



## DEFENSE INFORMATION SYSTEMS AGENCY

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

**20 May 13**

### MEMORANDUM FOR DISTRIBUTION

**SUBJECT:** Extension of the Special Interoperability Test Certification of Avaya S8300D with Gateway 450 (G450) Release Communications Manager (CM) 6.0 (R16x.00.1.510.1) with Service Pack 19211 to include Security Service Pack 1 (SSP1)

**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 (h), see Enclosure

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 Avaya S8300D with G450 Release CM6.0 (R16x.00.1.510.1) with Service Pack 19211 is hereinafter referred to as the System Under Test (SUT). The SUT meets all of its critical interoperability requirements and is certified for joint use within the Defense Information System Network (DISN) for the following switch types: Private Branch Exchange (PBX) 1 and PBX 2. The SUT meets the Voice over Internet Protocol (VoIP) critical interoperability requirements with any certified Assured Services Local Area Network (ASLAN) or ASLAN components on the Unified Capabilities (UC) Approved Products List (APL). The identified test discrepancies shown in the SUT Interoperability Test Summary have an overall minor operational impact. No other configurations, features, or functions, except those cited within this report, are certified by JITC. The SUT meets the critical interoperability requirements for a PBX 1 set forth in References (c) through (e), using test procedures derived from Reference (f). This certification expires upon changes that could affect interoperability, but no later than two years from the date of the original Unified Capabilities (UC) Approved Products List (APL) memorandum (10 May 2012).

3. The extension of this certification is based on Desktop Review (DTR) 4. The original certification, documented in Reference (g), is based on interoperability testing conducted by JITC, DISA adjudication of open test discrepancy reports (TDR), review of the vendor's Letters of Compliance (LoC), and a DISA Certifying Authority (CA) positive. Interoperability testing of the SUT was conducted at JITC's Global Information Grid Network Test Facility at Fort Huachuca, Arizona, from 25 July through 26 August 2011. DISA adjudication of outstanding TDRs was completed on 14 February 2012. Review of the vendor's LoC was completed on 7 September 2011. The DISA CA provided a positive recommendation on 10 April 2012 based

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on the security testing completed by DISA-led Information Assurance (IA) test teams and published in a separate report, Reference (h). This DTR was requested to include SSP1, which includes security updates. Release notes for SSP1 can be found on the Approved Products List Integrated Tracking System (APLITS). JITC determined this DTR request required interoperability and IA verification and validation (V&V) testing. JITC conducted interoperability V&V testing for these DTRs from 4 through 8 March 2013. JITC testing and analysis determined these IA fixes will have no negative impact on the interoperability certified features and functions. No previous interoperability discrepancies were closed and no new interoperability discrepancies were opened as a result of this V&V test. The DISA CA provided a positive recommendation for this DTR on 30 April 2013, based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (h). Therefore, JITC approves this DTR.

4. Table 1 provides the SUT interoperability test summary. Table 2 provides the PBX 1 Capability Requirements (CRs) and Feature Requirements (FRs). This interoperability test status is based on the SUT's ability to meet:

- a. DISN services for Network and Applications specified in Reference (e).
- b. PBX 1 interface and signaling requirements for trunks/lines specified in References (c) and (d) verified through JITC testing and/or vendor submission of LoC.
- c. PBX 1 CRs/FRs specified in References (c) and (d) verified through JITC testing and/or vendor submission of LoC.
- d. The overall system interoperability performance derived from test procedures listed in Reference (f).

**Table 1. SUT Interoperability Test Summary**

<b>DISN Trunk Interfaces</b>			
<b>Interface &amp; Signaling</b>	<b>Critical</b>	<b>Status</b>	<b>Remarks</b>
T1 CAS (DTMF, MFR1, DP)	No	Certified	Met all critical CRs and FRs.
E1 CAS (DTMF, MFR1, DP)	No (Europe only)	Certified	Met all critical CRs and FRs.
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes	Certified	Met all critical CRs and FRs.
E1 ISDN PRI (ITU-T Q.955.3)	No (Europe only)	Not Tested	This interface is not supported by the SUT and is not required for a PBX 1.
<b>DISN Line Interfaces</b>			
<b>Interface &amp; Signaling</b>	<b>Critical</b>	<b>Status</b>	<b>Remarks</b>
2-Wire Analog Loop Start (GR-506-CORE)	Yes	Certified	Met all critical CRs and FRs.
ISDN BRI NI 1/2 (ANSI T1.619a)	No	Certified	Met all critical CRs and FRs.
2-Wire Proprietary Digital	No	Certified	Met all critical CRs and FRs.
VoIP (Ethernet IEEE 802.3u)	No	Certified	Met all critical CRs and FRs.

