



## DEFENSE INFORMATION SYSTEMS AGENCY

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

1 Oct 12

### MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of the T-Metrics (TM)-2000 Multi-Purpose Automatic Call Distribution (ACD) Platform with Release 6.0

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 Security Agency (DISA) Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.
2. The T-Metrics (TM)-2000 Multi-Purpose Platform with Release 6.0 is hereinafter referred to as the System Under Test (SUT). The SUT meets all of its critical interoperability requirements and is therefore certified for joint use within the Defense Information Systems Network (DISN) as a Customer Premise Equipment (CPE) ACD specifically with any Cisco Unified Communications Manager (CUCM) Local Session Controller (LSC) or Avaya AS5300 LSC listed on the Unified Capabilities (UC) Approved Product List (APL). 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 memorandum, are certified by JITC. This certification expires upon changes that could affect interoperability, but no later than three years from the date of this memorandum.
3. This finding is based on interoperability testing conducted by JITC, review of the vendor's Letters of Compliance (LoC), and DISA Certifying Authority (CA) Recommendation of the Information Assurance (IA) configuration. Interoperability testing was conducted by JITC, Fort Huachuca, Arizona, from 28 May through 8 June 2012. Review of the vendor's LoC was completed on 21 May 2012. The DISA CA provided a positive Recommendation on 13 August 2012 based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (e). The acquiring agency or site will be responsible for the DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation. Enclosure 2 documents the test results and describes the tested network and system configurations including specified patch releases.
4. The interface, Capability Requirement (CR) and Functional Requirement (FR), and component status of the SUT are listed in Tables 1 and 2. The threshold CR/FRs for CPE are established by Section 5.2.1.2 of Reference (c) and were used to evaluate the interoperability of



**Table 2. SUT CRs and FRs Status (continued)**

<b>LEGEND:</b>			
ACTA	Administrative Council for Terminal Attachments	ID	Identification
ADIMSS	Advanced Defense Switched Network (DSN) Integrated Management Support System	IP	Internet Protocol
CPE	Customer Premise Equipment	IPv6	Internet Protocol version 6
CR	Capability Requirement	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements
DISA	Defense Information Systems Agency	LoC	Letters of Compliance
DTMF	Dual Tone Multi-Frequency	LSC	Local Session Controller
FCC	Federal Communications Commission	MLPP	Multi-Level Precedence and Preemption
FR	Functional Requirement	NA/SS	Network Appliances and Simple Servers
GR	Generic Requirement	SUT	System Under Test
GR-506	LSSGR: Signaling for Analog Interfaces	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 <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](mailto:disa.meade.ns.list.unified-capabilities-certification-office@mail.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.P.Arsenault.fm@mail.mil](mailto:Stephane.P.Arsenault.fm@mail.mil). JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 1134202.

FOR THE COMMANDER:



for RICHARD A. MEADOR  
Chief  
Battlespace Communications Portfolio

3 Enclosures a/s

JITC Memo, JTE, Special Interoperability Test Certification of the T-Metrics (TM)-2000 Multi-Purpose Platform with Release 6.0

Distribution (electronic mail):

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DISA/TEMC

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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 3," September 2011
- (d) Joint Interoperability Test Command, "Unified Capabilities E911 Test Plan," Draft
- (e) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of T-Metrics (TM)-2000 Automatic Call Distribution (ACD) Multi-Purpose Platform Version (v) 6.0 (Tracking Number 1134202)," Draft

## CERTIFICATION TESTING SUMMARY

- 1. SYSTEM TITLE.** T-Metrics (TM)-2000 Multi-Purpose Automatic Call Distribution (ACD) Platform with Release 6.0; hereinafter referred to as the System Under Test (SUT).
- 2. SPONSOR.** United States Air Force, Headquarters, Air Education and Training Command (HQ AETC/A6OI). Ricky Rider, 61 Main Circle, Suite 2, Randolph Air Force Base, Texas, 78150 e-mail: ricky.rider@randolph.af.mil.
- 3. SYSTEM POC.** Mr. Bill Sandford, 4430 Stuart Andrew Boulevard, Charlotte, North Carolina 28217, e-mail: wsandford@tmetrics.com.
- 4. TESTER.** Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.
- 5. SYSTEM DESCRIPTION.** The SUT is an Interactive Voice Response (IVR) system, also known as an ACD. The SUT can be setup to answer incoming calls, query the caller, and wait for Dual Tone Multi-Frequency (DTMF) responses to those queries. The automated call feature routes the calls based on the inputted user responses. The on-site telephone switches provide the voice connections between the caller and the internal SIP interfaces, or the various end instrument phones in use. The SUT is interoperable and certified for joint use specifically with any Cisco Unified Communications Manager (CUCM) and Avaya AS5300 Local Session Controllers (LSCs) listed on the Unified Capabilities (UC) Approved Product List (APL). The SUT certified interface includes the Institute of Electrical and Electronic Engineers (IEEE) 802.3u. The SUT includes the following components:

