



DEFENSE INFORMATION SYSTEMS AGENCY

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

21 Dec 13

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Joint Interoperability Certification of Cisco TelePresence Media Service Engine (MSE) 8000 with Specified Circuit Card Assemblies, the Cisco Video Communications Server (VCS), and TelePresence Management Suite (TMS)

References: (a) DoD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) Department of Defense Instruction 8100.04, "DoD Unified Capabilities (UC)," 9 December 2010
(c) through (f), see Enclosure 1

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

2. The Cisco TelePresence Products including the MSE 8000 with Integrated Services Digital Network (ISDN) Gateway MSE 8321 Blade version 2.1(1.56), Multipoint Control Unit (MCU) MSE 8510 Blade version 4.3(1.68), and Supervisor MSE 8050 Blade version 2.2(1.17) circuit card assemblies, the VCS version X7.1, and the TMS version 14.0.0 are hereinafter referred to as the System Under Test (SUT). The TMS is an optional component and the SUT is certified with or without it. The SUT meets all of its critical interface and functional interoperability requirements and is certified for joint use within the Defense Information Systems Network (DISN) as a Video Tele-conferencing (VTC) system. The SUT met the conditional requirements for an Internet Protocol (IP) interface with the International Telecommunication Union - Telecommunication Standardization Sector (ITU-T) H.323 protocol; however, Assured Service is not yet defined for an IP interface with ITU-T H.323 protocol. Therefore, Command and Control (C2) VTC users and Special C2 VTC users are not authorized to be served by an IP interface with the ITU-T H.323 protocol. The SUT meets the critical interoperability requirements set forth in References (c) and (d) using test procedures derived from Reference (e). 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, review of the vendor's Letters of Compliance (LoC), DISA adjudication of open test discrepancy reports (TDRs), Office of the Department of Defense (DoD) Chief Information Officer (CIO) waiver of two Internet

JITC Memo, JTE, Joint Interoperability Certification of Cisco TelePresence Media Service Engine (MSE) 8000 with Specified Circuit Card Assemblies, the Cisco Video Communications Server (VCS), and TelePresence Management Suite (TMS)

Protocol version 6 (IPv6) requirements that have minimal or no impact on interoperability, and DISA Certifying Authority (CA) Recommendation. Interoperability testing was conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, Arizona, from 21 May through 8 June 2012. Review of the vendor's LoC was completed on 2 November 2012. DISA adjudication of outstanding TDRs was completed on 16 October 2012. The Office of the DoD CIO granted a waiver of the two IPv6 requirements on 7 December 2012. The DISA CA provided a positive recommendation on 21 September 2012 based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (f). The Certification Testing Summary (Enclosure 2) documents the test results and describes the test configuration.

4. The Functional Requirements (FRs) used to evaluate the interoperability of the SUT, certified interfaces and the interoperability statuses are indicated in Table 1.

Table 1. SUT FRs and Interoperability Status

Interface	Critical	Certified	Requirements Required or Conditional	Status	UCR Reference ¹
IP (10/100/1000 Mbps) ITU-T H.323	No	Yes ²	The VTC system/endpoints shall meet the requirements of FTR 1080B-2002. (R)	Met ³	5.2.4.2
			ITU-T H.323 in accordance with FTR 1080B-2002. (C)	Met	5.2.4.2
			Layer 3 Differential Service Code Point tagging as specified in the UCR, Section 5.3.1. (C)	Partially Met ^{4,5}	5.2.4.2
			A loss of any conferee on a multipoint videoconference shall not terminate or degrade the DSN service supporting VTC connections of any of the other conferees on the videoconference. (R)	Met	5.2.4.2
			Audio add-on interface, implemented independently of an IAS, shall be in accordance with the UCR, Section 5.2.3. (C)	Met	5.2.4.2
			Physical, electrical, and software characteristics shall not degrade or impair switch and associated network operations. (R)	Met	5.2.4.2
			VTC IP interface must be IPv6 capable and meet the Simple Server/Network Appliance IPv6 profile (R)	Partially Met ^{6,7}	5.3.5
ISDN PRI T1 / E1	No	Yes	The VTC system/endpoints shall meet the requirements of FTR 1080B-2002. (R)	Met	5.2.4.2 ³
			A loss of any conferee on a multipoint videoconference shall not terminate or degrade the DSN service supporting VTC connections of any of the other conferees on the videoconference. (R)	Met	5.2.4.2
			Audio add-on interface, implemented independently of an IAS, shall be in accordance with the UCR, Section 5.2.3. (C)	Met	5.2.4.2
			Integrated PRI interface shall be in conformance with IAS requirements in the UCR, Section 5.2.6. (C)	Partially Met ⁸	5.2.4.2
			Physical, electrical, and software characteristics shall not degrade or impair switch and associated network operations. (R)	Met	5.2.4.2
Security	Yes	Yes	GR-815 and STIGs (R)	Met ⁹	5.4.6.1
<p>NOTES:</p> <p>1. The IPv6 and Information Assurance requirements were derived from the UCR 2008, Change 3. All other requirements were derived from the UCR 2008, Change 1.</p> <p>2. The SUT met the conditional requirements for an IP interface with the ITU-T H.323 protocol; however, Assured Service is not yet defined for an IP interface with ITU-T H.323 protocol. Therefore, C2 VTC users and Special C2 VTC users are not authorized to be served by an IP interface with the ITU-T H.323 protocol.</p> <p>3. The SUT does not support a sub-requirement inside FTR-1080B-2002. This freeze-frame sub-requirement was changed to conditional in UCR 2008, Change 3, Reference (d). DISA stated that effective immediately, this is no longer applicable to the SUT. The SUT met the applicable FTR-1080B-2002 requirements through testing and the vendor's LoC.</p>					