**Table 1. SUT Interoperability Test Summary (continued)**

DISN Features and Capabilities				
Features and Capabilities		Critical	Status	Remarks
Common Features		Yes	Certified	Met all critical CRs and FRs with the following minor exception: A short "ping" ring is not provided on the VoIP phone 9641 when all calls are forwarded. (See note 1.)
Attendant		No	Certified	Met all critical CRs and FRs.
Public Safety		Yes	Certified	The SUT met all critical CRs and FRs for Basic 911.
Conferencing	Preset Conferencing	No	Not Tested	This feature is not supported by the SUT and is not required for a PBX 1.
	Meet-Me Conferencing	No	Not Tested	This feature is not supported by the SUT and is not required for a PBX 1.
	Progressive Conferencing	No	Certified	Met all critical CRs and FRs
Nailed-up Connections		No	Not Tested	This feature is not supported by the SUT and is not required for a PBX 1.
DISN Hotline Services		No	Certified	Met all critical CRs and FRs.
MLPP		Yes	Certified	Met all critical CRs and FRs with the following minor exceptions: The SUT does not support the Loss of C2 announcement. (See note 2.)
Call Processing		Yes	Certified	Met all critical CRs and FRs.
ISDN Services		Yes	Certified	Met all critical CRs and FRs.
Synchronization		Yes	Certified	Met all critical CRs and FRs.
Reliability		Yes	Certified	Met all critical CRs and FRs.
Security		Yes	Certified	Met all critical CRs and FRs. (See note 3.)
VoIP System		No	Certified	Met all critical CRs and FRs with following minor exception: All Dual Stack IP End Instruments fail to meet VoIP System Latency requirements when IPv6 is Preferred. (See notes 4, 5.)
Network Gateways				
Gateway	Interface & Signaling	Critical	Status	Remarks
PSTN	T1 CAS (DTMF, MFR1, DP)	No	Certified	Met all critical CRs and FRs.
	E1 CAS (DTMF, MFR1, DP)	No (Europe only)	Certified	Met all critical CRs and FRs.
	T1 ISDN PRI NI 1/2 (ANSI T1.607)	No	Certified	Met all critical CRs and FRs.
	E1 ISDN PRI (ITU-T Q.931)	No (Europe only)	Not Tested	This interface is supported by the SUT, but was not tested and is not covered under this certification.
	2-Wire Analog Ground Start (GR-506-CORE)	No	Certified	Met all critical CRs and FRs. (See note 6.)
<b>NOTES:</b>				
<p>1. A short "ping" ring is not provided on the VoIP phone 9641 when all calls are forwarded and the phone does not visually display that call forward variable is enabled. This was adjudicated by DISA on 14 February 2012 as having a minor operational impact with the intent to change this requirement in the next UCR version from required to conditional for a VoIP end instrument.</p> <p>2. The SUT does not support the Loss of C2 announcement. This announcement is invoked only when a DISN subscriber is automatically routed to a non-MLPP network. DISA previously adjudicated this anomaly as having a minor operational impact with the intent to change this requirement to conditional for a PBX 1 because this announcement would rarely be invoked on a PBX 1.</p> <p>3. Security is tested by DISA-led Information Assurance test teams and the results published in a separate report, Reference (h).</p> <p>4. During the original interoperability test, the Dual Stack IP End Instruments failed to meet VoIP System Latency requirements when IPv6 is Preferred. This was adjudicated by DISA as minor with the vendor's POAM to fix this anomaly by 9 August 2012. Subsequent testing of other Avaya switches using these phones with updated firmware successfully demonstrated that the ability to meet the latency requirements. The original firmware for the 9608/9611 was S9608_11HALBR6_0_20Sr03_V452. The original firmware for the 9621/9641 was S9621_41HALBR6_0_20Sr03_V452. JITC analysis determined that the IP phones with the new firmware, which are certified on other Avaya switches, are also certified with the SUT. The new firmware for the 9608/9611 is S9608_11HALBR6_0_16T_V452.var. The new firmware for the 9641/9641 is S9621_41HALBR6_0_16T_V452.var.</p> <p>5. The Avaya One-X Communicator Softphone Release R5.2300-SP3-22584 was tested and certified on site-provided computers running either Microsoft Windows XP with SP3 or Windows Vista SP2 during interoperability testing for the Avaya Aura S8800 using the same software release as the SUT. This softphone is included as part of the SUT with DTR #3.</p> <p>6. This interface requirement was met by the vendor's LoC.</p>				

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**Table 1. SUT Interoperability Test Summary (continued)**

