DEFENSE INFORMATION SYSTEMS AGENCY
JOINT INTEROPERABILITY TEST COMMAND
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IN REPLY
REFER TO: Battlespace Communications Portfolio (JTE) 12 February 2008

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of the Avaya S8710 and S8720 Digital Switching Systems with Software Release Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419) to include the S8700 with Software Release CM 4.0 (R014x.00.2.731.7: Super Patch 14419)

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," 8 March 2006

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. Additional references are provided in the enclosure.

2. The Avaya S8710 Digital Switching System with Software Release CM 4.0 (R014x.00.2.731.7: Super Patch 14419) is hereinafter referred to as the System Under Test (SUT). The SUT met all critical interoperability requirements and is certified as interoperable for joint use within the Defense Switched Network (DSN). The SUT is certified to support DSN Assured Services over Internet Protocol with any Assured Services Voice Application Local Area Network (ASVALAN) on the DSN Approved Products List (APL). The SUT is also certified for joint use with any Voice Application Local Area Network (VALAN) on the DSN APL. However, since VALANs do not support the Assured Services Requirements detailed in reference (c), Command and Control (C2) users and Special C2 users are not authorized to be served by the SUT connected to a VALAN. The identified test discrepancies shown in the SUT Interoperability Test Summary, which remained open after Super Patch 14419, was applied and regression tested has an overall minor operational impact. The SUT was tested and met the critical interoperability requirements for the following DSN switch types: Small End Office (SMEO), Private Branch Exchange (PBX) 1, PBX 2, and Deployable Voice Exchange (DVX). The Avaya S8700 employs the same software and hardware as the Avaya S8710 and S8720 with the exception of the S8710 not offering a media server. The principal difference is in the processors; the S8700 media server has a Pentium III 850 MHz processor, while the S8710 and S8720 have an Intel Xeon 3.06GHz processor. Analysis by JITC determined that the S8700 is functionally identical to the S8710 and S8720 for interoperability certification purposes and the S8700 is certified for joint use within the DSN as a SMEO, PBX 1, PBX 2, and DVX.

JITC Memo, JTE, Extension of the Special Interoperability Test Certification of the Avaya S8710 and S8720 Digital Switching Systems with Software Release Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419) to include the S8700 with Software Release CM 4.0 (R014x.00.2.731.7: Super Patch 14419)

The S8700, 8710 and 8720 series work in conjunction with the G650 complementary media gateways which support multi-protocol environments for concurrent support of Time Division Multiplex (TDM) and Internet Protocol (IP)-based telephony. The SUT is capable of supporting three port networks with a maximum of five G650s on each port network. JITC, however, conducted testing on the SUT using only two port networks, each of which had two G650s. Based on this testing and through analysis, this certification only applies to S8700 systems that are configured for utilization of two port networks with a maximum of ten G650s (five on each port network). The SUT offers an internal Automated Call Distributor (ACD), which was tested and is covered under this certification. The SUT does not offer an internal voicemail capability; however, the SUT is certified for external voicemail systems on the DSN APL via the 2-wire proprietary digital interface. The SUT is certified for conferencing through an external conferencing bridge that is on the DSN APL. No other configurations, features, or functions, except those cited within this report, are certified by the JITC or authorized by the Program Management Office for use within the DSN. This certification expires upon changes that affect interoperability, but no later than three years from the date of the original memorandum (2 October 2007).

3. The extension of this certification is for the purpose of including the S8700 Digital Switching Systems with Software Release Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419) based upon a desktop review. The S8710 and S8720 Digital Switching Systems with Software Release Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419) certification was granted based on interoperability testing by JITC and review of the vendors Letters of Compliance (LoC). Interoperability testing was conducted at JITC's Global Information Grid Network Test Facility at Fort Huachuca, Arizona, from 29 May through 16 July 2007. Regression testing was conducted from 7 through 10 August 2007 and documented in reference (d). Review of the LoC was completed on 13 August 2007. Additionally, after this certification was signed and dated, the vendor requested a desktop review of the Avaya S8700 Digital Switching System with Software Release Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419) for inclusion in the S8710 and S8720 Digital Switching Systems with Software Release Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419) certification . The desktop review and analysis were completed on 22 January 2008. The Avaya S8700 was previously tested from 30 July through 20 September 2004 and certified with software release CM 2.1 (R012x.01.0.411.7) and is documented in reference (e). Enclosure 2 documents the test results and describes the tested network and system configurations.