JITC Memo, JTE, Joint Interoperability Certification of Cisco TelePresence Media Service Engine (MSE) 8000 with Specified Circuit Card Assemblies, the Cisco Video Communications Server (VCS), and TelePresence Management Suite (TMS)

Table 1. SUT FRs and Interoperability Status (continued)

NOTES (continued):			
4. The SUT MSE 8050, MSE 8321, MSE 8510, and VCS do not currently mark HTTPS packets with a DSCP value. This functionality is planned for the MSE 8050, MSE 8321, and MSE 8510 in a future software release. DISA has accepted and approved the vendor's POA&M and adjudicated this discrepancy as having a minor operational impact.			
5. The SUT VCS does not support DSCP tagging for different traffic types. This applies to both IPv4 and IPv6 signaling and media IP traffic. The DSCP value can be set; however, all traffic is tagged with the same DSCP value. DISA has accepted and approved the vendor's POA&M and adjudicated this discrepancy as having a minor operational impact.			
6. The VCS is a required component of the SUT to allow for dual stack functionality of IPv4 and IPv6 video endpoints.			
7. The SUT VCS gatekeeper component required to support IPv6 dual stack partially complies with support of IPv6 Scoped Address Architecture RFCs 4007 and 4862. The VCS gatekeeper component required to support IPv6 dual stack does not use its link local address and as a result the VCS will not establish calls to and from its IPv6 Link Local address. However, the VCS gatekeeper component does comply with global unicast addresses. The Office of the DoD CIO granted a waiver of the two IPv6 link local address requirements on 7 December 2012.			
7. The SUT MSE 8321 ISDN gateway does not support B channel availability. DISA adjudicated this as minor because this discrepancy can be mitigated by manually marking the same B channels out of service at both ends of the circuit.			
9. Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (f).			
LEGEND:			
APL	Approved Products List	IPv4	Internet Protocol version 4
C	Conditional	IPv6	Internet Protocol version 6
C2	Command and Control	ISDN	Integrated Services Digital Network
CIO	Chief Information Officer	ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
DISA	Defense Information Systems Agency	JITC	Joint Interoperability Test Command
DISN	Defense Information Systems Network	LoC	Letters of Compliance
DoD	Defense of Defense	Mbps	Megabits per seconds
DSCP	Differentiated Services Code Point	MSE	Media Service Engine
DSN	Defense Switched Network	PRI	Primary Rate Interface
E1	European Basic Multiplex Rate (2.048 Mbps)	POA&M	Plan of Action and Milestones
FRs	Functional Requirements	R	Required
FTR	Federal Telecommunications Recommendation	RFC	Request for Comments
GR	Generic Requirement	STIGs	Security Technical Implementation Guides
GR-815	Generic Requirements For Network Element/Network System (NE/NS) Security	SUT	System Under Test
H.320	Standard for narrowband VTC	T1	Digital Transmission Link Level 1 (1.544 Mbps)
H.323	Standard for multi-media communications on packet-based networks	UC	Unified Capabilities
HTTPS	Hyper-Text Transfer Protocol Secure	UCR	Unified Capabilities Requirements
IAS	Integrated Access Switch	VCS	Video Communication Server
IP	Internet Protocol	VTC	Video Teleconferencing

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). 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). 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: disa.meade.ns.list.unified-capabilities-certification-office@mail.mil. All associated data is available on the DISA UCCO website located at <http://www.disa.mil/ucco/>.

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6. The JITC point of contact is Mr. Dale Fulton, DSN 879-0507, commercial (520) 538-0507, FAX DSN 879-4347, or e-mail to dale.h.fulton.civ@mail.mil. JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 1127304.