<b>LEGEND:</b>			
ANSI	American National Standards Institute	LoC	Letters of Compliance
BRI	Basic Rate Interface	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements
C2	Command and Control	MFR1	Multi-Frequency Recommendation 1
CAS	Channel Associated Signaling	MLPP	Multi-Level Precedence and Preemption
CR	Capability Requirements	NI 1/2	National ISDN Standard 1 or 2
DISA	Defense Information Systems Agency	PBX 1	Private Branch Exchange 1
DISN	Defense Information System Network	POAM	Plan of Actions and Milestones
DP	Dial Pulse	PRI	Primary Rate Interface
DTMF	Dual Tone Multi-Frequency	Q.931	Signaling Standard for ISDN
DTR	Desktop Review	Q.955.3	ISDN Signaling standard for E1 MLPP
E1	European Basic Multiplex Rate (2.048 Mbps)	SP	Service Pack
FR	Feature Requirements	SUT	System Under Test
GR	Generic Requirement	T1	Digital Transmission Link Level 1 (1.544 Mbps)
GR-506-CORE	LSSGR: Signaling for Analog Interfaces	T1.607	ISDN Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
IEEE	Institute of Electrical and Electronics Engineers	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
IP	Internet Protocol	UC	Unified Capabilities
IPv6	Internet Protocol version 6	UCR	Unified Capabilities Requirements
ISDN	Integrated Services Digital Network	VoIP	Voice over Internet Protocol
ITU-T	International Telecommunication Union - Telecommunication Standardization Sector		

**Table 2. PBX 1 CR and FR Requirements**

DISN Trunk Interfaces				
Interface	Critical	Requirements Required or Conditional		References
T1 CAS (MFR1, DTMF, DP)	No	Trunking	<ul style="list-style-type: none"> <li>• PBX Line (C)</li> <li>• Direct Inward Dialing (C)</li> <li>• National ISDN 1/2 Primary Access (R)</li> <li>• ISDN ANSI MLPP Service Capability (R)</li> <li>• ITU-T ISDN Primary Access (Europe only) (C)</li> <li>• ITU-T ISDN Primary Access Digital Subscriber Signaling System Number 1 MLPP (Europe only) (C)</li> <li>• Normal Wink Start Operations (R)</li> <li>• Glare Operation (R)</li> <li>• Abnormal Wink Start (R)</li> <li>• Glare Resolution (R)</li> <li>• Call for Service Timing (R)</li> <li>• Guard Timing (R)</li> <li>• Satellite Timing (R)</li> <li>• Disconnect Control (R)</li> <li>• Reselect and Retrial (R)</li> <li>• Off-Hook Supervision Transition (R)</li> <li>• Dial-Pulse Signals (R)</li> <li>• DTMF Signaling (R)</li> <li>• Standard Digit Format for Precedence (C)</li> <li>• MFR1 2/6 Signaling (C)</li> <li>• Alerting Signals and Tones (R)</li> <li>• DISN ISDN User-to-Network Signaling (R)</li> <li>• Application (R)</li> <li>• Physical Layer (R)</li> <li>• Data Link Layer (R)</li> <li>• Data Link Connection (R)</li> <li>• Peer-to-Peer Procedures of Data-Link Layer (R)</li> <li>• Layer 3 DISN User-to-Network Signaling (R)</li> <li>• DISN User-to-Network Signaling for Circuit-Switched Bearer Services (R)</li> <li>• Sequence of Messages for DISN Circuit-Switched Calls (R)</li> <li>• Message Functional Definition and Content (R)</li> <li>• General Message Format and Information Elements Coding (R)</li> <li>• Supplementary Services (C)</li> <li>• PCM-24 Digital Trunk Interface (R)</li> <li>• Interface Characteristics (R)</li> <li>• Supervisory Channel Associated Signaling (R)</li> <li>• Clear Channel Capability (R)</li> <li>• Alarm and Restoral Requirements (R)</li> <li>• PCM-30 Digital Trunk Interface (Europe only) (R)</li> <li>• Interoperation of PCM-24 and PCM-30 (R)</li> <li>• Analog Trunk Interface (C)</li> <li>• Integrated Digital Loop Carrier (C)</li> <li>• Trunk Group-Remove from Service (R)</li> <li>• Trunk Group-Restore to Service (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.1.3.1</li> <li>• UCR Section 5.2.1.3.2</li> <li>• UCR Section 5.2.1.3.4.1</li> <li>• UCR Section 5.2.1.3.4.1.1</li> <li>• UCR Section 5.2.1.3.4.2</li> <li>• UCR Section 5.2.1.3.4.2.1</li> <li>• UCR Section 5.2.4.3.3.1.1</li> <li>• UCR Section 5.2.4.3.3.1.2</li> <li>• UCR Section 5.2.4.3.3.2.1</li> <li>• UCR Section 5.2.4.3.3.2.2</li> <li>• UCR Section 5.2.4.3.5</li> <li>• UCR Section 5.2.4.3.6</li> <li>• UCR Section 5.2.3.4.7</li> <li>• UCR Section 5.2.3.4.8</li> <li>• UCR Section 5.2.3.4.9</li> <li>• UCR Section 5.2.3.4.10</li> <li>• UCR Section 5.2.4.4.1</li> <li>• UCR Section 5.2.4.4.2</li> <li>• UCR Section 5.2.4.4.2.1</li> <li>• UCR Section 5.2.4.4.3</li> <li>• UCR Section 5.2.4.5.1</li> <li>• UCR Section 5.2.4.7.1.4.2</li> <li>• UCR Section 5.2.4.7.1.1</li> <li>• UCR Section 5.2.4.7.1.2</li> <li>• UCR Section 5.2.4.7.1.3</li> <li>• UCR Section 5.2.4.7.1.3.1</li> <li>• UCR Section 5.2.4.7.1.3.2</li> <li>• UCR Section 5.2.4.7.1.4</li> <li>• UCR Section 5.2.4.7.1.4.2</li> <li>• UCR Section 5.2.4.7.1.4.3</li> <li>• UCR Section 5.2.4.7.1.4.4</li> <li>• UCR Section 5.2.4.7.1.4.5</li> <li>• UCR Section 5.2.4.7.1.4.6</li> <li>• UCR Section 5.2.6.1</li> <li>• UCR Section 5.2.6.1.1</li> <li>• UCR Section 5.2.6.1.2</li> <li>• UCR Section 5.2.6.1.3</li> <li>• UCR Section 5.2.6.1.4</li> <li>• UCR Section 5.2.6.2</li> <li>• UCR Section 5.2.6.3</li> <li>• UCR Section 5.2.6.4</li> <li>• UCR Section 5.2.6.5</li> <li>• UCR Section 5.2.1.5.5</li> <li>• UCR Section 5.2.1.5.5</li> </ul>
E1 CAS (MFR1, DTMF, DP)	No (Europe only)			
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes			
E1 ISDN PRI (ITU-T Q.955.3)	No (Europe only)			