4. The SUT interoperability test summary is depicted in table 1. The SMEO Capability Requirements (CRs) and Feature Requirements (FRs) are listed in table 2. If a switch meets the SMEO requirements, it meets the lesser requirements of a PBX 1 and PBX 2. The comparison between SMEO and DVX requirements and interoperability status is listed in table 3. This interoperability test status is based on the SUT's ability to meet:

a. DSN services for Network and Applications specified in reference (c).

b. SMEO and DVX interface and signaling requirements for trunks/lines specified in reference (f) verified through JITC testing and/or vendor submission of LoC.

c. SMEO and DVX CRs/FRs specified in reference (f) verified through JITC testing and/or vendor submission of LoC.

d. Internet Protocol version 6 requirements specified in reference (f), paragraph 1.7, table 1-4, verified through vendor submission of LoC signed by the Vice President of the company.

e. The overall system interoperability performance derived from test procedures listed in reference (g).

Table 1. SUT Interoperability Test Summary

DSN Trunk Interfaces			
Interface & Signaling	**Critical**	**Status**	**Remarks**
T1 CAS (DTMF, DP)	Yes	Certified	Met all CRs and FRs with the following minor exceptions: The SUT fails to remove a yellow alarm condition after a DS1 has been broken and restored within GSCR specification.[1] The SUT T1 CAS preemption signal generation is out of tolerance.[2] The SUT recognizes E1 and T1 CAS wink start signals greater than the maximum interval as valid.[3] During a remote busy condition on a T1 CAS or E1 CAS, the SUT takes approximately 5 minutes to change the status of the timeslots from an "In-Service/Active" state to a "Far-End-Busy" state.[4]
T1 CAS (MFR1)	No	Certified	Met all CRs and FRs with the following minor exceptions: The SUT fails to remove a yellow alarm condition after a DS1 has been broken and restored within GSCR specification.[1] The SUT T1 CAS preemption signal generation is out of tolerance.[2] The SUT recognizes E1 and T1 CAS wink start signals greater than the maximum interval as valid.[3] During a remote busy condition on a T1 CAS or E1 CAS, the SUT takes approximately 5 minutes to change the status of the timeslots from an "In-Service/Active" state to a "Far-End-Busy" state.[4]
E1 CAS (DTMF, MFR1, DP)	Yes (Europe only)	Certified	Met all CRs and FRs with the following minor exceptions: The SUT fails to remove a yellow alarm condition after a DS1 has been broken and restored within GSCR specification.[1] The SUT recognizes E1 and T1 CAS wink start signals greater than the maximum interval as valid.[3] During a remote busy condition on a T1 CAS or E1 CAS, the SUT takes approximately 5 minutes to change the status of the timeslots from an "In-Service/Active" state to a "Far-End-Busy" state.[4]
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes	Certified	Met all CRs and FRs with the following minor exceptions: The SUT fails to remove a yellow alarm condition after a DS1 has been broken and restored within GSCR specification.[1] Failure to maintain busy out condition after restart messages are received from the distant switch.[5]
E1 ISDN PRI	No	Not Tested	The SUT offers an E1 ISDN PRI interface; however, this interface was not tested and is not covered under this certification. Since this is not a required interface for a SMEO or DVX, there is no operational impact.[6]
T1 SS7 (ANSI T1.619a)	No	Not Tested	This interface is not supported. Since this is not a required interface for a SMEO or DVX, there is no operational impact.[7]
E1 SS7 (ANSI T1.619a)	No	Not Tested	This interface is not supported. Since this is not a required interface for a SMEO or DVX, there is no operational impact.[7]

Table 1. SUT Interoperability Test Summary (continued)