FOR THE COMMANDER:



BRADLEY A. CLARK
Acting Chief
Battlespace Communications Portfolio

2 Enclosures a/s

Distribution (electronic mail):

DoD CIO

Joint Staff J-6, JCS

USD(AT&L)

ISG Secretariat, DISA, JTA

U.S. Strategic Command, J665

US Navy, OPNAV N2/N6FP12

US Army, DA-OSA, CIO/G-6 ASA(ALT), SAIS-IOQ

US Air Force, A3CNN/A6CNN

US Marine Corps, MARCORSYSCOM, SIAT, A&CE Division

US Coast Guard, CG-64

DISA/TEMC

DIA, Office of the Acquisition Executive

NSG Interoperability Assessment Team

DOT&E, Netcentric Systems and Naval Warfare

Medical Health Systems, JMIS IV&V

HQUSAISEC, AMSEL-IE-IS

UCCO

ADDITIONAL REFERENCES

- (c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008, Change 1," 22 January 2010
- (d) Office of the Department of Defense Chief Information Officer, "Department of Defense Unified Capabilities Requirements 2008 Change 3," 11 September 2011
- (e) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
- (f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Cisco TelePresence Video Infrastructure Release (Rel.) Multiple (Tracking Number 1127304)," Draft

CERTIFICATION TESTING SUMMARY

- 1. SYSTEM TITLE.** Cisco TelePresence Media Service Engine (MSE) 8000 with Specified Circuit Card Assemblies, the Cisco Video Communications Server (VCS), and TelePresence Management Suite (TMS).
- 2. SPONSOR.** Headquarters United States Army Information Systems Engineering Command (HQUSAISEC), Mr. Jordan R. Silk, USAISEC ELIE-ISE-ES, Building 53301, Fort Huachuca, Arizona 85613, e-mail: jordan.r.silk.civ@mail.mil.
- 3. SYSTEM POC.** Cisco Systems Global Certification Team (GCT), 7025-2 Kit Creek Rd., Research Triangle Park, North Carolina 27709, e-mail: certteam@cisco.com, website: www.cisco.com/go/govcerts.
- 4. TESTER.** Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.
- 5. SYSTEM UNDER TEST DESCRIPTION.** The Cisco TelePresence Products including the including the MSE 8000, Integrated Services Digital Network (ISDN) Gateway MSE 8321 Blade version 2.1(1.56)P, Multipoint Control Unit (MCU) MSE 8510 Blade version 4.3(1.68), and Supervisor MSE 8050 Blade version 2.2(1.17), the VCS version X7.1, and the Management Suite (TMS) version 14.0.0 are hereinafter referred to as the System Under Test (SUT). The SUT is a carrier-class video and audio conferencing solution. This Video Tele-conferencing (VTC) solution includes three primary components, the TelePresence VCS, TMS, and the TelePresence MSE 8000 chassis equipped with the TelePresence ISDN Gateway MSE 8321 blade, TelePresence MCU MSE 8510 blade, and TelePresence Supervisor MSE 8050 blade. The TMS is an optional component and the SUT is certified with or without it.

This chassis supports up to 10 blades and over 1 gigabit per second of audio and video conferencing. The SUT was tested with 10/100/1000 Megabits per second (Mbps) Institute of Electrical and Electronics Engineers (IEEE) 802.3 interfaces only. The SUT provides International Telecommunication Union - Telecommunication Standardization Sector (ITU-T) H.323 gateway support for bridging serial and ISDN networks and also provides multipoint conferencing capabilities for end instruments. The VCS provides call processing, and management capabilities as a hardware appliance and also provides Internet Protocol version 4 (IPv4) and Internet Protocol version 6 (IPv6) dual stack functionality. It provides ITU-T H.323 gatekeeper services to ITU-T H.323 end instruments and gateways. The TMS provides management, scheduling, and reporting capabilities for the TelePresence solution.

Management Description

The Cisco TelePresence MSE blades can be managed through several interfaces, including serial, command line, and web interfaces. Each of the interfaces should only be accessed via a Security Technical Implementation Guide (STIG)-compliant management workstation. The TMS can be managed through its web interface. The VCS can be managed through its command line interface and its web interface.

Component Description

MSE 8050 Supervisor Blade is an MSE 8000 chassis-based blade for MSE 8000 chassis, required for licensing to other blades. It also actively monitors the chassis and blades.