**Table 2. PBX 1 CR and FR Requirements (continued)**

<b>DISN Trunk Interfaces (continued)</b>				
<b>Interface</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>		<b>References</b>
T1 CAS (MFR1, DTMF, DP)	No	Voice	<ul style="list-style-type: none"> <li>• MOS (R)</li> <li>• Secure calls (R)</li> </ul>	<ul style="list-style-type: none"> <li>• CJCSI 6215.01C</li> <li>• CJCSI 6215.01C</li> </ul>
E1 CAS (MFR1, DTMF, DP)	No (Europe only)	Facsimile	<ul style="list-style-type: none"> <li>• Analog: ITU-T T.4 (R)</li> </ul>	<ul style="list-style-type: none"> <li>• DISR</li> </ul>
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes	Data	<ul style="list-style-type: none"> <li>• Modem (VBD) (R)</li> <li>• 56 kbps switched data (R: PRI only)</li> <li>• 64 kbps switched data (R: PRI only)</li> <li>• NX56 synchronous BER (R: PRI only)</li> <li>• NX64 synchronous BER (R: PRI only)</li> <li>• Secure data (STE/STU-III) (R)</li> </ul>	<ul style="list-style-type: none"> <li>• CJCSI 6215.01C</li> <li>• UCR Section 5.2.2.9.6</li> <li>• UCR Section 5.2.2.9.6</li> <li>• UCR Section 5.2.2.9.6</li> <li>• UCR Section 5.2.2.9.6</li> </ul>
E1 ISDN PRI (ITU-T Q.955.3)	No (Europe only)	VTC	<ul style="list-style-type: none"> <li>• ITU-T H.320 (R: PRI only)</li> </ul>	<ul style="list-style-type: none"> <li>• FTR 1080B-2002</li> </ul>
<b>DISN Line Interfaces</b>				
2-Wire Analog	Yes	Access	<ul style="list-style-type: none"> <li>• Directory Number Identification (R)</li> <li>• Analog Line (R)</li> <li>• National ISDN 1/2 Basic Access (R: BRI Only)</li> <li>• Basic Line Test Capabilities (R)</li> <li>• Advanced Line Test Capabilities (C)</li> <li>• Loop Start Line (R: 2-Wire Analog only)</li> <li>• Reverse Battery (R: 2-Wire Analog only)</li> <li>• Alerting Signals and Tones (R)</li> <li>• S/T Reference Point (R: ISDN BRI only)</li> <li>• VoIP System Requirements (R: VoIP Phones only)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.1.1.1</li> <li>• UCR Section 5.2.1.3.5</li> <li>• UCR Section 5.2.1.3.3</li> <li>• UCR Section 5.2.1.5.4.1.1</li> <li>• UCR Section 5.2.1.5.4.1.1</li> <li>• UCR Section 5.2.4.2.1</li> <li>• UCR Section 5.2.4.3.1</li> <li>• UCR Section 5.2.4.5.1</li> <li>• UCR Section 5.2.4.7.1.2.1</li> <li>• UCR Section 5.2.12.8</li> </ul>
ISDN BRI NI 1/2 (ANSI T1.619a)	No			
2-Wire Proprietary Digital	No			
VoIP (Ethernet IEEE 802.3u)	No		Voice	<ul style="list-style-type: none"> <li>• MOS (R)</li> <li>• Secure Calls (R)</li> </ul>
		Facsimile	<ul style="list-style-type: none"> <li>• Analog: ITU-T T.4 (R)</li> </ul>	<ul style="list-style-type: none"> <li>• DISR</li> </ul>
		Data	<ul style="list-style-type: none"> <li>• Modem (VBD) (R: 2-Wire Analog only)</li> <li>• Secure data (STE/STU-III) (R: 2-Wire Analog only)</li> </ul>	<ul style="list-style-type: none"> <li>• CJCSI 6215.01C</li> <li>• CJCSI 6215.01C</li> </ul>
		VTC	<ul style="list-style-type: none"> <li>• ITU-T H.320 (R: BRI only)</li> </ul>	<ul style="list-style-type: none"> <li>• FTR 1080B-2002</li> </ul>
<b>DISN Features &amp; Capabilities</b>				
<b>Feature/ Capability</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>		<b>References</b>
Common Features	Yes	<ul style="list-style-type: none"> <li>• Individual Lines (R)</li> <li>• Denied originating service (C)</li> <li>• Code restriction and diversion (R)</li> <li>• Call waiting (R)</li> <li>• Three-way calling (R)</li> <li>• Add-on transfer, conference calling, and call hold (C)</li> <li>• Call Transfer Individual – All calls (R)</li> <li>• Call Transfer - Internal Only (R)</li> <li>• Call Transfer – Individual – Incoming Only/Add-On Consultation Hold – Incoming Call (R)</li> <li>• Call Transfer – Outside (R)</li> <li>• Call Transfer – Add-On Restricted Station (C)</li> <li>• Call Transfer – Attendant (C)</li> <li>• Call Hold (R)</li> <li>• Conference Calling – Six Way Station Controlled (C)</li> <li>• Call Forwarding Variable (R)</li> <li>• Call Forward Busy Line (R)</li> <li>• Call Forwarding – Don't Answer – All Calls (R)</li> <li>• Selective Call Forwarding (C)</li> <li>• Call pick-up (C)</li> <li>• Address Translation (C)</li> <li>• Assured Dial Tone (R)</li> </ul>		<ul style="list-style-type: none"> <li>• UCR Section 5.2.1.1.1</li> <li>• UCR Section 5.2.1.1.3</li> <li>• UCR Section 5.2.1.1.4</li> <li>• UCR Section 5.2.1.1.5.1</li> <li>• UCR Section 5.2.1.1.6</li> <li>• UCR Section 5.2.1.1.7</li> <li>• UCR Section 5.2.1.1.7.1</li> <li>• UCR Section 5.2.1.1.7.2</li> <li>• UCR Section 5.2.1.1.7.3</li> <li>• UCR Section 5.2.1.1.7.4</li> <li>• UCR Section 5.2.1.1.7.5</li> <li>• UCR Section 5.2.1.1.7.6</li> <li>• UCR Section 5.2.1.1.7.7</li> <li>• UCR Section 5.2.1.1.7.8</li> <li>• UCR Section 5.2.1.1.8.1</li> <li>• UCR Section 5.2.1.1.8.2</li> <li>• UCR Section 5.2.1.1.8.3</li> <li>• UCR Section 5.2.1.1.8.4</li> <li>• UCR Section 5.2.1.1.9.1</li> <li>• UCR Section 5.2.1.7</li> <li>• UCR Section 5.2.1.9</li> </ul>
Attendant	No	<ul style="list-style-type: none"> <li>• Attendant Features (C)</li> </ul>		<ul style="list-style-type: none"> <li>• UCR Section 5.2.1.2.2</li> </ul>

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**Table 2. PBX 1 CR and FR Requirements (continued)**