TM-2000 ACD. The TM-2000 ACD is a Windows 2008 OS server that functions as the central control unit of the TM-2000 ACD system. The TM-2000 ACD server immediately connects each caller to the most appropriate resource or provides an interactive queue for callers when those resources are busy. The ACD Controller application loaded on the server determines all call handling decisions made based upon the call status and inputs from the Digi Server and the Agent Personal Computer (PC) modules. The TM-2000 ACD also accumulates performance statistics that are subsequently sent to an authorized terminal on the network. The TM-2000 ACD server hosts the TM-2000 Reporting Module web application, which is access by a securely configured web browser on the Agent PC. The ACD Controller application is the main access point for making system changes to the following properties:

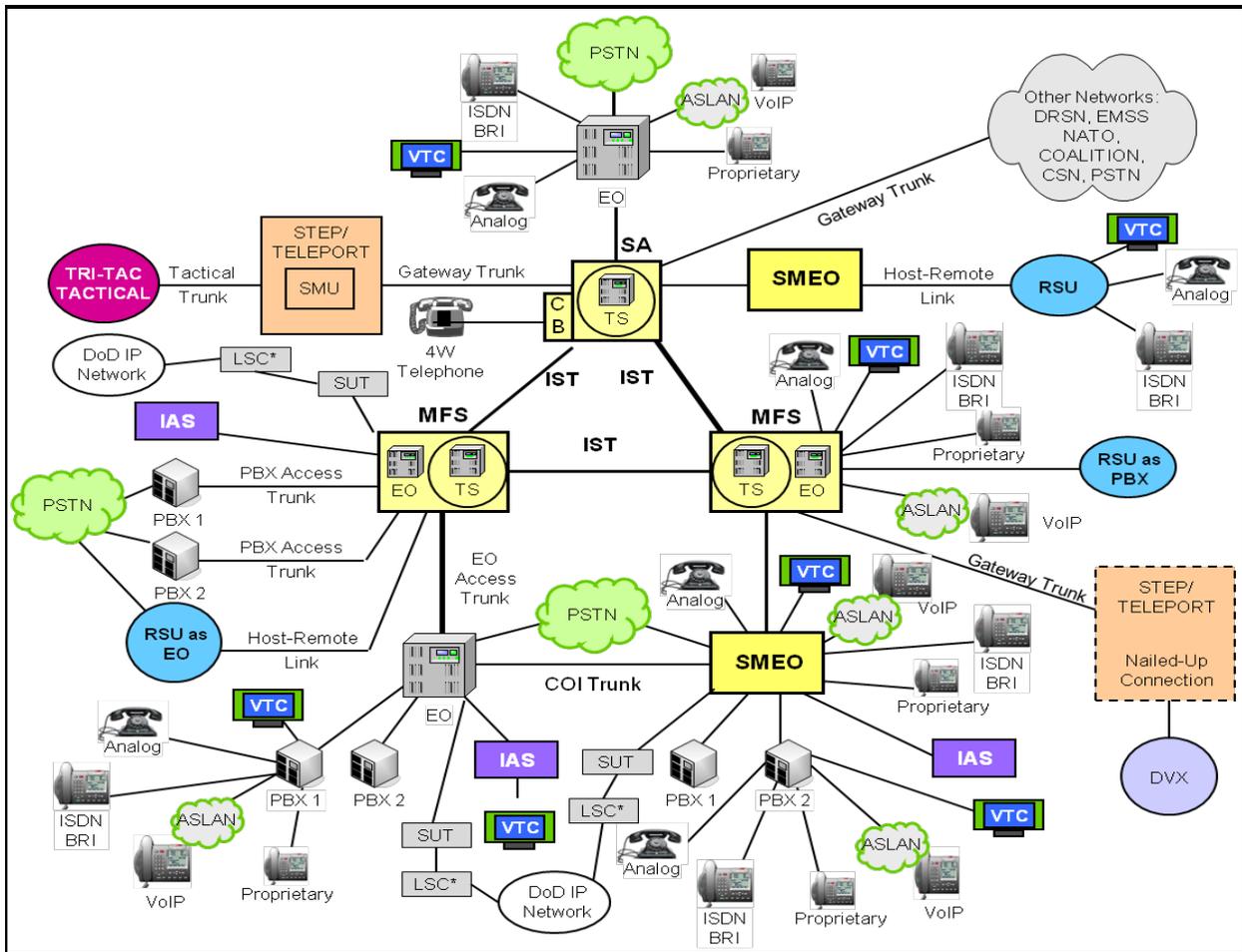
- Skill Sets
- Agent Skill Set Assignments
- Agent Preference Level Assignments
- Holiday Schedule by Skill Set
- Weekday Schedule by Skill Set
- System Recordings
- Event Mappings

- Trunk Mappings to Events or Skill Sets
- Supervisor Assignments
- Activities Item Mappings to a Skill Set
- Position Status Definitions and Options
- Call Reasoning and Dialed Number Identification Service Definition and Routing

Digi Server. The Digi Server is a Windows 2008 Server that provides a variety of switching functions for the TM-2000 ACD system based upon how the TM-2000 ACD is deployed. The Digi Server is needed to answer and service incoming calls, playing 'wav' files to the callers, and accepting DTMF responses from the callers to determine which agents are best suited to serve the caller's needs. Once this determination is made and an agent is available, the system transfers / refers the call to the agent. The Digi Server is also used to monitor the presence of an agent on the system to tell the system when an agent is available to accept a call.