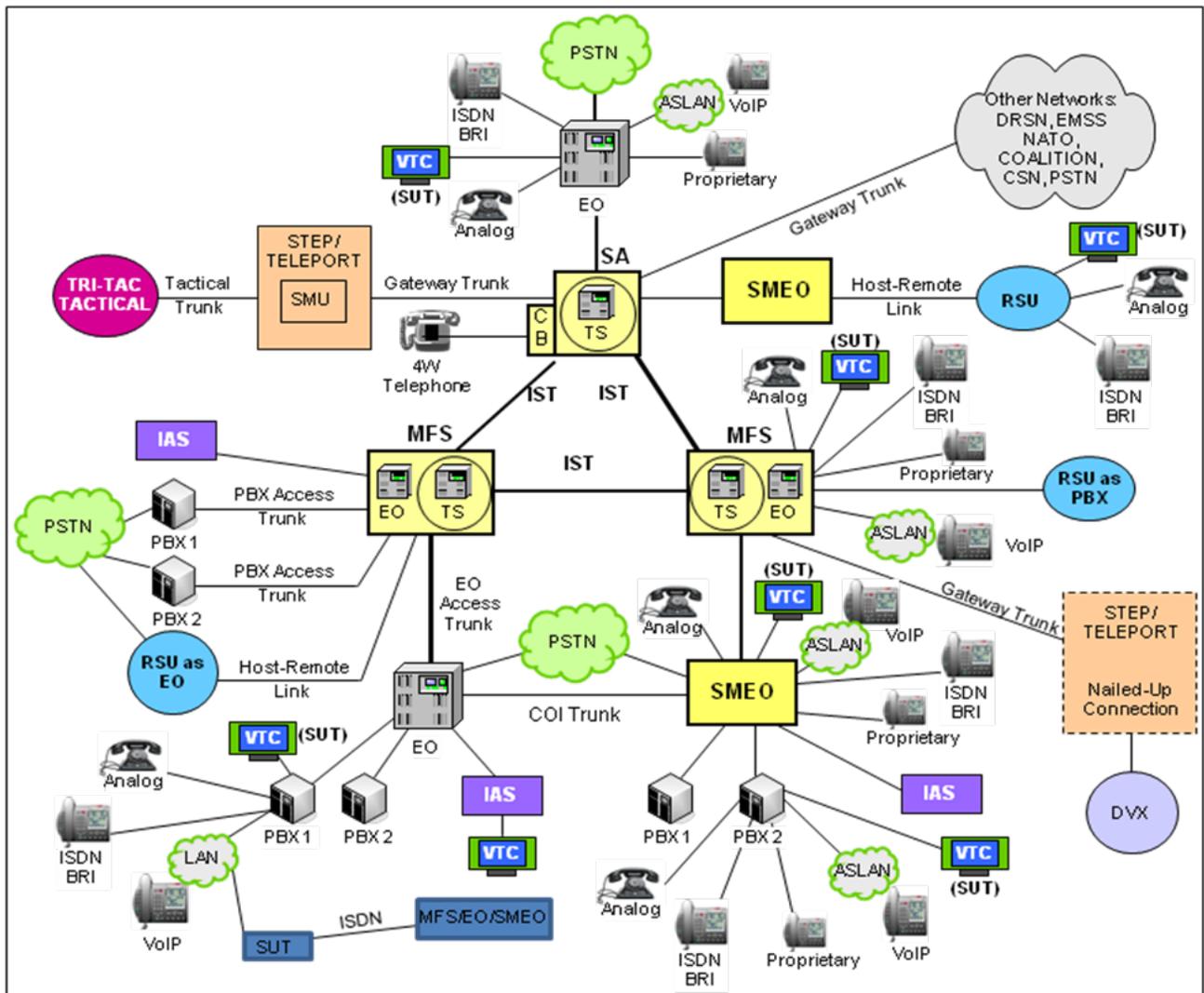
MSE 8510 MCU Blade is an MSE 8000 chassis-based, high-definition (HD) multimedia conferencing bridge that provides video and voice conferencing with a management interface.

MSE 8321 ISDN Gateway Blade is an MSE 8000 chassis-based blade that provides high-capacity, scalable integration between IP ITU-T H.323 and ISDN networks. It provides HD ISDN video conferencing.

TMS (Optional) is a portal for managing and monitoring video conferencing systems from a single structured overview. The Cisco TMS provides centralized control for on-site and remote video systems, and a deployment and scheduling system for an entire video network.

VCS provides advanced TelePresence applications and session management to all standards-compliant TelePresence end instruments, infrastructure, and management solutions. The Cisco VCS provides ITU-T H.323 gatekeeper services, enabling interoperability between ITU-T H.323 TelePresence devices and call control. In addition, the VCS provides the dual stack functionality between IPv4 and IPv6 end points.

6. OPERATIONAL ARCHITECTURE. The Unified Capabilities Requirements (UCR) Defense Information Systems Network (DISN) architecture in Figure 2-1 depicts the relationship of the SUT to the Defense Switched Network (DSN) switches.



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
 DISN Defense Information System Network
 DRSN Defense Red Switch 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
 TA Terminal Adapter
 Tri-Tac Tri-Service Tactical Communications Program
 TS Tandem Switch
 VoIP Voice over Internet Protocol
 VTC Video Teleconferencing

Figure 2-1. DISN Architecture

7. REQUIRED SYSTEM INTERFACES. Requirements specific to the SUT and interoperability results are listed in Table 2-1. These requirements are derived from UCR Interface and Functional Requirements (FR) and verified through JITC testing and review of vendor's LoC.