DSN Line Interfaces			
Interface & Signaling	**Critical**	**Status**	**Remarks**
2-Wire Analog (GR-506-CORE)	Yes	Certified	Met all CRs and FRs with the following minor exceptions: The precedence above ROUTINE ring cadence is not in accordance with GSCR specification.[8] The call pick-up feature does not pick-up the call with the highest precedence or longest ringing call first.[9] Three-way conference members do not maintain their assigned precedence levels.[10]
ISDN BRI NI 1/2 (ANSI T1.619a)	Yes	Certified	Met all CRs and FRs with the following minor exceptions: The precedence above ROUTINE ring cadence is not in accordance with GSCR specification.[8] The call pick-up feature does not pick-up the call with the highest precedence or longest ringing call first.[9] Three-way conference members do not maintain their assigned precedence levels.[10]
2-Wire Proprietary Digital	No	Certified	Met all CRs and FRs with the following minor exceptions: The precedence above ROUTINE ring cadence is not in accordance with GSCR specification.[8] The call pick-up feature does not pick-up the call with the highest precedence or longest ringing call first.[9] Three-way conference members do not maintain their assigned precedence levels.[10]
VoIP (IEEE 802.3u)	No	Certified	Met all CRs and FRs with the following minor exceptions: The precedence above ROUTINE ring cadence is not in accordance with GSCR specification.[8] The call pick-up feature does not pick-up the call with the highest precedence or longest ringing call first.[9] Three-way conference members do not maintain their assigned precedence levels.[10]
Voicemail			
Interface	**Critical**	**Status**	**Remarks**
2-Wire Proprietary Digital	No	Certified	Met all CRs and FRs.
Automated Call Distributor			
Interface	**Critical**	**Status**	**Remarks**
Internal	No	Certified	Met all CRs and FRs.
DSN Features and Capabilities			
Features and Capabilities	**Critical**	**Status**	**Remarks**
Common Features	No	Certified	Met all CRs and FRs with the following minor exception: Selective Call Rejection is not supported by the SUT.[11]
Attendant	No	Certified	Met all CRs and FRs with the following minor exception: The SUT attendant console does not support the automatic recall feature.[12]
Public Safety	Yes	Certified	Met all CRs and FRs with the following minor exception: Tandem call trace of a distant office DN is not supported by SUT.[13]
Preset Conferencing	No	Certified	This feature is met through the use of the Compunetx Contex(R) 240.
Nailed-up Connections	No	Not Tested	This feature is not supported. Since this is not a required feature for a SMEO or DVX, there is no operational impact.[7]
Precedence Access Threshold	No	Not Tested	This feature is not supported. Since this is not a required feature for a SMEO or DVX, there is no operational impact.[7]
DSN Hotline Services	Yes	Certified	The SUT met all CRs and FRs. Hotline Services is required only for analog interfaces. The SUT supports Hotline Services only with analog stations.
Network Management	Yes	Certified	Met all CRs and FRs with an IEEE 802.3u interface.
ISDN Services (EKTS)	Yes	Certified	Met all CRs and FRs with the following minor exceptions: When an EKTS member is assigned to a MLHG, a call to that EKTS member fails to ring the other EKTS members.[14] When an intercom call is placed on an EKTS station, the primary DN of the calling EKTS user is used and the station is made busy.[15]
Synchronization	Yes	Certified	Met all CRs and FRs.
Reliability	Yes	Certified	Met all CRs and FRs.
Security	Yes	See note 16.	See note 16.

Table 1. SUT Interoperability Test Summary (continued)

VoIP				
Features and Capabilities		**Critical**	**Status**	**Remarks**
VoIP System		Yes	Certified	Met all CRs and FRs. The SUT is certified for VoIP with any VALAN or ASVALAN on the DSN APL. See note 17.
Network Gateways				
Gateway	**Interface & Signaling**	**Critical**	**Status**	**Remarks**
PSTN	T1 CAS (DTMF, DP)	Yes	Certified	Met all CRs and FRs.
	T1 CAS (MFR1)	No	Certified	Met all CRs and FRs.
	E1 CAS (DTMF, MFR1, DP)	No (Europe only)	Certified	Met all CRs and FRs.
	T1 ISDN PRI NI 1/2 (ANSI T1.607)	No	Certified	Met all CRs and FRs.
	E1 ISDN PRI	No	Not Tested	The SUT offers an E1 ISDN PRI interface; however, this interface was not tested and is not covered under this certification. Since this is not a required interface for a SMEO or DVX, there is no operational impact.[6]
	Ground Start Line	Yes	Certified	Met all CRs and FRs.
DRSN	TPC 2-Wire analog (GR-506-CORE)	Yes	Certified	Met all CRs and FRs. See note 18.