Agent PC. The Agent PC workstations are site-provided Windows 7 PCs with the Agent Module client application. The Agent Module application allows the Agent PC to communicate to the TM-2000 Server that the agent has agreed to accept telephone calls from the TM-2000.

**6. OPERATIONAL ARCHITECTURE.** Figure 2-1 depicts the Defense Information System Network (DISN) Unified Capabilities notional operational architecture that the SUT may be used in.



**NOTE:** LSC\* in the diagram denotes Avaya AS5300 or Cisco CUCM. The SUT is certified specifically with any Avaya AS5300 or Cisco CUCM LSC on the UC APL.

**LEGEND:**

4W	4-Wire	LSC	Local Session Controller
APL	Approved Products List	MFS	Multifunction Switch
ASLAN	Assured Services Local Area Network	NATO	North Atlantic Treaty Organization
BRI	Basic Rate Interface	PBX	Private Branch Exchange
CB	Channel Bank	PBX 1	Private Branch Exchange 1
COI	Community of Interest	PBX 2	Private Branch Exchange 2
CSN	Canadian Switch Network	PSTN	Public Switched Telephone Network
CUCM	Cisco Unified Communications Manager	RSU	Remote Switching Unit
DISN	Defense Information System Network	SA	Standalone
DoD	Department of Defense	SMEO	Small End Office
DRSN	Defense Red Switch 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
IP	Internet Protocol	UC	Unified Capabilities
ISDN	Integrated Services Digital Network	VoIP	Voice over Internet Protocol
IST	Interswitch Trunk	VTC	Video Teleconferencing

**Figure 2-1. DISN Unified Capabilities Notional Operational Architecture**

**7. INTEROPERABILITY REQUIREMENTS.** The interface, Capability Requirements (CR) and Functional Requirements (FR), and other requirements for Customer Premise Equipments (CPEs) are established by Section 5.2.1.2 of Reference (c).

**7.1 Interfaces.** The SUT uses the interfaces shown in Table 2-1 to connect to the Global Information Grid network. This table shows the physical interfaces supported by the SUT and the associated standards.

**Table 2-1. CPE Interface Requirements**

Interface	Critical	UCR Reference	Criteria																								
10Base-X	Yes	5.3.2.4.2	Support minimum threshold CRs/FRs (1-3) and meet interface criteria for IEEE 802.3i.																								
100Base-X	Yes	5.3.2.4.2	Support minimum threshold CRs/FRs (1-3) and meet interface criteria for IEEE802.3u.																								
1000Base-X	No	5.3.2.4.2	Support minimum threshold CRs/FRs (1-3) and meet interface criteria for IEEE 802.3z or IEEE 802.3ab.																								
<p><b>NOTES:</b> The annotation of 'required' refers to a high-level requirement category. The applicability of each sub-requirement is provided in Enclosure 3. The system under test does not need to provide conditional requirements. However, if a capability is provided, it must function according to the specified requirements in order to be certified for that capability.</p> <p><b>LEGEND:</b></p> <table border="0"> <tr> <td>802.3ab</td> <td>1000BaseT Gbps Ethernet over twisted pair at 1 Gbps (125 Mbps)</td> <td>FR</td> <td>Functional Requirement</td> </tr> <tr> <td>802.3i</td> <td>10BaseT Mbps over twisted pair</td> <td>Gbps</td> <td>Gigabits per second</td> </tr> <tr> <td>802.3u</td> <td>Standard For Carrier Sense Multiple Access With Collision Detection At 100 Mbps</td> <td>IEEE</td> <td>Institute of Electrical and Electronics Engineers</td> </tr> <tr> <td></td> <td></td> <td>Mbps</td> <td>Megabits per second</td> </tr> <tr> <td></td> <td></td> <td>SUT</td> <td>System Under Test</td> </tr> <tr> <td>CR</td> <td>Capability Requirement</td> <td>UCR</td> <td>Unified Capabilities Requirements</td> </tr> </table>				802.3ab	1000BaseT Gbps Ethernet over twisted pair at 1 Gbps (125 Mbps)	FR	Functional Requirement	802.3i	10BaseT Mbps over twisted pair	Gbps	Gigabits per second	802.3u	Standard For Carrier Sense Multiple Access With Collision Detection At 100 Mbps	IEEE	Institute of Electrical and Electronics Engineers			Mbps	Megabits per second			SUT	System Under Test	CR	Capability Requirement	UCR	Unified Capabilities Requirements
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		SUT	System Under Test																								
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**7.2 CR and FR.** CPEs have required and conditional features and capabilities that are established by Section 5.2.1 of the UCR. The SUT does not need to provide non-critical (conditional) requirements. If they are provided, they must function according to the specified requirements in order to be certified for that capability. The SUT's features and capabilities and its aggregated requirements in accordance with (IAW) the UCR CPE requirements are listed in Table 2-2. Detailed CR/FR requirements are provided in Table 3-1 of Enclosure 3.