Table 2-1. SUT FRs and Interoperability Status

Interface	Critical	Certified	Requirements Required or Conditional	Status	UCR Reference ¹
IP (10/100/1000 Mbps) ITU-T H.323	No	Yes ²	The VTC system/endpoints shall meet the requirements of FTR 1080B-2002. (R)	Met ³	5.2.4.2
			ITU-T H.323 in accordance with FTR 1080B-2002. (C)	Met	5.2.4.2
			Layer 3 Differential Service Code Point tagging as specified in the UCR, Section 5.3.1. (C)	Partially Met ^{4, 5}	5.2.4.2
			A loss of any conferee on a multipoint videoconference shall not terminate or degrade the DSN service supporting VTC connections of any of the other conferees on the videoconference. (R)	Met	5.2.4.2
			Audio add-on interface, implemented independently of an IAS, shall be in accordance with the UCR, Section 5.2.3. (C)	Met	5.2.4.2
			Physical, electrical, and software characteristics shall not degrade or impair switch and associated network operations. (R)	Met	5.2.4.2
			VTC IP interface must be IPv6 capable and meet the Simple Server/Network Appliance IPv6 profile (R)	Partially Met ^{6, 7}	5.3.5
ISDN PRI T1 / E1	No	Yes	The VTC system/endpoints shall meet the requirements of FTR 1080B-2002. (R)	Met	5.2.4.2 ³
			A loss of any conferee on a multipoint videoconference shall not terminate or degrade the DSN service supporting VTC connections of any of the other conferees on the videoconference. (R)	Met	5.2.4.2
			Audio add-on interface, implemented independently of an IAS, shall be in accordance with the UCR, Section 5.2.3. (C)	Met	5.2.4.2
			Integrated PRI interface shall be in conformance with IAS requirements in the UCR, Section 5.2.6. (C)	Partially Met ⁸	5.2.4.2
			Physical, electrical, and software characteristics shall not degrade or impair switch and associated network operations. (R)	Met	5.2.4.2
Security	Yes	Yes	GR-815 and STIGs (R)	Met ⁹	5.4.6.1

NOTES:

- The IPv6 and Information Assurance requirements were derived from the UCR 2008, Change 3. All other requirements were derived from the UCR 2008, Change 1.
- The SUT met the conditional requirements for an IP interface with the ITU-T H.323 protocol; however, Assured Service is not yet defined for an IP interface with ITU-T H.323 protocol. Therefore, C2 VTC users and Special C2 VTC users are not authorized to be served by an IP interface with the ITU-T H.323 protocol.
- The SUT does not support a sub-requirement inside FTR-1080B-2002. This freeze-frame sub-requirement was changed to conditional in UCR 2008, Change 3, Reference (d). DISA stated that effective immediately, this is no longer applicable to the SUT. The SUT met the applicable FTR-1080B-2002 requirements through testing and the vendor's LoC.
- The SUT MSE 8050, MSE 8321, MSE 8510, and VCS do not currently mark HTTPS packets with a DSCP value. This functionality is planned for the MSE 8050, MSE 8321, and MSE 8510 in a future software release. DISA has accepted and approved the vendor's POA&M and adjudicated this discrepancy as having a minor operational impact.
- The SUT VCS does not support DSCP tagging for different traffic types. This applies to both IPv4 and IPv6 signaling and media IP traffic. The DSCP value can be set; however, all traffic is tagged with the same DSCP value. DISA has accepted and approved the vendor's POA&M and adjudicated this discrepancy as having a minor operational impact.
- The VCS is a required component of the SUT to allow for dual stack functionality of IPv4 and IPv6 video endpoints.
- The SUT VCS gatekeeper component required to support IPv6 dual stack partially complies with support of IPv6 Scoped Address Architecture RFCs 4007 and 4862. The VCS gatekeeper component required to support IPv6 dual stack does not use its link local address and as a result the VCS will not establish calls to and from its IPv6 Link Local address. However, the VCS gatekeeper component does comply with global unicast addresses. The Office of the DoD CIO granted a waiver of the two IPv6 link local address requirements on 7 December 2012.
- The SUT MSE 8321 ISDN gateway does not support B channel availability. DISA adjudicated this as minor because this discrepancy can be mitigated by manually marking the same B channels out of service at both ends of the circuit.
- Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (f).

Table 2-1. SUT FRs and Interoperability Status (continued)

LEGEND:			
APL	Approved Products List	IPv4	Internet Protocol version 4
C	Conditional	IPv6	Internet Protocol version 6
C2	Command and Control	ISDN	Integrated Services Digital Network
CIO	Chief Information Officer	ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
DISA	Defense Information Systems Agency	JITC	Joint Interoperability Test Command
DISN	Defense Information Systems Network	LoC	Letters of Compliance
DoD	Defense of Defense	Mbps	Megabits per seconds
DSCP	Differentiated Services Code Point	MSE	Media Service Engine
DSN	Defense Switched Network	PRI	Primary Rate Interface
E1	European Basic Multiplex Rate (2.048 Mbps)	POA&M	Plan of Action and Milestones
FRs	Functional Requirements	R	Required
FTR	Federal Telecommunications Recommendation	RFC	Request for Comments
GR	Generic Requirement	STIGs	Security Technical Implementation Guides
GR-815	Generic Requirements For Network Element/Network System (NE/NS) Security	SUT	System Under Test
H.320	Standard for narrowband VTC	T1	Digital Transmission Link Level 1 (1.544 Mbps)
H.323	Standard for multi-media communications on packet-based networks	UC	Unified Capabilities
HTTPS	Hyper-Text Transfer Protocol Secure	UCR	Unified Capabilities Requirements
IAS	Integrated Access Switch	VCS	Video Communication Server
IP	Internet Protocol	VTC	Video Teleconferencing

8. TEST NETWORK DESCRIPTION. The SUT was tested at JITC's Global Information Grid Network Test Facility (GNTF) in a manner and configuration similar to that of the Defense Information Systems Agency (DISN) operational environment. Testing the system's required functions and features was conducted using the test configuration depicted in Figure 2-2 which depicts the SUT test configuration.