LEGEND:

802.3u	- Standard for carrier sense multiple access with collision detection at 100 Mbps	IPv4	- Internet Protocol version 4
ANSI	- American National Standards Institute	IPv6	- Internet Protocol version 6
APL	- Approved Products List	ISDN	- Integrated Services Digital Network
ASVALAN	- Assured Services Voice Application Local Area Network	IT	- Information Technology
BRI	- Basic Rate Interface	LSSGR	- Local Access and Transport Area (LATA) Switching System Generic Requirements
CAS	- Channel Associated Signaling	Mbps	- Megabits per second
CRs	- Capability Requirements	MFR1	- Multi-Frequency Recommendation 1
DISA	- Defense Information Systems Agency	MLHG	- Multi-Line Hunt Group
DISR	- DoD IT Standards Registry	MLPP	- Multi-Level Precedence and Preemption
DN	- Directory Number	ms	- milliseconds
DoD	- Department of Defense	NI 1/2	- National ISDN Standard 1 or 2
DP	- Dial Pulse	PM	- Program Manager
DRSN	- Defense Red Switch Network	PRI	- Primary Rate Interface
DSN	- Defense Switched Network	PSTN	- Public Switched Telephone Network
DS1	- Digital Signal Level 1	SMEO	- Small End Office
DSS1	- Digital Subscriber Signaling 1	SS7	- Signaling System 7
DTMF	- Dual Tone Multi-Frequency	SUT	- System Under Test
E1	- European Basic Multiplex Rate (2.048 Mbps)	T1	- Digital Transmission Link Level 1 (1.544 Mbps)
EKTS	- Electronic Key Telephone System	T1.607	- ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
FRs	- Feature Requirements	T1.619a	- SS7 and ISDN MLPP Signaling Standard for T1
GR	- Generic Requirement	TPC	- Twisted Pair Copper
GR-506-CORE	- LSSGR: Signaling for Analog Interfaces	VALAN	- Voice Application Local Area Network
GSCR	- Generic Switching Center Requirements	VoIP	- Voice over Internet Protocol
IEEE	- Institute of Electrical and Electronics Engineers, Inc.		

NOTES :

1 The SUT fails to remove a yellow alarm condition after a DS1 has been broken and restored within GSCR specification. The requirement states that the yellow alarm should be removed 15 seconds +/- 5 seconds upon DS1 restoration. The SUT removes the yellow alarm 30 seconds after the DS1 is restored. The operational impact is minor.

2 The SUT T1 CAS preemption signal generation is out of tolerance. The preemption signal generated by the SUT was measured 2 ms outside the GSCR required preemption signal of 345 ms +/- 5 ms. The operational impact is minor.

3 The SUT recognizes E1 and T1 CAS wink start signals greater than the maximum interval as valid. The SUT recognizes wink start signals from 100 ms to 395 ms as valid. The GSCR requirement specifies the wink start recognition range to be between 100 ms and 350 ms. The operational impact is minor.

4 During a remote busy condition on a T1 CAS or E1 CAS, the SUT takes approximately 5 minutes to change the status of the timeslots from an "In-Service/Active" state to a "Far-End-Busy" state. During this period of time, a ROUTINE call attempted over this span receives T-120 and precedence above ROUTINE call receives Blocked Precedence Announcement. After the state is changed, the correct treatment, an Isolated Code Announcement, is provided to all calls attempted over this span. The operational impact is minor.

5 When the SUT initiates a busy-out condition for a T1 PRI, and if the distant switch sends RESTART messages while the SUT has a busy-out condition, the SUT responds with RESTART ACKNOWLEDGEMENT messages; however, the SUT does not retransmit the SERVICE (Out-Of-Service) message for all of the busied channels. The result is that the distant switch idles the channels that the SERVICE (Out-Of-Service) messages were not retransmitted on. This condition can be eliminated by busying both ends. The operational impact is minor.

6 The SUT offers an E1 ISDN PRI interface; however, this interface was not tested and is not covered under this certification. Therefore, this interface is not authorized nor approved for use within the DSN. Since this is not a required interface for a SMEO or DVX, there is no operational impact.

