



## DEFENSE INFORMATION SYSTEMS AGENCY

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

Joint Interoperability Test Command (JTE)

IN REPLY  
REFER TO:

MEMORANDUM FOR DISTRIBUTION

**14 Apr 11**

**SUBJECT:** Special Interoperability Test Certification of Cisco Unified MeetingPlace® Express with Software Release 2.1

**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 Cisco Unified MeetingPlace® Express with Software Release 2.1 is hereinafter referred to as the System Under Test (SUT). The SUT meets all of its critical interoperability requirements and is certified as interoperable for joint use within the Defense Information System Network (DISN) as a Customer Premise Equipment Meet Me Conferencing system. The SUT is a voice conferencing solution that integrates video and web conferencing capabilities including optional tools, e.g., presentations, chat, whiteboard and application sharing. The video and web conferencing capabilities and the optional tools were not tested and are not covered under this certification. The SUT is certified for joint use within the DISN specifically with any Cisco CallManager Private Branch Exchange 1 listed on Unified Capabilities (UC) Approved Products List (APL). The SUT was tested on the Media Convergence Server (MCS) 7835. The other 7800 Series Servers utilize the same software and hardware and JITC analysis determined them to be functionally identical for interoperability certification purposes and they are also certified for joint use with the SUT. The SUT is certified to support Defense Switched Network (DSN) Assured Services with any Assured Services Local Area Network (ASLAN) on the UC APL. The SUT is also certified for joint use with any non-ASLAN on the UC APL. Since non-ASLANs are not required to support the availability or reliability requirements detailed in the Unified Capabilities Requirements (UCR) for ASLANs, C2 users and Special C2 users are not authorized on the SUT when connected to a non-ASLAN. The SUT met 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 affect interoperability, but no later than three years from the date of Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation.

3. This finding 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 through 30 January 2009. Review of the vendor’s LoC was completed on 27 June 2008. The DSAWG granted accreditation on 14 April 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 network.

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

**Table 1. SUT Functional Requirements and Interoperability Status**

Interface	Critical	Certified	Functional Requirements	Status	UCR Paragraph
IEEE 802.3u 100/1000 BaseTX	Yes	Yes	Each Meet-Me Conference shall be capable of MLPP (R)	Met	2.6.2
			Precedence above ROUTINE (C)	Met	2.6.2
			Each Meet-Me Conference shall be capable of establishing two separate bridges with each bridge having a capacity of 10 conferees each. (C)	Met	2.6.2
			IP Tagging (R)	Met	A3.2.9.2
			ITU-T G.711 codec (R)	Met	A.3.2.2
			MOS (R)	Met	A3.2.1
			Ethernet interface in accordance with IEEE 802.3-2002 (R)	Met	A7.5
Yes	Yes	Security (R)	See note.	A7.6	

**NOTE:** Information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report, Reference (e).

**LEGEND:**

100BaseTX	100 Mbps Ethernet over Category 5 Twisted Pair Copper	IEEE	Institute of Electrical and Electronics Engineers
1000BaseTX	100 Mbps Ethernet over Category 5 Twisted Pair Copper	IP	Internet Protocol
802.3u	Standard for carrier sense multiple access with collision detection at 100 Mbps	ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
A	Appendix	Mbps	Megabits per second
C	Conditional	MLPP	Multi-Level Precedence and Preemption
DISA	Defense Information Systems Agency	MOS	Mean Opinion Score
G.711	Pulse Code Modulation (PCM) of Voice Frequencies	R	Required
		SUT	System Under Test
		UCR	Unified Capabilities Requirements

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 <https://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

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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](mailto:ucco@disa.mil).

6. The JITC point of contact is Edward Mellon, DSN 879-5159, commercial (520) 538-5159, FAX DSN 879-4347, or e-mail to [edward.mellon@disa.mil](mailto:edward.mellon@disa.mil). The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0823101.

FOR THE COMMANDER:

2 Enclosures a/s

  
for BRADLEY A. CLARK  
Chief  
Battlespace Communications Portfolio

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 Unified Capabilities Requirements (UCR), December 2007
- (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 Cisco Unified MeetingPlace® Express with Software Release 2.1 (Tracking Number 0823101)," 14 April 2011

## CERTIFICATION TESTING SUMMARY

**1. SYSTEM TITLE.** Cisco Unified MeetingPlace® Express with Software Release 2.1; hereinafter referred to as the System Under Test (SUT).