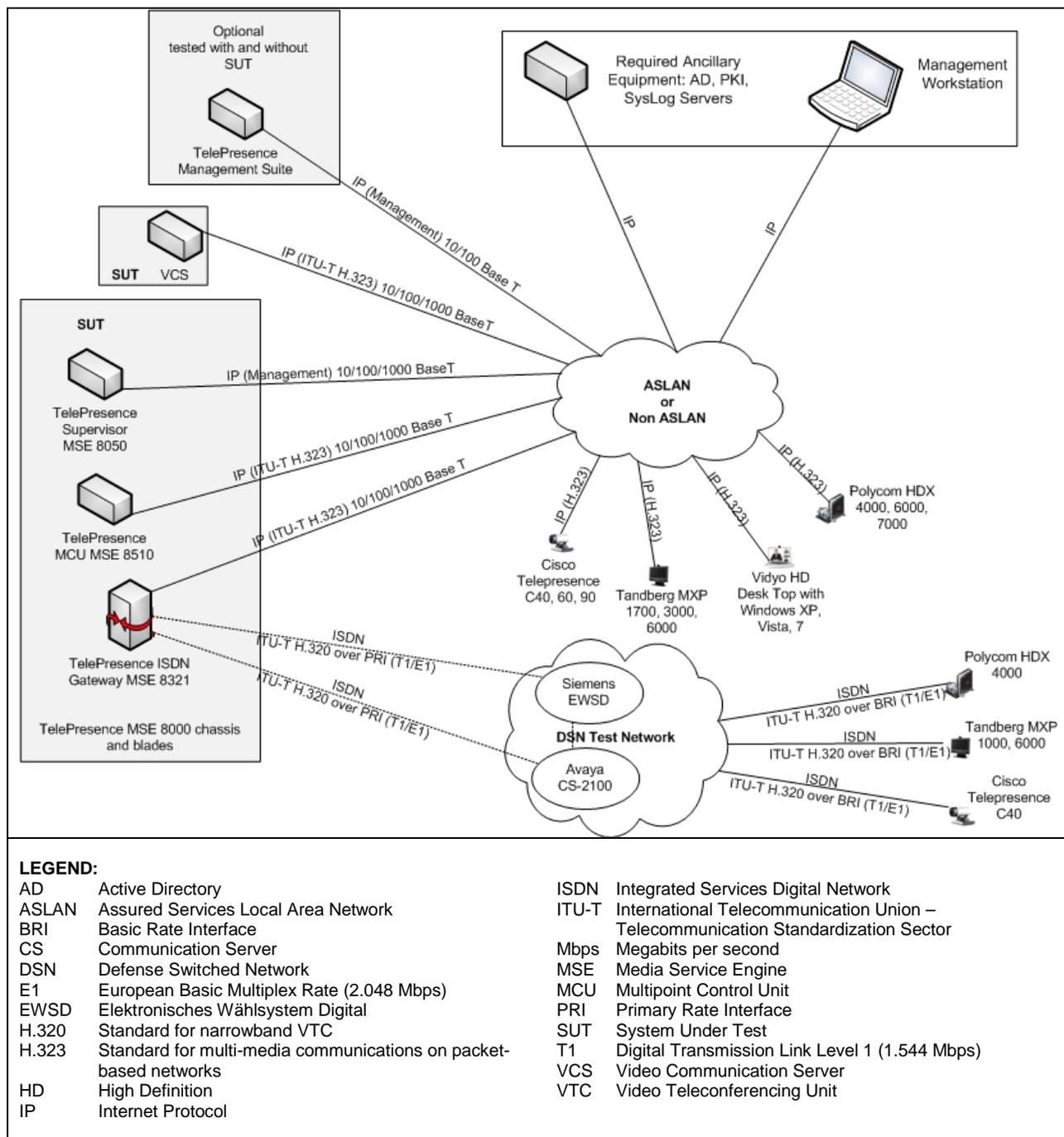


Figure 2-2. SUT Test Configuration

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 DISN switches noted in Table 2-2. Table 2-2 lists the DISN 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 with switching systems listed on the Unified Capabilities (UC) Approved Products List (APL) that offer the same certified interfaces.