7 The SUT does not support this. Since this is not required for a SMEO or DVX, there is no operational impact.

8 The precedence above ROUTINE ring cadence is not in accordance with GSCR specification. Since the cadence is different than a ROUTINE ring cadence, the operational impact is minor.

9 The SUT call pickup feature doesn't retrieve the call with the highest precedence first. The SUT retrieves unanswered call pickup group calls above ROUTINE in a random sequence. The GSCR requires that "If a call pickup group has more than one party in an unanswered condition and the unanswered parties are at different precedence levels, a call pickup attempt in that group shall retrieve the highest precedence call first." All unanswered precedence calls above ROUTINE in the pickup group do divert after 15-45 seconds if unanswered and are positively connected to either the attendant, night service, or alternate DN. The operational impact is minor.

10 Three-way conference members do not maintain their assigned precedence levels. Since the SUT class marks the conference members at the highest precedence level, the operational impact is minor.

11 Selective Call Rejection is not supported by the SUT. Since it is not a critical requirement for a SMEO or DVX, there is no operational impact.

12 The SUT attendant console does not support the automatic recall feature. The SUT does permit the attendant console to extend (camp-on) a caller to a busy station. Since the SUT provides this for the subscriber as a feature access code, the operational impact is minor.

13 Tandem call trace of a distant office DN is not supported by SUT. The operational impact is minor.

14 When an EKTS member is assigned to a MLHG, a call to that EKTS member fails to ring the other EKTS members. When a call is sent to a MLHG pilot number that causes an EKTS member to ring, all members of the EKTS group should have an incoming call appearance. The EKTS feature is certified as standalone and not when assigned as a member of a MLHG. MLHG interaction with EKTS is a conditional requirement; therefore, the operational impact is minor.

15 When an intercom call is placed on an EKTS station, the primary DN of the calling EKTS user is used and the station is made busy. In accordance with the GSCR specification, the EKTS intercom feature should not affect the busy/idle status of any of the DNs of the calling EKTS user. An EKTS station can have additional call appearances added to compensate for this discrepancy. The operational impact is minor.

16 Security is tested by DISA-led Information Assurance test teams and published in a separate report.

17 An IPv6 capable system or product, as defined in the GSCR, paragraph 1.7, shall be capable of receiving, processing, and forwarding IPv6 packets and/or interfacing with other systems and protocols in a manner similar to that of IPv4. IPv6 capability is currently satisfied by a vendor Letter of Compliance signed by the Vice President of their company. The vendor stated, in writing, compliance to the following criteria by 31 December 2008:
(a) Conformant with IPv6 standards profile contained in the DISR.
(b) Maintaining interoperability in heterogeneous environments and with IPv4.
(c) Commitment to upgrade as the IPv6 standard evolves.
(d) Availability of contractor/vendor IPv6 technical support.

18 Interoperability Certification of the SUT does not constitute DRSN PM's approval for connectivity to the DRSN. It is the user's responsibility to request connectivity approval directly from the PM.