<b>DISN Features &amp; Capabilities</b>			
<b>Feature/ Capability</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>	<b>References</b>
Public Safety	Yes	<ul style="list-style-type: none"> <li>• Emergency Service Basic (911) Caller (R)</li> <li>• Emergency Service (911) Public Safety Answering Service (C)</li> <li>• Enhanced Emergency Service (E911) (C)</li> <li>• Trace of terminating calls (R)</li> <li>• Outgoing call trace (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.1.4.1.1</li> <li>• UCR Section 5.2.1.4.1.2</li> <li>• UCR Section 5.2.1.4.1.3</li> <li>• UCR Section 5.2.1.4.2</li> <li>• UCR Section 5.2.1.4.3</li> </ul>
Conferencing	No	<ul style="list-style-type: none"> <li>• Preset Conferencing (C)</li> <li>• Meet-Me Conferencing (C)</li> <li>• Progressive Conferencing (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.1.6.1</li> <li>• UCR Section 5.2.1.6.2</li> <li>• UCR Section 5.2.1.6.3</li> </ul>
Nailed-up Connections	No	<ul style="list-style-type: none"> <li>• Nailed-Up Connections (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.1.8</li> </ul>
DISN Hotline Services	No	<ul style="list-style-type: none"> <li>• DISN Analog Hotline Service (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.1.12</li> </ul>
MLPP	Yes	<ul style="list-style-type: none"> <li>• MLPP Overview (R)</li> <li>• Preemption in the Network (R)</li> <li>• Network Facility with Lower Precedence Calls (R)</li> <li>• Network Facility with Equal or Higher Precedence Calls (R)</li> <li>• Precedence Call Diversion (R)</li> <li>• CAS (R)</li> <li>• PRI (R)</li> <li>• Analog Line MLPP (R)</li> <li>• ISDN MLPP Basic Rate Interface (R)</li> <li>• ISDN PRI (R)</li> <li>• Precedence Call Waiting (R)</li> <li>• Call Forwarding (R)</li> <li>• Call Transfer (R)</li> <li>• Call Hold (R)</li> <li>• Three-Way Calling (R)</li> <li>• Call Pickup (C)</li> <li>• Conferencing (C)</li> <li>• Multiline Hunt Group (C)</li> <li>• Community of Interest (C)</li> <li>• MLPP Interaction with EKTS features (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.2.1.1</li> <li>• UCR Section 5.2.2.2</li> <li>• UCR Section 5.2.2.2.1</li> <li>• UCR Section 5.2.2.2.2</li> <li>• UCR Section 5.2.2.3</li> <li>• UCR Section 5.2.2.4.1</li> <li>• UCR Section 5.2.2.4.2</li> <li>• UCR Section 5.2.2.5</li> <li>• UCR Section 5.2.2.6</li> <li>• UCR Section 5.2.2.7</li> <li>• UCR Section 5.2.2.8.1</li> <li>• UCR Section 5.2.2.8.2</li> <li>• UCR Section 5.2.2.8.3</li> <li>• UCR Section 5.2.2.8.4</li> <li>• UCR Section 5.2.2.8.5</li> <li>• UCR Section 5.2.2.8.6</li> <li>• UCR Section 5.2.2.8.7.1</li> <li>• UCR Section 5.2.2.8.8</li> <li>• UCR Section 5.2.2.8.9</li> <li>• UCR Section 5.2.2.10.1</li> </ul>