**2. PROPONENT.** Joint Communications Support Element (JCSE).

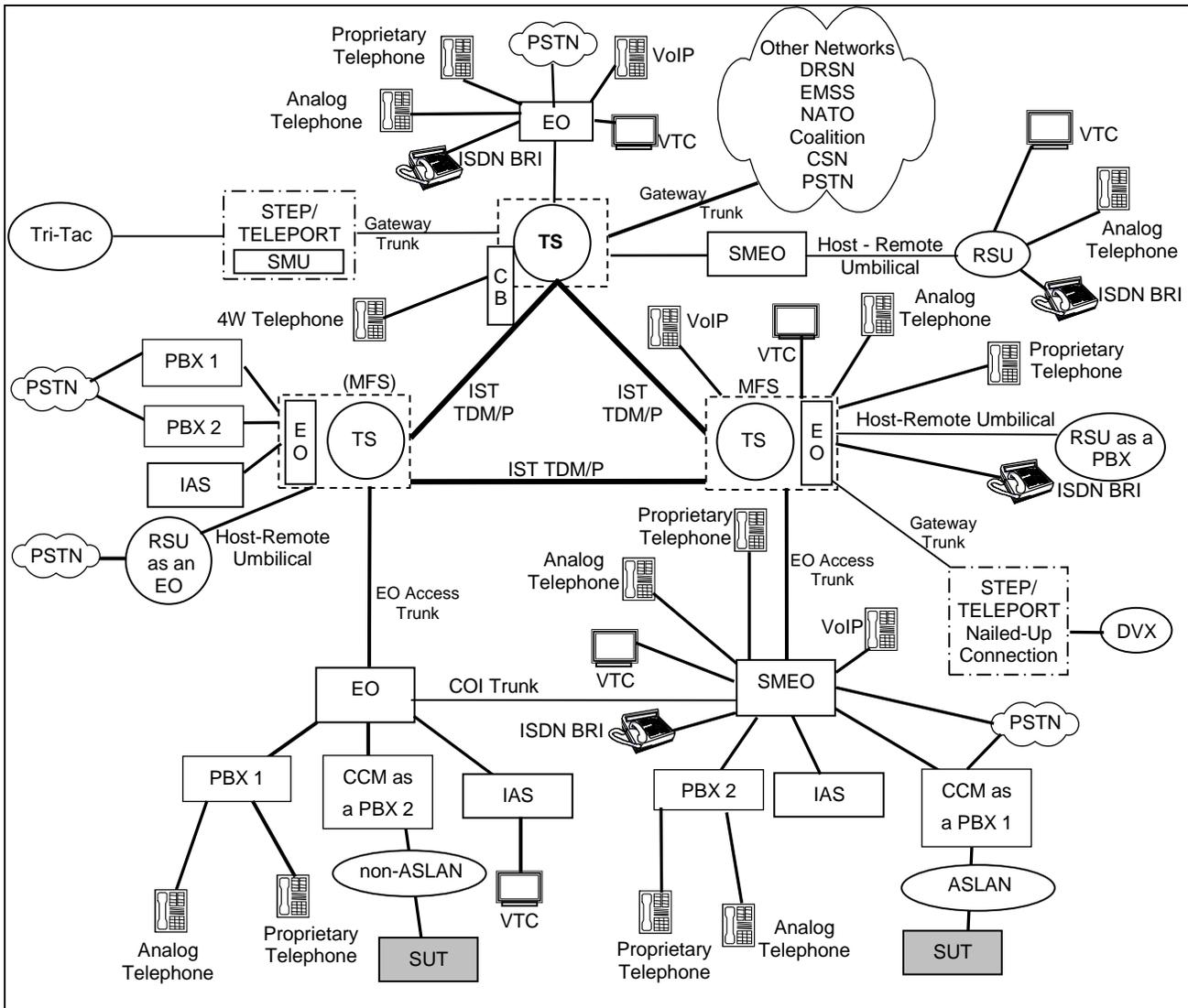
**3. PROGRAM MANAGERS.** Major Vernon Isaacs, JCSE, 8632 Marina Drive MacDill, Florida, 33521, E-mail: Vernon.Isaacs@jcse.mil.

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

**5. SYSTEM UNDER TEST DESCRIPTION.** The SUT is a voice conferencing solution that integrates with video and web conferencing capabilities including optional collaboration tools, presentations, chat, whiteboard, and application sharing. These optional tools were not tested and are not covered under this certification. The SUT conference server is a call- and voice-processing hardware platform that provides digital telephony access for Defense Switched Network (DSN) and Public Switched Telephone Network (PSTN) users and to Internet Protocol (IP) telephony infrastructures. The SUT is for use specifically with Cisco CallManagers listed on the Unified Capabilities (UC) Approved Products List (APL) which are certified as Private Branch Exchange (PBX) 1s.