**Table 2-2. Customer Premise Equipment CRs and FRs**

CR/FR ID	Capability/Function	Applicability (See note.)	UCR Reference
<b>Product Interface Requirements</b>			
1	Interfaces to LSC	Required	5.3.2.4.2

**Table 2-2. Customer Premises Equipment CRs and FRs (continued)**

CR/FR ID	Capability/Function	Applicability (See note.)	UCR Reference																												
<b>Customer Premise Equipment Requirements</b>																															
2	MLPP in accordance with requirements listed in section 5.3.2.3.31.3	Conditional	5.2.1.2(1)																												
	FCC Part 15/Part 68 and ACTA	Required	5.2.1.2(2)																												
	Auto Answer mode settable to more than the equivalency of 4 Routine rings	Conditional	5.2.12(3)																												
	MLPP precedence call alerting	Conditional	5.2.1.2(4)																												
	If configuration management and or fault management are/is provided by the CPE device so that it can be managed by the ADIMSS or other management systems, the management information shall be provided by one or more detail or Ethernet interface	Conditional	5.2.1.2(8)																												
	Calls above Routine placed to the SUT shall divert to a designated Directory Number	Required	5.3.2.2.2.1.2.5																												
<b>IPv6 Requirements</b>																															
3	If CPE has an IP interface, the CPE must be IPv6 capable. Use guidance in Table 5.3.5-4 for NA/SS	Required	5.3.5-1																												
<b>Information Assurance</b>																															
4	DISA STIGs	Required	5.3.2.34.9																												
<p><b>NOTE:</b> The annotation of 'required' refers to a high-level requirement category. The applicability of each sub-requirement is provided in Enclosure 3.</p> <p><b>LEGEND:</b></p> <table border="0"> <tr> <td>ACTA</td> <td>Administrative Council for Terminal Attachments</td> <td>IP</td> <td>Internet Protocol</td> </tr> <tr> <td>ADIMSS</td> <td>Advanced Defense Switched Network (DSN) Integrated Management Support System</td> <td>IPv6</td> <td>Internet Protocol version 6</td> </tr> <tr> <td>CPE</td> <td>Customer Premise Equipment</td> <td>LSC</td> <td>Local Session Controller</td> </tr> <tr> <td>CR</td> <td>Capability Requirement</td> <td>MLPP</td> <td>Multi-Level Precedence and Preemption</td> </tr> <tr> <td>FCC</td> <td>Federal Communications Commission</td> <td>NA/SS</td> <td>Network Appliances and Simple Servers</td> </tr> <tr> <td>FR</td> <td>Functional Requirement</td> <td>SUT</td> <td>System Under Test</td> </tr> <tr> <td>ID</td> <td>Identification</td> <td>UCR</td> <td>Unified Capabilities Requirements</td> </tr> </table>				ACTA	Administrative Council for Terminal Attachments	IP	Internet Protocol	ADIMSS	Advanced Defense Switched Network (DSN) Integrated Management Support System	IPv6	Internet Protocol version 6	CPE	Customer Premise Equipment	LSC	Local Session Controller	CR	Capability Requirement	MLPP	Multi-Level Precedence and Preemption	FCC	Federal Communications Commission	NA/SS	Network Appliances and Simple Servers	FR	Functional Requirement	SUT	System Under Test	ID	Identification	UCR	Unified Capabilities Requirements
ACTA	Administrative Council for Terminal Attachments	IP	Internet Protocol																												
ADIMSS	Advanced Defense Switched Network (DSN) Integrated Management Support System	IPv6	Internet Protocol version 6																												
CPE	Customer Premise Equipment	LSC	Local Session Controller																												
CR	Capability Requirement	MLPP	Multi-Level Precedence and Preemption																												
FCC	Federal Communications Commission	NA/SS	Network Appliances and Simple Servers																												
FR	Functional Requirement	SUT	System Under Test																												
ID	Identification	UCR	Unified Capabilities Requirements																												