**Table 2. PBX 1 CR and FR Requirements (continued)**

<b>DISN Features &amp; Capabilities (continued)</b>			
<b>Feature/ Capability</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>	<b>References</b>
Call Processing	Yes	<ul style="list-style-type: none"> <li>• Call Treatments (R)</li> <li>• Primary and Alternate Routing (R)</li> <li>• E&amp;M Lead Signaling States (C)</li> <li>• 4-Wire Analog User Access Lines (C)</li> <li>• 2-Wire User Access Lines (R)</li> <li>• Termination of Analog Lines (R)</li> <li>• DISN User Dialing (R)</li> <li>• Interswitch and Intraswitch Dialing (R)</li> <li>• Seven-Digit Dialing (R)</li> <li>• Ten-Digit Dialing (R)</li> <li>• Access Code (R)</li> <li>• Access Digit (R)</li> <li>• Precedence Digit (R)</li> <li>• Service Digit (R)</li> <li>• Route Code (R)</li> <li>• Area Code (R)</li> <li>• Switch Code (R)</li> <li>• Line Number (R)</li> <li>• Calling Name Delivery (C)</li> <li>• Calling Number Delivery (R)</li> <li>• Emergency Service 911 Conflict Resolution (R)</li> <li>• DISN Switch Outpulsing Digit Formats (C)</li> <li>• Standard Directory Number (R)</li> <li>• Standard Test Numbers (C)</li> <li>• Base Services – Abbreviated Numbers (R)</li> <li>• Digit Reception Requirements (R)</li> <li>• Screening (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.3.1</li> <li>• UCR Section 5.2.3.2</li> <li>• UCR Section 5.2.3.3.1</li> <li>• UCR Section 5.2.3.3.2</li> <li>• UCR Section 5.2.3.3.3</li> <li>• UCR Section 5.2.3.3.4</li> <li>• UCR Section 5.2.3.5.1.1</li> <li>• UCR Section 5.2.3.5.1.1</li> <li>• UCR Section 5.3.3.5.2.1</li> <li>• UCR Section 5.2.3.5.2.2</li> <li>• UCR Section 5.2.3.5.1.3</li> <li>• UCR Section 5.2.3.5.1.3.1</li> <li>• UCR Section 5.2.3.5.1.3.2</li> <li>• UCR Section 5.2.3.5.1.3.3</li> <li>• UCR Section 5.2.3.5.1.4</li> <li>• UCR Section 5.2.3.5.1.5</li> <li>• UCR Section 5.2.3.5.1.6</li> <li>• UCR Section 5.2.3.5.1.7</li> <li>• UCR Section 5.2.3.5.1.8.1</li> <li>• UCR Section 5.2.3.5.1.8.2</li> <li>• UCR Section 5.2.3.5.1.9</li> <li>• UCR Section 5.2.3.5.2</li> <li>• UCR Section 5.2.3.5.3</li> <li>• UCR Section 5.2.3.5.4</li> <li>• UCR Section 5.2.3.5.5</li> <li>• UCR Section 5.2.3.5.6</li> <li>• UCR Section 5.2.3.5.8</li> </ul>
ISDN Services	Yes	<ul style="list-style-type: none"> <li>• BRI Access, Call Control and Signaling (R)</li> <li>• Uniform Interface Configuration for BRIs (R)</li> <li>• EKTS (C)</li> <li>• PRI Access, Call Control and Signaling (R)</li> <li>• PRI Features (R)</li> <li>• Packet Data Features and Capabilities (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.9.2, Table 5.2.9-1</li> <li>• UCR Section 5.2.9.2, Table 5.2.9-2</li> <li>• UCR Section 5.2.9.3, Table 5.2.9-3</li> <li>• UCR Section 5.2.9.2, Table 5.2.9-4</li> <li>• UCR Section 5.2.9.2, Table 5.2.9-5</li> <li>• UCR Section 5.2.9.2, Table 5.2.9-6</li> </ul>
Synchronization	Yes	<ul style="list-style-type: none"> <li>• Line timing mode (R)</li> <li>• Internal Stratum 4 (R)</li> <li>• Synchronization Performance Monitoring Criteria (C)</li> <li>• DS1 Traffic Interfaces (C)</li> <li>• DS0 Traffic Interconnects (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.10.1.1.2</li> <li>• UCR Section 5.2.10.1.1.2.2</li> <li>• UCR Section 5.2.10.2</li> <li>• UCR Section 5.2.10.3</li> <li>• UCR Section 5.2.10.4</li> </ul>