The SUT application is installed on a Cisco Media Convergence Server (MCS)7835. JITC analysis determined the Cisco MCS7800 series has the same hardware and software as the MCS7835 and the MCS7800 series is also covered under this certification as the SUT platform. The Cisco MCS7800 series provides server platforms to host applications within the Cisco Unified Communications system. The SUT includes a Cisco Adaptive Security Appliance (ASA) to provide CAC authentication through a Virtual Private Network to meet Information Assurance requirements.

**6. OPERATIONAL ARCHITECTURE.** The Unified Capabilities Requirements (UCR) DSN architecture in Figure 2-1 depicts the relationship of the SUT to the DSN switches.



**LEGEND:**

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

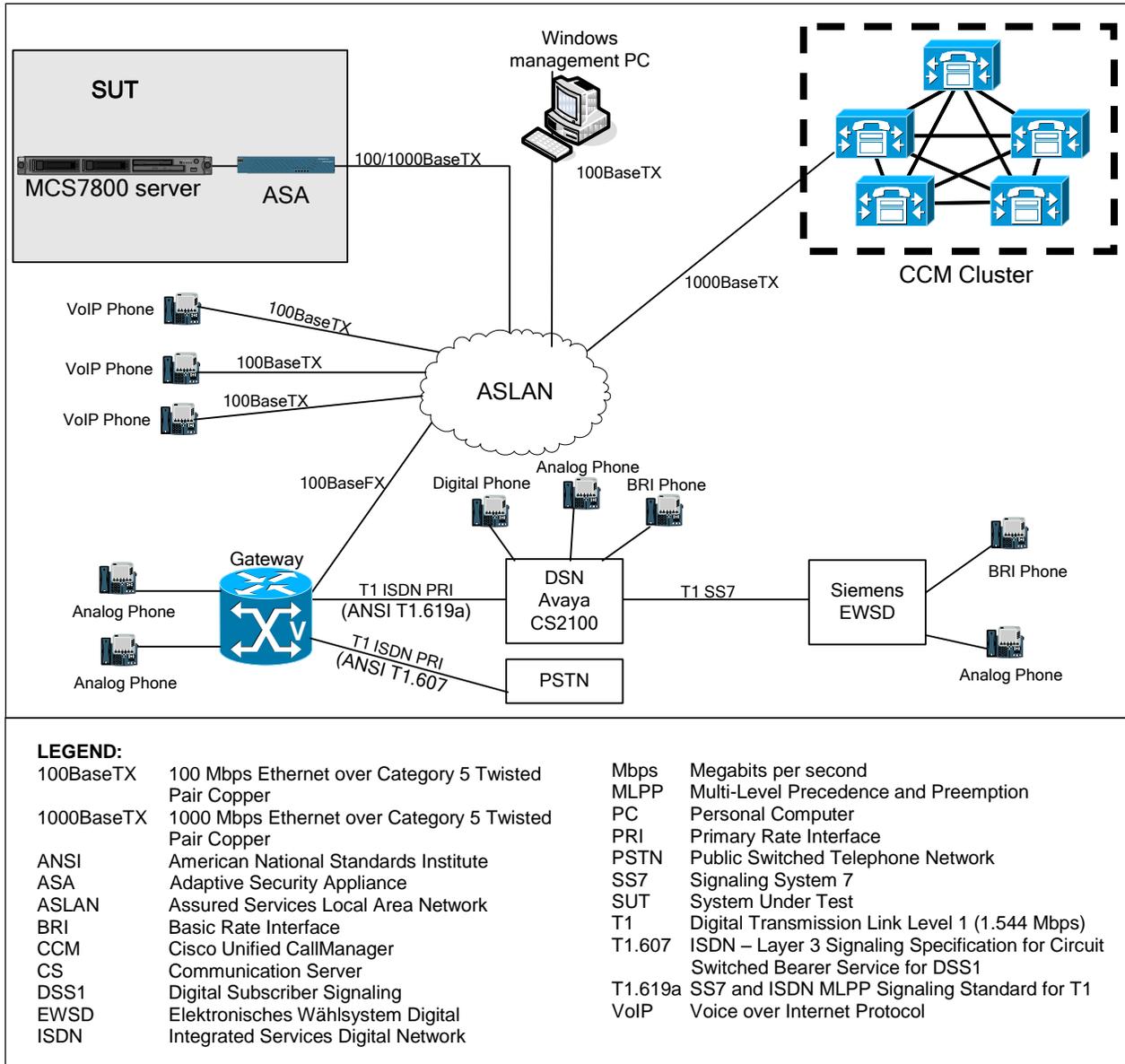
**Figure 2-1. DSN Architecture**

**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 verified through JITC testing.

**Table 2-1. SUT Functional Requirements and Interoperability Status**

Interface	Critical	Certified	Functional Requirements	Status	UCR Paragraph																																				
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<p><b>NOTE:</b> Information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report, Reference (e).</p> <p><b>LEGEND:</b></p> <table> <tr> <td>100BaseTX</td> <td>100 Mbps Ethernet over Category 5 Twisted Pair Copper</td> <td>IEEE</td> <td>Institute of Electrical and Electronics Engineers</td> </tr> <tr> <td>1000BaseTX</td> <td>100 Mbps Ethernet over Category 5 Twisted Pair Copper</td> <td>IP</td> <td>Internet Protocol</td> </tr> <tr> <td>802.3u</td> <td>Standard for carrier sense multiple access with collision detection at 100 Mbps</td> <td>ITU-T</td> <td>International Telecommunication Union - Telecommunication Standardization Sector</td> </tr> <tr> <td>A</td> <td>Appendix</td> <td>Mbps</td> <td>Megabits per second</td> </tr> <tr> <td>C</td> <td>Conditional</td> <td>MLPP</td> <td>Multi-Level Precedence and Preemption</td> </tr> <tr> <td>DISA</td> <td>Defense Information Systems Agency</td> <td>MOS</td> <td>Mean Opinion Score</td> </tr> <tr> <td>G.711</td> <td>Pulse Code Modulation (PCM) of Voice Frequencies</td> <td>R</td> <td>Required</td> </tr> <tr> <td></td> <td></td> <td>SUT</td> <td>System Under Test</td> </tr> <tr> <td></td> <td></td> <td>UCR</td> <td>Unified Capabilities Requirements</td> </tr> </table>						100BaseTX	100 Mbps Ethernet over Category 5 Twisted Pair Copper	IEEE	Institute of Electrical and Electronics Engineers	1000BaseTX	100 Mbps Ethernet over Category 5 Twisted Pair Copper	IP	Internet Protocol	802.3u	Standard for carrier sense multiple access with collision detection at 100 Mbps	ITU-T	International Telecommunication Union - Telecommunication Standardization Sector	A	Appendix	Mbps	Megabits per second	C	Conditional	MLPP	Multi-Level Precedence and Preemption	DISA	Defense Information Systems Agency	MOS	Mean Opinion Score	G.711	Pulse Code Modulation (PCM) of Voice Frequencies	R	Required			SUT	System Under Test			UCR	Unified Capabilities Requirements