**7.3 Information Assurance (IA).** Table 2-3 details the IA requirements applicable to the CPE products.

**Table 2-3. CPE IA Requirements**

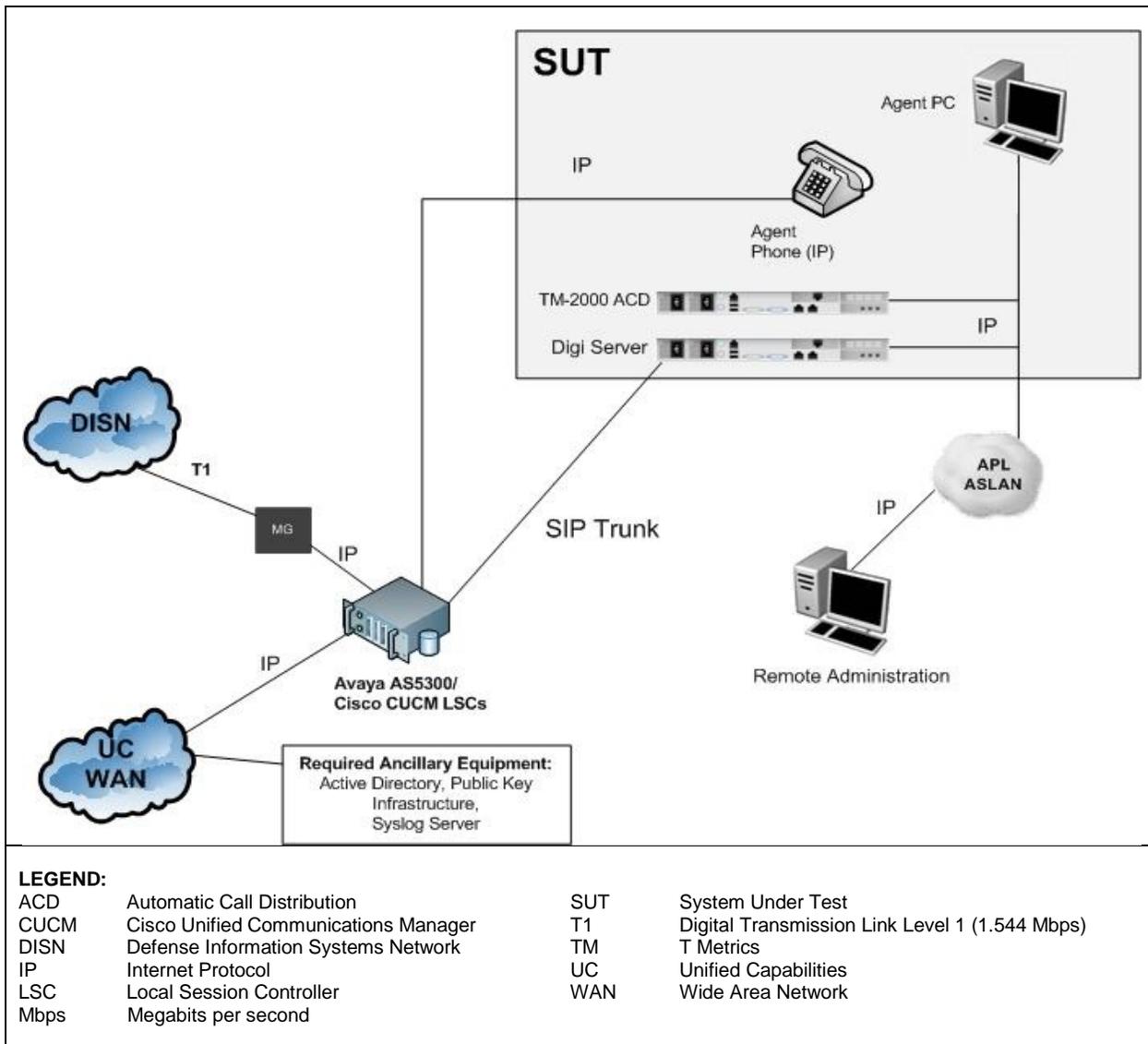
Requirement	Applicability (See note.)	UCR Reference	Criteria
General Requirements	Required	5.4.6.2	Detailed requirements and associated criteria for CPE are listed in Reference (e).
Authentication	Required	5.4.6.2.1	
Integrity	Required	5.4.6.2.2	
Confidentiality	Required	5.4.6.2.3	
Non-Repudiation	Required	5.4.6.2.4	
Availability	Required	5.4.6.2.5	
<p><b>NOTE:</b> The annotation of 'required' refers to a high-level requirement category of IA requirements from the UCR 2008, Change 3, Section 5.4. The detailed IA requirements are included in Reference (e).</p>			

**Table 2-3. CPE IA Requirements (continued)**

<b>LEGEND:</b>			
CPE	Customer Premises Equipment	UCR	Unified Capabilities Requirements
IA	Information Assurance		

**7.4 Other.** None

**8. TEST NETWORK DESCRIPTION.** The SUT was tested at JITC, Fort Huachuca, Arizona in a manner and configuration similar to that of a notional 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 2-4 provides the system configurations and hardware and software components tested with the SUT. The SUT was tested in an operationally realistic environment to determine its interoperability capability with UC switches noted in Table 2-4. The SUT is certified specifically with the Cisco CUCM and Avaya AS5300 LSCs listed on the UC APL.