Table 2. SMEO Requirements

DSN Trunk Interfaces				
Interface	**Critical**	**Requirements Required or Conditional**		**References**
T1 SS7 (ANSI T1.619a) E1 SS7 (ITU-T Q.735.3) T1 CAS (MFR1) T1 CAS (DTMF, DP) E1 CAS (MFR1, DTMF, DP) T1 ISDN PRI NI 1/2 (ANSI T1.619a) E1 ISDN PRI (ITU-T Q.955.3)	No No (Europe only) No Yes Yes (Europe only) Yes No (Europe only)	Trunking	• Framing (R) • Line Code (R) • Signaling (R) • Alarms (R) • WWNDP (R) • Out pulsing digit formats (R: CAS only) • Routing (R) • Trunk Groups (R) • Call Processing (R) • CAS to CCS trunk interworking (C) • PCM-24/PCM-30 Interoperation (R) • Direct Inward Dialing (C)	• GSCR Sect. 7 • GSCR Sect. 7 • GSCR Sect. 5 • GSCR Sect. 2.5.7, 7.1.4 & 7.2.2 • GSCR Sect. 4.5.1 • GSCR Sect. 4.5.2 • GSCR Sect. 4.2 • GSCR Sect. 2.5.5 & 2.5.6 • GSCR Sect. 4 • GSCR Sect. 3.10 • GSCR Sect. 7.3 • GSCR Sect. 2.3.2
		Voice	• MOS (R) • MLPP (R) • Secure calls (R)	• CJCSI 6215.01B • GSCR Sect. 3 • CJCSI 6215.01B
		Facsimile	• Analog: TIA/EIA-465-A (R)	• DISR
		Data	• Modem (VBD) (R) • 56 kbps switched data (R: PRI only) • 64 kbps switched data (R: PRI only) • NX56 synchronous BER (R: PRI only) • NX64 synchronous BER (R: PRI only) • Secure data (STE/STU-III) (R)	• CJCSI 6215.01B • GSCR Sect. 3.10 • GSCR Sect. 3.10 • GSCR Sect. 3.10 • GSCR Sect. 3.10 • CJCSI 6215.01B
		VTC	• ITU-T H.320 (R: PRI only)	• DISR
DSN Line Interfaces				
Interface	**Critical**	**Requirements Required or Conditional**		**References**
2-Wire Analog ISDN BRI NI 1/2 (ANSI T1.619a)	Yes Yes	Access	• DN Identification (R) • Line signaling (R) • Loop Start Line (R: 2-Wire Analog only) • Ground Start Line (R) • Alerting Signals and Tones (R) • WWNDP (R) • Call Processing (R) • Call Treatments (R) • 2W user access (R: 2-Wire Analog only) • Analog busy/idle (R: 2-Wire Analog only)	• GSCR Sect. 2.1.1 • GSCR Sect. 5.2 • GSCR Sect. 5.2.1 • GSCR Sect. 5.2.2 • GSCR Sect. 5.5 • GSCR Sect. 4.5 • GSCR Sect. 4.4 • GSCR Sect. 4.1 • GSCR Sect. 4.3.3 • GSCR Sect. 4.3.4.1
2W Digital Proprietary	No	Voice	• MOS (R) • Announcements (R) • MLPP (R) • Secure Calls (R)	• CJCSI 6215.01B • GSCR Sect. 3.1.3 • GSCR Sect. 3.4.3/3.9 • CJCSI 6215.01B
		Facsimile	• Analog: TIA/EIA-465-A (R)	• DISR
VoIP (IEEE 802.3u)	No	Data	• Modem (VBD) (R) • 56 kbps switched data (R) • 64 kbps switched data (R: BRI only) • NX56 synchronous BER (R: BRI only) • NX64 synchronous BER (R: BRI only) • Secure data (STE/STU-III) (R)	• CJCSI 6215.01B • GSCR Sect. 3.10 • GSCR Sect. 3.10 • GSCR Sect. 3.10 • GSCR Sect. 3.10 • CJCSI 6215.01B
		VTC	• ITU-T H.320 (R: BRI only)	• DISR

Table 2. SMEO Requirements (continued)