Table 2-2. Tested System Configurations

System Name		Software Release																												
Siemens EWSD		19d with Patch Set 46																												
Avaya CS2100		Succession Enterprise (SE)09.1																												
Vidyo Desktop		VD_2_1_0_0032																												
Cisco (formerly Tandberg) 6000 MXP, 3000 MXP, 1700 MXP, 1000 MXP		F9.1.1 NTSC																												
Cisco C40, C60, C90		TC5.0.2																												
Vidyo HD Desktop (Windows XP, Vista, 7)		2.1.0.00332_D																												
Polycom HDX 7000, HDX 6000, HDX 4000		2.7.1_J-18032																												
Required Ancillary Equipment		Active Directory																												
		Public Key Infrastructure																												
		SysLog Server																												
		Management Workstation (Microsoft Windows 7)																												
System Under Test																														
MSE 8000 Chassis	MSE 8321 ISDN Gateway	2.1(1.56)P																												
	MSE 8050 Supervisor	2.2(1.17)																												
	MSE 8510 MCU	4.3(1.68)																												
TMS (Optional) (Cisco's UCS C200 Server)		14.0.0																												
VCS (See note.)		X7.1																												
<p>NOTE: The VCS is a required component of the SUT to allow for dual stack functionality of IPv4 and IPv6 video endpoints.</p> <p>LEGEND:</p> <table> <tr> <td>CS</td> <td>Communication Server</td> <td>MCU</td> <td>Multipoint Control Unit</td> </tr> <tr> <td>EWSD</td> <td>Elektronisches Wählsystem Digital</td> <td>MSE</td> <td>Media Service Engine</td> </tr> <tr> <td>HD</td> <td>High Definition</td> <td>MXP</td> <td>Media XPerience</td> </tr> <tr> <td>HDX</td> <td>High Definition Experience</td> <td>NTSC</td> <td>National Television Standards Committee</td> </tr> <tr> <td>IPv4</td> <td>Internet Protocol version 4</td> <td>SUT</td> <td>System Under Test</td> </tr> <tr> <td>IPv6</td> <td>Internet Protocol version 6</td> <td>TMS</td> <td>TelePresence Management Suite</td> </tr> <tr> <td>ISDN</td> <td>Integrated Services Digital Network</td> <td>VCS</td> <td>Video Communication Server</td> </tr> </table>			CS	Communication Server	MCU	Multipoint Control Unit	EWSD	Elektronisches Wählsystem Digital	MSE	Media Service Engine	HD	High Definition	MXP	Media XPerience	HDX	High Definition Experience	NTSC	National Television Standards Committee	IPv4	Internet Protocol version 4	SUT	System Under Test	IPv6	Internet Protocol version 6	TMS	TelePresence Management Suite	ISDN	Integrated Services Digital Network	VCS	Video Communication Server
CS	Communication Server	MCU	Multipoint Control Unit																											
EWSD	Elektronisches Wählsystem Digital	MSE	Media Service Engine																											
HD	High Definition	MXP	Media XPerience																											
HDX	High Definition Experience	NTSC	National Television Standards Committee																											
IPv4	Internet Protocol version 4	SUT	System Under Test																											
IPv6	Internet Protocol version 6	TMS	TelePresence Management Suite																											
ISDN	Integrated Services Digital Network	VCS	Video Communication Server																											

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion. The VTC system interface requirements can be met with an ITU-T H.323 interface or ISDN Primary Rate Interface (PRI) Digital Transmission Link Level 1 (T1)/European Basic Multiplex Rate (E1) with the use of an ITU-T H.323 to ITU-T H.320 gateway. Although each interface is conditional, if the SUT offers an interface, it must meet the critical requirements for that interface. The SUT minimum critical interoperability interface and functional requirements were met through both interoperability certification testing and review of the vendor's Letters of Compliance (LoC). A passed test result was based on 100 percent of the calls receiving a score of four or better on the subjective quality scale as defined in Table 2-3. Furthermore, the SUT has the capability of connecting multiple sites at different bandwidth rates. None of

the conferences that are connected to the SUT were reduced in video quality due to one conferee being at a lower restricted bandwidth.

Table 2-3. Video and Voice Subjective Quality Scale

Rating	Reference	Definition
1	<i>Unusable</i>	Quality is unusable. Voice and video may be heard and seen but is unrecognizable.
2	<i>Poor</i>	Quality is unusable. Words and phrases are not fully understandable or video cannot be properly identified.
3	<i>Fair</i>	Quality is seriously affected by distortion. Repeating words and phrases are required to convey speech or video is seriously impacted and barely recognizable.
4	Good	Quality is usable. Audio or video is not impaired but some distortion is noticeable
5	<i>Excellent</i>	Quality is unaffected. No discernable problems with either audio or video.

NOTE: Audio and video quality during a conference will receive a subjective rating on the Data Collection Form. A rating of lower than 4 on this reference scale is considered a failure.

b. Test Conduct. Multiple two-way T1 PRI 128 – 1472 kilobits per second (kbps) and E1 PRI 128 – 1920 kbps multipoint and Point-to-Point test calls at different durations (15-minutes, 30-minutes, 1-hour, and 24-hours) were placed over the test network shown in Figure 2-2 via all the combinations depicted in Table 2-1.

(1) The UCR 2008, Change 1, section 5.2.4.2, states that the VTC system/endpoints shall meet the requirements of Federal Telecommunications Recommendation (FTR) 1080B-2002. All requirements are derived from UCR 2008, Change 1, Reference (c). The SUT does not support a freeze frame sub-requirement inside FTR-1080B-2002. This sub-requirement was changed to conditional in UCR 2008, Change 3, Reference (d). DISA stated that effective immediately, this is no longer applicable to the SUT. The SUT met the applicable FTR-1080B-2002 requirements through testing and the vendor’s LoC.