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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. 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 the 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 switches that are certified with the SUT. The SUT is certified with all Cisco CallManager PBX 1 switching systems listed on the UC APL that offer the same certified interfaces.

**Table 2-2. Tested System Configuration**

System Name	Software Release																																	
Siemens EWSD	19d with Patch Set 46																																	
Avaya CS2100	Succession Enterprise (SE)09.1																																	
Cisco CallManager	4.3(2) SR1b with Internetwork Operating System (IOS) 12.4(15)T8																																	
Management Console	Windows XP Pro SP2 Workstation																																	
<b>SUT</b> Cisco Unified MeetingPlace® Express with Software Release 2.1	Hardware	Software																																
	MCS7835 (See note.)	Red Hat AS 3 Update 9																																
		Informix Database 10.00.UC4x2																																
		Tomcat Web Server 5.5.27																																
Cisco ASA 5510	Version 7.2(4)30																																	
<p><b>NOTE:</b> The SUT application is installed on a Cisco MCS7835. JITC analysis determined the Cisco MCS7800 series has the same hardware and software as the MCS7835 and the MCS7800 series is also covered under this certification as the SUT platform.</p> <p><b>LEGEND:</b></p> <table> <tr> <td>ASA</td> <td>Adaptive Security Appliance</td> <td>OS</td> <td>Operating System</td> </tr> <tr> <td>IIS</td> <td>Internet Information Server</td> <td>RAE</td> <td>Required Auxiliary Equipment</td> </tr> <tr> <td>IP</td> <td>Internet protocol</td> <td>SP</td> <td>Service Pack</td> </tr> <tr> <td>CS</td> <td>Communication Server</td> <td>SQL</td> <td>Structured Query Language</td> </tr> <tr> <td>EWSD</td> <td>Elektronisches Wählsystem Digital</td> <td>SR</td> <td>Software Release</td> </tr> <tr> <td>MCS</td> <td>Media Convergence Server</td> <td>SUT</td> <td>System Under Test</td> </tr> <tr> <td>MP</td> <td>Meeting Place</td> <td>XP</td> <td>Experience</td> </tr> <tr> <td>N/A</td> <td>Not Applicable</td> <td></td> <td></td> </tr> </table>			ASA	Adaptive Security Appliance	OS	Operating System	IIS	Internet Information Server	RAE	Required Auxiliary Equipment	IP	Internet protocol	SP	Service Pack	CS	Communication Server	SQL	Structured Query Language	EWSD	Elektronisches Wählsystem Digital	SR	Software Release	MCS	Media Convergence Server	SUT	System Under Test	MP	Meeting Place	XP	Experience	N/A	Not Applicable		
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IIS	Internet Information Server	RAE	Required Auxiliary Equipment																															
IP	Internet protocol	SP	Service Pack																															
CS	Communication Server	SQL	Structured Query Language																															
EWSD	Elektronisches Wählsystem Digital	SR	Software Release																															
MCS	Media Convergence Server	SUT	System Under Test																															
MP	Meeting Place	XP	Experience																															
N/A	Not Applicable																																	