Reliability	Yes	<ul style="list-style-type: none"> <li>• System Availability (R)</li> <li>• Backup Power (R)</li> <li>• Power Components (R)</li> <li>• UPS Requirements (R)</li> <li>• UPS PBX 1 Load Capacity (R)</li> <li>• Backup Power (Environmental) (R)</li> <li>• Alarms (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 5.2.11.2</li> <li>• UCR Section 5.2.11.3</li> <li>• UCR Section 5.2.11.3.1</li> <li>• UCR Section 5.2.11.3.2</li> <li>• UCR Section 5.2.11.3.2.1</li> <li>• UCR Section 5.2.11.3.3</li> <li>• UCR Section 5.2.11.3.4</li> </ul>
Security	Yes	<ul style="list-style-type: none"> <li>• GR-815, STIGs, and DoDI 8510.bb (DIACAP) (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR Section 3</li> </ul>

**Table 2. PBX 1 CR and FR Requirements (continued)**

<b>VoIP</b>				
<b>Feature/ Capability</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>		<b>References</b>
VoIP System (See note 1.)	No	VoIP function is conditional. If VoIP is provided, all of the following requirements must be met: <ul style="list-style-type: none"> <li>• Voice Quality with MOS of 4.0 or better (R)</li> <li>• ITU-T G.711 PCM CODEC (R)</li> <li>• MLPP (R)</li> <li>• Security (R)</li> <li>• Network management (C)</li> <li>• System timing (R)</li> <li>• Latency ≤ 60 milliseconds (R)</li> <li>• IPv6 capable (R)</li>   <li>• Service Class Tagging (R)</li> <li>• Softphone Requirements (C)</li> </ul>		<ul style="list-style-type: none"> <li>• UCR section 5.2.12.8.2.1</li> <li>• UCR section 5.2.12.8.2.2</li> <li>• UCR section 5.2.12.8.2.3</li> <li>• UCR section 5.2.12.8.2.4</li> <li>• UCR section 5.2.12.8.2.5</li> <li>• UCR section 5.2.12.8.2.6</li> <li>• UCR section 5.2.12.8.2.7</li> <li>• UCR 2008, Change 2, section 5.3.5.4</li> <li>• UCR section 5.2.12.8.2.9</li> <li>• UCR 2008, section 5.3.12.8.3.1</li> </ul>
<b>Network Gateways</b>				
<b>Gateway</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>		<b>References</b>
PSTN (See note 2.)	No	Trunking	<ul style="list-style-type: none"> <li>• Positive Identification Control (C)</li> <li>• On-Netting (C)</li> <li>• Off-Netting (C)</li> <li>• Ground Start Line (R)</li> <li>• Immediate Start (C)</li> <li>• Delay Dial (C)</li> </ul>	<ul style="list-style-type: none"> <li>• CJCSI 6215.01C</li> <li>• CJCSI 6215.01C</li> <li>• CJCSI 6215.01C</li> <li>• UCR Section 5.2.4.2.2</li> <li>• UCR Section 5.2.4.3.2</li> <li>• UCR Section 5.2.4.3.4</li> </ul>
<p><b>NOTES:</b></p> <p>1. All requirements are derived from the UCR 2008, Reference (c) with the exception of the IPv6 requirements because UCR 2008 defines the Legacy PBX 1 requirements which are not found in subsequent UCR updates. However, the latest IPv6 DoD profile requirements for a NA/SS, which are applicable to the SUT, have been updated in UCR 2008 Change 2 Reference (d).</p> <p>2. Voice, facsimile, data, and VTC service requirements for PSTN are identical to DISN with the exception of MLPP.</p>				