**Table 2-4. Tested System Configurations**

System Name		Software Release																					
Cisco CUCM		Release 8.6																					
Avaya AS5300		Release 2.0 with Patch Bundle 23																					
Required Ancillary Equipment		Active Directory																					
		Public Key Infrastructure																					
		SysLog Server																					
Telephones (See note.)		Firmware																					
Cisco 7975		SCCP 75.9-2-1s																					
Avaya 1140E		03.01.16.00																					
SUT	Component	Hardware/Software Release																					
T-Metrics TM-2000 Multi-Purpose ACD Platform Release 6.0	Agent Workstation (Site-provided)	Windows 7 Pro SP1	T-Metrics Agent Module NET v3.0																				
			Symantec Anti-Virus 11.0.6000.550																				
	TM-2000 ACD	Windows 2008 Server R2 SP1	ACD Controller v5.0																				
			Event Server v2.0																				
			IIS 7.5.7600.16385																				
			Tumbleweed 4.11.0.737																				
			McAfee 8.7.0i																				
			Attachmate Reflection for Secure IT Client 7.2																				
	Digi Server	Windows 2008 Server R2 SP1	DigiModule v4.0																				
			Tumbleweed 4.11.0.737																				
McAfee 8.7.0i																							
<p><b>NOTE:</b> The SUT was tested with the telephones listed. However, based on JITC analysis of vendor documentation, it is certified for use with any analog, digital, or IP telephone.</p> <p><b>LEGEND:</b></p> <table> <tr> <td>ACD</td> <td>Automatic Call Distribution</td> <td>R2</td> <td>Release 2</td> </tr> <tr> <td>CUCM</td> <td>Cisco Unified Communications Manager</td> <td>SP</td> <td>Service Pack</td> </tr> <tr> <td>IIS</td> <td>Internet Information Services</td> <td>SUT</td> <td>System Under Test</td> </tr> <tr> <td>IP</td> <td>Internet Protocol</td> <td>TM</td> <td>T Metrics</td> </tr> <tr> <td>JITC</td> <td>Joint Interoperability Test Command</td> <td>v</td> <td>Version</td> </tr> </table>				ACD	Automatic Call Distribution	R2	Release 2	CUCM	Cisco Unified Communications Manager	SP	Service Pack	IIS	Internet Information Services	SUT	System Under Test	IP	Internet Protocol	TM	T Metrics	JITC	Joint Interoperability Test Command	v	Version
ACD	Automatic Call Distribution	R2	Release 2																				
CUCM	Cisco Unified Communications Manager	SP	Service Pack																				
IIS	Internet Information Services	SUT	System Under Test																				
IP	Internet Protocol	TM	T Metrics																				
JITC	Joint Interoperability Test Command	v	Version																				

**10. TESTING LIMITATIONS.** Due to limitations in the test architecture, IPv6 was unable to be tested end-to-end inter-enclave. The SUT was; however, tested intra-enclave and the vendor submitted an IPv6 Letter of Compliance (LoC).

**11. INTEROPERABILITY EVALUATION RESULTS.** The SUT meets the critical interoperability requirements for a CPE in accordance with UCR 2008, Change 3, section 5.2.1.2, and is certified for joint use with other network infrastructure products listed on the UC APL. Additional discussion regarding specific testing results is located in subsequent paragraphs.

**11.1 Interfaces.** The interface status of the SUT is provided in Table 2-5.



**Table 2-5. SUT Interface Interoperability Status**

Interface	Critical	UCR Reference	Threshold CR/FR (See note.)	Status
10Base-X	Yes	5.3.2.4.2	1-3	Certified
100Base-X	Yes	5.3.2.4.2	1-3	Certified
1000Base-X	No	5.3.2.4.2	1-3	Not Tested

**NOTE:** The annotation of 'required' refers to a high-level requirement category. The applicability of each sub-requirement is provided in Enclosure 3. The system under test does not need to provide conditional requirements. However, if a capability is provided, it must function according to the specified requirements in order to be certified for that capability.

**LEGEND:**

CR	Capability Requirement	SUT	System Under Test
FR	Functional Requirement	UCR	Unified Capabilities Requirements

**11.2 CR and FR.** The SUT CR and FR status is depicted in Table 2-6. Detailed CR/FR requirements are provided in Enclosure 3, Table 3-1.

**Table 2-6. SUT CR and FR Status**

CR/FR ID	Capability/Function	Applicability <sup>1</sup>	UCR Reference	Status
<b>Product Interface Requirements</b>				
1	Interfaces to LSC	Required	5.3.2.4.2	Met
<b>Customer Premise Equipment Requirements</b>				
2	MLPP in accordance with requirements listed in section 5.3.2.3.31.3	Conditional	5.2.1.2(1)	Met
	FCC Part 15/Part 68 and ACTA	Required	5.2.1.2(2)	Met
	Auto Answer mode settable to more than the equivalency of 4 ROUTINE rings	Conditional	5.2.12(3)	Met
	MLPP precedence call alerting	Conditional	5.2.1.2(4)	Not Tested <sup>2</sup>
	DTMF Outpulsing in accordance with GR-506-CORE (C)	Conditional	5.2.1.2(5)	Met
	If configuration management and/or fault management are/is provided by the CPE device so that it can be managed by the ADIMSS or other management systems, the management information shall be provided by one or more serial or Ethernet interfaces.	Conditional	5.2.1.2(8)	Met
	Calls above ROUTINE placed to the SUT shall divert to a designated Directory Number.	Required	5.3.2.2.2.1.2.5	Met
<b>IPv6 Requirements</b>				
3	If CPE has an IP interface, the CPE must be IPv6 capable. Use guidance in Table 5.3.5-4 for NA/SS	Required	5.3.5	Met <sup>3</sup>
<b>Information Assurance</b>				
4	Security	Required	5.4	Met <sup>4</sup>

**NOTES:**

- The annotation of 'required' refers to a high-level requirement category. The applicability of each sub-requirement is provided in Enclosure 3.
- This feature is conditional for a CPE and is not supported by the SUT.
- Due to limitations in the test architecture IPv6 was unable to be tested across the network; however testing was conducted intra-enclave and compliance with IPv6 specifications was verified with vendor's LoC.
- Information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report, Reference (e).

