR 2008, Change 2, paragraph 5.3.3.3.2, the product shall support the plain text DSCP plan per UCR 2008, Change 2, Table 5.3.3-1, DSCP Assignments, and the DSCP assignment shall be software configurable for the full range (0-63) to support the Deployable deployments that may not use the DSCP plan in this table. The SUT does not support DSCP tagging. This discrepancy was adjudicated by DISA as having a minor operational impact due to the following conditions: The vendor Plan of Action and Milestones stipulates they can have a fix for this anomaly by 9 September 2011. Furthermore, in the interim this anomaly is

mitigated due to the fact that the SUT network management routes via an out of band non converged dedicated DISN IP network.

b. Test Summary. The SUT met the interface and functional requirements for VVoIP EMS as set forth in Reference (c).

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 DISN 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.