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**Table 2. PBX 1 CR and FR Requirements (continued)**

<b>LEGEND:</b>					
802.3u	Standard for carrier sense multiple access with collision detection at 100 Mbps	FTR 1080B-2002 G.711	Video Teleconferencing Services PCM of voice frequencies	PCM-24	Pulse Code Modulation - 24 Channels
ANSI	American National Standards Institute	GR GR-815	Generic Requirement Generic Requirements For Network Element/Network System (NE/NS) Security	PCM-30	Pulse Code Modulation - 30 Channels
BER	Bit Error Ratio		Standard for Narrowband VTC	PRI	Primary Rate Interface
BRI	Basic Rate Interface	H.320	Institute of Electrical and Electronics Engineers	PSTN	Public Switched Telephone Network
C	Conditional	IEEE	Integrated Services Digital Network	Q.955.3	ISDN Signaling Standard for E1 MLPP
CAS	Channel Associated Signaling		Internet Protocol	R	Required
CJCSI	Chairman of the Joint Chiefs of Staff Instruction	IP IPv6	Internet Protocol version 6	S/T	ISDN BRI four-wire interface
CODEC	Coder/Decoder	ISDN	Information Technology International Telecommunication Union-Telecommunication Standardization Sector	STE	Secure Terminal Equipment
CR	Capability Requirement		Multi-Frequency Recommendation 1	STIG	Security Technical Implementation Guides
DIACAP	DoD Information Assurance Certification and Accreditation Process	IT ITU-T	Multi-Level Precedence and Preemption	STU-III	Secure Telephone Unit -3rd generation
DISR	DoD IT Standards Registry		Mean Opinion Score	T.4	Standardization of Group 3 facsimile terminals for document transmission
DoD	Department of Defense		Data format restricted to multiples of 56 kbps	T1	Digital Transmission Link Level 1 (1.544 Mbps)
DoDI	Department of Defense Instruction	MFR1	Data format restricted to multiples of 64 kbps	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
DP	Dial Pulse	MLPP	Private Branch Exchange	UCR	Unified Capabilities Requirements
DS0	Digital Signal Level 0 (64 kbps)		Private Branch Exchange 1	UPS	Uninterruptible Power Supply
DS1	Digital Signal Level 1 (1.544 Mbps) (2.048 Mbps European)	MOS NX56	Pulse Code Modulation	VBD	Variable bit data
DISN	Defense Switched Network			VoIP	Voice over Internet Protocol
DTMF	Dual Tone Multi-Frequency	NX64		VTC	Video Teleconferencing
E&M	Ear and Mouth				
E1	European Basic Multiplex Rate (2.048 Mbps)	PBX PBX 1			
EKTS	Electronic Key Telephone System	PCM			
FR	Functional Requirement				
FTR	Federal Telecommunications Recommendation				

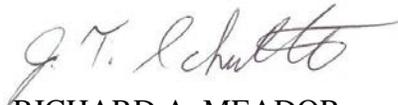
5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive 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). 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). All associated data is available on the DISA UCCO website located at website located at <http://www.disa.mil/Services/Network-Services/UCCO>.

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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. JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The UCCO tracking number for the SUT is 1032101.

FOR THE COMMANDER:

Enclosure a/s

  
for RICHARD A. MEADOR  
Chief  
Battlespace Communications Portfolio

Distribution (electronic mail):

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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," 22 January 2009
- (d) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008 Change 2," 31 December 2010
- (e) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01C, "Policy for Department of Defense Voice Services with Real Time Services (RTS)," 9 November 2007
- (f) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
- (g) Joint Interoperability Test Command, Memo, JTE, "Special Interoperability Test Certification of Avaya S8300D with Gateway 450 (G450) Release Communications Manager (CM) 6.0 (R16x.00.1.510.1) with Service Pack 19211," 17 April 2012
- (h) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Avaya S8300D with Gateway 450 (G450) Release CM6.0 (R16x.00.1.510.1) with Service Pack 19211 (Tracking Number 1032101)," Draft