**Table 2-6. SUT CRs and FRs Status (continued)**

<b>LEGEND:</b>			
ACTA	Administrative Council for Terminal Attachments	ID	Identification
ADIMSS	Advanced Defense Switched Network (DSN) Integrated Management Support System	IP	Internet Protocol
CPE	Customer Premise Equipment	IPv6	Internet Protocol version 6
CR	Capability Requirement	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements
DISA	Defense Information Systems Agency	LoC	Letters of Compliance
DTMF	Dual Tone Multi-Frequency	LSC	Local Session Controller
FCC	Federal Communications Commission	MLPP	Multi-Level Precedence and Preemption
FR	Functional Requirement	NA/SS	Network Appliances and Simple Servers
GR	Generic Requirement	SUT	System Under Test
GR-506	LSSGR: Signaling for Analog Interfaces	UCR	Unified Capabilities Requirements

a. Product Interface Requirements. The UCR 2008, Change 3, section 5.3.2.4.2, states the physical interfaces between an LSC and its appliances shall be a 10/100/1000BaseT interfaces. The SUT interface shall support auto-negotiation even when the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standard has it as optional. This applies to 10/100/1000-T Ethernet standards; i.e., IEEE, Ethernet Standard 802.3, 1993; or IEEE, Fast Ethernet Standard 802.3u, 1995; and IEEE, Gigabit Ethernet Standard 802.3ab, 1999. The SUT met the requirements for the 10/100BaseT interfaces through both testing and the vendor's LoC.

b. CPE Requirements

(1) The UCR 2008, Change 3, paragraph 5.2.1.2(1), states that all Customer Premise Equipment (CPE) devices that support Multilevel Precedence and Preemption (MLPP) shall do so in accordance with the requirements listed in Section 5.3.2.31.3, and shall not affect the Defense Switched Network (DSN) interface features and functions associated with line supervision and control. The SUT, as a CPE ACD, is required to divert all precedence calls above ROUTINE placed to the ACD to a designated directory number (DN) in accordance with UCR 2008, Change 3, paragraph 5.3.2.2.2.1.2.5. The SUT met this requirement with testing by routing all calls above ROUTINE to an alternate DN.

(2) The UCR 2008, Change 3, paragraph 5.2.1.2(2), states that all DSN CPE, as a minimum, must meet the requirements of Part 15 and Part 68 of the Federal Communications Commission (FCC) Rules and Regulations and the Administrative Council for Terminal Attachments (ACTA). The SUT met this requirement with the vendor's LoC.

(3) The UCR 2008, Change 3, paragraph 5.2.1.2(3), states that a device(s) that supports autoanswer shall have an autoanswer mode feature allowing the autoanswer mode to be set to a time more than the equivalency of four ROUTINE precedence ring intervals in accordance with Section 5.3.2.31.3, before "answer" supervision is provided. The SUT met this requirement with testing. The SUT has the ability to adjust the auto-answer between 15-45 seconds.

(4) The UCR 2008, Change 3, paragraph 5.2.1.2(4), states that devices that are required to support precedence calls above ROUTINE precedence, shall respond properly to an incoming alerting (ringing) precedence call cadence as described in UCR, section 5.3.2.6.1.1.1. This is a conditional requirement and is not supported by the SUT. The SUT diverts all calls above ROUTINE to a designated DN.

(5) The UCR 2008, Change 3, paragraph 5.2.1.2(5), states that a device(s) that can “out dial” DTMF and/or Dial Pulse (DP) digits (automatic and/or manual) shall comply with the requirements as specified in Telcordia Technologies GR-506-CORE, *LSSGR: Signaling for Analog Interfaces*, Issue 1, June 1996, paragraph 10 and be capable of outpulsing and interpretation of DTMF digits on outgoing or two-way trunks as specified in Telcordia Technologies GR-506-CORE, *LSSGR: Signaling for Analog Interfaces*, Issue 1, June 1996, paragraph 15, and Table 5.2.1.2-1. This requirement was met by the SUT with testing and vendor’s LoC. The SUT does not support DP.

(6) The UCR 2008, Change 3, paragraph 5.2.1.2(8), states that if Configuration Management and/or Fault Management are/is provided by the CPE device so that it can be managed by the Advanced DSN Integrated Management Support System (ADIMSS) or other management systems, then the management information shall be provided by one or more of the following serial or Ethernet interfaces:

(a) Serial interfaces shall be in accordance with one of the following standards:

- International Telecommunication Union - Telecommunication Standardization Sector (ITU-T) Recommendation V.35
- Telecommunications Industry Association (TIA-232-F)
- Electronic Industries Alliance (EIA)-449-1
- TIA-530-A

(b) Ethernet interfaces shall be in accordance with IEEE 802.3-2002.

The SUT met this requirement with an Ethernet interface to the remote management terminal.