**10. TEST LIMITATIONS.** None.

**11. TEST RESULTS**

**a. Discussion.** Inter-switch and intra-switch calls were placed to the SUT to test meet-me conference server interaction with MLPP. Intra-switch testing was conducted on the Cisco CallManager PBX 1. Inter-switch testing was conducted between the Cisco CallManager PBX 1, Siemens EWSD, and the Avaya CS2100 over American National Standards Institute (ANSI) T1.619a Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) and Signaling System 7 (SS7) circuits. The full capacity of ports on the SUT and the ANSI T1.619a ISDN PRI circuit were active with intra-switch and inter-switch calls. The UCR requirement states that a switch shall meet the Meet-Me conference requirements with an internal or external conference bridge. The SUT was tested as an external bridge connected to the switch.

(1) The SUT was tested and met the following FRs for Meet-Me Conferencing as described in UCR, paragraph 2.6.2:

(a) Each Meet-Me conference bridge shall be fully capable of Multi-Level Precedence and Preemption (MLPP) access and control as described in paragraph 3.1.4.

(b) When a precedence call above ROUTINE is placed to a Meet-Me conference bridge that is activated with no remaining idle resources, the switch shall conduct a preemptive search to determine the lowest active resource on the bridge, and

that resource shall receive a Precedence Notification Tone (PNT) and be preempted. All remaining conferees on the bridge shall receive a conference disconnect tone.

The following tests were conducted to insure that the SUT properly interacted with MLPP as required in the UCR.

- Intra-switch and inter-switch calls were placed to the SUT at all precedence levels.
- Higher precedence intra-switch and inter-switch calls placed to the SUT preempted the lowest active conferee which received the proper PNT. The remaining conferees received a proper conference disconnect tone.
- ROUTINE intra-switch and inter-switch calls placed to the SUT received a proper busy tone.
- Equal or lower precedence intra-switch and inter-switch calls above ROUTINE were placed to the SUT and the caller received the proper Blocked Precedence Announcement.

(2) To support a PBX 1, the conference bridge shall support a minimum of two separate bridges with each bridge having the capacity for ten conferees. The SUT met this requirement with a capability to support at least two separate bridges with each bridge having the capacity for 200 conferees depending on the MCS server platform used.

(3) The SUT met the critical IP requirements in accordance with UCR, appendix 3.

(a) In accordance with the UCR, appendix 3, paragraph A3.2.9.2, the End Instrument (EI) devices shall meet the following requirements: All End Instrument components shall be capable of implementing Service Class tagging using the 6-bit DSCPs field in the IP Header. The DSCPs shall be assigned to any distinct service class that originates or traverses the EI. The SUT met this requirement by correctly tagging and prioritizing Signaling and Media traffic via DSCP with any value 0 through 63.

(b) In accordance with the UCR, appendix 3, paragraph A3.2.2, the SUT shall use ITU-T G.711 codec. The SUT met this requirement by using ITU-T G.711 codec for all media streams and 20 ms packets.

(c) In accordance with the UCR, appendix 3, paragraph A3.2.1, the voice quality shall have a mean opinion score (MOS) of 4.0 or better, as measured in accordance with P.800 series voice quality standards. Additionally, VoIP systems shall not lose more than 150 milliseconds (ms) of voice media in any five-minute period. This

SUT met this requirement with a Voice quality measured a 4.0 or better when averaged over a five-minute period.

**b. Test Summary.** The SUT met the critical interoperability requirements for a Customer Premise Equipment Meet Me Conference and is certified for joint use within the Defense Information System Network (DISN) specifically with the Cisco CallManager PBX 1 switches posted on the UC APL.

**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). 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](mailto:ucco@disa.mil).