(2) The UCR 2008, Change 1, section 5.2.4.2, states that the VTC features and functions used in conjunction with IP network services shall meet the requirements of ITU-T H.323 in accordance with FTR 1080B-2002. Also, ITU-T H.323 video end instruments must meet the tagging requirements as specified in the UCR 2008, Change 1, section 5.3.1. The SUT met the requirements with the minor exceptions listed below.

(a) The SUT MSE 8050, MSE 8321, MSE 8510, and VCS do not currently mark Hyper-Text Transfer Protocol Secure (HTTPS) packets with a Differentiated Services Code Point (DSCP) value. This functionality is planned for the MSE 8050, MSE 8321, and MSE 8510 in a future software release. DISA has accepted and approved the vendor’s Plan of Action and Milestones (POA&M) and adjudicated this discrepancy as having a minor operational impact.

(b) The SUT VCS does not support DSCP tagging for different traffic types. This applies to both IPv4 and IPv6 signaling and media IP traffic. The DSCP value can be set; however, all traffic is tagged with the same DSCP value. DISA has accepted

and approved the vendor's POA&M and adjudicated this discrepancy as having a minor operational impact.

(3) The UCR 2008, Change 1, section 5.3.5.2, Table 5.3.5-1 states that the VTC IP interface must be IPv6 capable. The SUT met this requirement through testing and the vendor's LoC. The VCS is a required component of the SUT to allow for dual stack functionality of IPv4 and IPv6 video endpoints. The SUT met the IPv6 requirements with the following exception. The SUT VCS gatekeeper component required to support IPv6 dual stack partially complies with support of IPv6 Scoped Address Architecture Request for Comments (RFCs) 4007 and 4862. The VCS gatekeeper component required to support IPv6 dual stack does not use its link local address and as a result the VCS will not establish calls to and from its IPv6 Link Local address. However, the VCS gatekeeper component does comply with global unicast addresses. The Office of the Department of Defense (DoD) Chief Information Officer (CIO) granted a waiver of the two IPv6 link local address requirements on 7 December 2012. This waiver applies only to this particular product release, with no expiration date. This waiver does not apply to future product releases.

(4) The UCR 2008, Change 1, section 5.2.4.2, states that the loss of any conferee on a multipoint videoconference shall not terminate or degrade the DSN service supporting VTC connections of any of the other conferees on the videoconference. This was tested during each multipoint session established with the SUT by disconnecting single and multiple conferees. This was done by hanging up and simulating a failure by disconnecting the physical interface. The remaining conferees on the multipoint conference were not affected and remained in the conference 100 percent of the time, which met this requirement.

(5) The UCR 2008, Change 1, section 5.2.4.2, states that an audio add-on interface, implemented independently of an Integrated Access Switch (IAS), shall be in accordance with the UCR 2008 and in particular, Section 5.2.3, Customer Premise Equipment Requirements. The SUT met this requirement through the vendor's LoC.

(6) The UCR 2008, Change 1, section 5.2.4.2, states that the physical, electrical, and software characteristics of VTC system(s)/endpoint(s) that are used in the DISN network shall not degrade or impair the serving DISN switch and its associated network operations. This was tested by conducting other tests on the serving DISN switch while point-to-point and multipoint video sessions were established. The SUT physical, electrical, and software characteristics did not impair the serving DISN switch and its associated operations, which met the requirement.

(7) The UCR 2008, Change 1, section 5.2.4.2, states that a VTC system/endpoint that uses an integrated PRI interface to connect to the DISN shall be in conformance with the requirements associated with an IAS as described in the UCR, Section 5.2.6, IAS requirements. The SUT met this requirement with the following minor exception. The SUT MSE 8321 ISDN gateway does not support B channel

availability. DISA adjudicated this as minor because this discrepancy can be mitigated by manually marking the same B channels out of service at both ends of the circuit.

(8) The UCR 2008, Change 3, section 5.4 states the Information Assurance (IA) requirements for the SUT. Security is tested by DISA-led IA test teams and published in a separate report, Reference (f).

c. Test Summary. The SUT met the critical interface and FRs for a VTC system with the interfaces depicted in Table 2-1 and is certified for joint use within the DISN. The SUT met the requirements for an IP interface with the ITU-T H.323 protocol; however, Assured Service is not yet defined for an IP interface with the ITU-T H.323 protocol. Since the IP interface with the ITU-T H.323 protocol does not provide Assured Services during a crisis or contingency, users' access to the DISN will be on a best effort basis. Therefore, Command and Control (C2) VTC users and Special C2 VTC users are not authorized to be served by an IP interface with the ITU-T H.323 protocol.

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). 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). 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: disa.meade.ns.list.unified-capabilities-certification-office@mail.mil. All associated data is available on the DISA UCCO website located at <http://www.disa.mil/ucco/>.