(7) Internet Protocol version 6 (IPv6). The UCR 2008, Change 3, section 5.3.5, states that if CPE has an Internet Protocol (IP) interface, the CPE must be IPv6-capable in accordance with the guidance in Table 5.3.5-4 for NA/SS. Due to limitations in the test architecture IPv6 was unable to be tested across the network; however testing was conducted intra-enclave and compliance with IPv6 specifications was verified with vendor’s LoC.

**11.3 Information Assurance.** Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).

#### 11.4 Other. None

**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: [disa.meade.ns.list.unified-capabilities-certification-office@mail.mil](mailto:disa.meade.ns.list.unified-capabilities-certification-office@mail.mil).

## SYSTEM FUNCTIONAL AND CAPABILITY REQUIREMENTS

The Customer Premises Equipment have required and conditional features and capabilities that are established by Section 5.2.1.2 of the Unified Capabilities Requirements (UCR) 2008, Change 3. The System Under Test (SUT) need not provide conditional requirements. If they are provided, they must function according to the specified requirements in order to be certified for that capability. The detailed Functional Requirements (FR) and Capability Requirements (CR) for Customer Premises Equipment are listed in Table 3-1. Detailed Information Assurance (IA) requirements are included in Reference (e) and are not listed below.

**Table 3-1. Customer Premises Equipment Capability/Functional Requirements**

ID	Requirement	UCR Reference	Required or Conditional
1	All CPE devices that support MLPP shall do so in accordance with the requirements listed in Section 5.3.2.31.3, Multilevel Precedence and Preemption, and shall not affect the DSN interface features and functions associated with line supervision and control.	5.2.1.2(1)	C
2	All DSN CPE, as a minimum, must meet the requirements of Part 15 and Part 68 of the FCC Rules and Regulations, and the Administrative Council for Terminal Attachments (ACTA).	5.2.1.2(2)	R
3	A device(s) that supports autoanswer shall have an "autoanswer" mode feature allowing the autoanswer mode to be set to a "time" more than the equivalency of four ROUTINE precedence ring intervals in accordance with Section 5.3.2.31.3, Multilevel Precedence and Preemption, before "answer" supervision is provided	5.2.1.2(3)	C
4	Devices that are required to support precedence calls above ROUTINE precedence shall respond properly to an incoming alerting (ringing) precedence call cadence as described in Section 5.3.2.6.1.1.1, UC Ringing Tones, Cadences, and Information Signals.	5.2.1.2(4)	C
5	A device(s) that can "out dial" DTMF and/or DP digits (automatic and/or manual) shall comply with the requirements as specified in Telcordia Technologies GR-506-CORE, LSSGR: Signaling for Analog Interfaces, Issue 1, June 1996, paragraph 10 and be capable of outputting and interpretation of DTMF digits on outgoing or two-way trunks as specified in Telcordia Technologies GR-506-CORE, LSSGR: Signaling for Analog Interfaces, Issue 1, June 1996, paragraph 15, and Table 5.2.1.2-1.	5.2.1.2(5)	C
6	Modems and facsimile machines shall be compatible with ITU and Telcordia standards, as applicable	5.2.1.2(6)	C
7	Facsimile devices, as a minimum, shall meet the requirements in accordance with applicable DISR standards.	5.2.1.2(7)	C
8	If Configuration Management and/or Fault Management are/is provided by the CPE device so that it can be managed by the ADIMSS or other management systems, then the management information shall be provided by one or more of the following serial or Ethernet interfaces: a. Serial interfaces shall be in accordance with one of the following standards: (1) ITU-T Recommendation V.35 (2) TIA-232-F (3) EIA-449-1 (4) TIA-530-A b. Ethernet interfaces shall be in accordance with IEEE 802.3-2002.	5.2.1.2(8)	C
9	As a minimum, the 911 and the E911 (tandem) emergency service shall have the capability to "hold" the originating subscriber or caller from releasing the call via the switch supervision interaction for line and trunk control by the "called-party" feature, in accordance with Telcordia Technologies GR-529-CORE. Additionally, the FCC regulations regarding 911 and E911 must be considered.	5.2.1.2(9)	C
10	The Customer Premises Equipment shall meet all of the IPv6 protocol requirements for NA/SS products in Section 5.3.5, IPv6 Requirements, including the requirements in Table 5.3.5-4, UC Network Appliances and Simple Servers (NA/SS).	5.3.5	R
11	Customer Premises Equipment shall meet the Information Assurance requirements of all applicable DISA STIGs.	5.4	R

**Table 3-1. Customer Premises Equipment Capability/Functional Requirements  
(continued)**

<b>LEGEND:</b>			
ALI	Automatic Line Identification	IP	Internet Protocol
ACTA	Administrative Council for Terminal Attachments	IPv6	Internet Protocol version 6
B/P/C/S	Base/Post/Camp/Station	IEEE	Institute of Electrical and Electronics Engineers
C	Conditional	NA	Network Appliance
CPE	Customer Premises Equipment	R	Required
DISA	Defense Information Systems Agency	SS	Simple Servers
DP	Dial Pulse	STIGS	Security Technical Implementation Guides
DSN	Defense Switched Network	UC	Unified Capabilities
DTMF	Dual-Tone Multifrequency	UCR	Unified Capabilities Requirements
FCC	Federal Communications Commission		