SUT Voice Mail Interfaces			
Interface	**Critical**	**Requirements Required or Conditional**	**References**
2 Wire Digital Proprietary	No	• FCC Part15/Part 68 (R): Analog only • DTMF out pulsing (C) • DISR compliance as applicable (R) • ROUTINE precedence only in accordance with GSCR, Section 3.3 (R) • TIA/EIA-470-B (R): Analog only	• GSCR A7.5 • GSCR A7.5, 5.4.1, 5.4.2 • GSCR A7.5 • GSCR A7.5.5 • GSCR A7.5.1
Automated Call Distributor Interfaces			
Interface	**Critical**	**Requirements Required or Conditional**	**References**
Internal	No	• DTMF out pulsing (C) • DISR compliance as applicable (R) • ROUTINE precedence only in accordance with GSCR, Section 3.3 (R)	• GSCR Sect. A7.5, 5.4.1, 5.4.2 • GSCR Sect. A7.5 • GSCR Sect. A7.5
DSN Features & Capabilities			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
Common Features	Yes	• Selective call rejection (C) • Denied originating service (C) • Code restriction and diversion (R) • Call waiting (C) • Three-way calling (C) • Add-on transfer and conference calling and call hold (C) • Call forwarding (C) • Call pick-up (C)	• GSCR Sect. 2.1.2 • GSCR Sect. 2.1.3 • GSCR Sect. 2.1.4 • GSCR Sect. 2.1.5 • GSCR Sect. 2.1.6 • GSCR Sect. 2.1.7 • GSCR Sect. 2.1.8 • GSCR Sect. 2.1.9
Attendant	No	• Initiate all precedence levels (C) • Visual display (C) • Override class of service (C) • Override busy line (C) • Call deflection (C) • Auto recall (C) • Waiting queue (C)	• GSCR Sect. 2.2.1 • GSCR Sect. 2.2.2 • GSCR Sect. 2.2.3 • GSCR Sect. 2.2.4 • GSCR Sect. 2.2.5 • GSCR Sect. 2.2.6 • GSCR Sect. 2.2.7
Public Safety	Yes	• Basic Emergency Service (911) (C) • Trace of terminating calls (R) • Outgoing call trace (R) • Tandem call trace (R) • Trace of a call in progress (R)	• GSCR Sect. 2.4.1 • GSCR Sect. 2.4.2 • GSCR Sect. 2.4.3 • GSCR Sect. 2.4.4 • GSCR Sect. 2.4.5
Preset Conferencing	No	• Support 10 bridges; 1 originator and 20 conferees per bridge (C) • Assign up to 20 address numbers per bridge (C) • Use KXX codes for bridge access (C) • Conference notification recorded announcement (C) • Auto retrial and alternate address (C) • Bridge release (C) • Lost connection (C) • Secondary conferencing (C) • Address translation (C)	• GSCR Sect. 2.6 • GSCR Sect. 2.6 • GSCR Sect. 2.6 • GSCR Sect. 2.6.1 • GSCR Sect. 2.6.2 • GSCR Sect. 2.6.3 • GSCR Sect. 2.6.4 • GSCR Sect. 2.6.5 • GSCR Sect. 2.7
Nailed-up Connections	No	• Between any two like terminations (C) • PCM-24 and PCM-30, both CAS and CCS (C) • Supervision passed end-to-end for A/D or D/A (C) • Monitored and auto reconfigure (C) • Support at least 10% of circuits as nailed-up (C) • Non-preemptable (C)	• GSCR Sect. 2.8 • GSCR Sect. 2.8 • GSCR Sect. 2.8 • GSCR Sect. 2.8 • GSCR Sect. 2.8 • GSCR Sect. 2.8

Table 2. SMEO Requirements (continued)

DSN Features & Capabilities			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
PAT	No	• Class mark for/not for PAT screening (C) • 7 PAT mechanisms (C) • Outgoing call screening (C) • Functional structure (C) • Simultaneous calls limitation (C) • Overflow process (C) • Decrementing call-in-progress count (C) • Call treatment (C) • Queuing (C) • Attendant calls (C) • Operations measurement registers (C) • Maintenance and Administration of thresholds (C)	• GSCR Sect. 2.11.1 • GSCR Sect. 2.11.1 • GSCR Sect. 2.11.1.1 • GSCR Sect. 2.11.1.2 • GSCR Sect. 2.11.1.3 • GSCR Sect. 2.11.1.4 • GSCR Sect. 2.11.1.5 • GSCR Sect. 2.11.1.6 • GSCR Sect. 2.11.1.7 • GSCR Sect. 2.11.1.8 • GSCR Sect. 2.11.1.9 • GSCR Sect. 2.11.1.10
DSN Hotline Services	Yes	• Hotline restrictions (R) • Auto initiate (R) • Analog and digital (R) • Subscription basis (R) • Protected hotline calling (R) • WWNDP interoperable (R)	• GSCR Sect. 2.12 • GSCR Sect. 2.12 • GSCR Sect. 2.12 • GSCR Sect. 2.12 • GSCR Sect. 2.12.1-4 • GSCR Sect. 2.12.5
Network Management	Yes	• Interfaces (R) • Measurements and data generation (R) • Fault management (R) • Configuration management (R) • Accounting management (R) • Performance management (R) • Network Management controls (R) • Remote access (R)	• GSCR Sect. 9.1 • GSCR Sect. 9.2 • GSCR Sect. 9.3 • GSCR Sect. 9.4 • GSCR Sect. 9.5 • GSCR Sect. 9.6 • GSCR Sect. 9.7 • GSCR Sect. 9.8
ISDN Services	No	• EKTS (C)	• GSCR Sect. 10, table 10-3
Synchronization	Yes	• Line timing mode (R) • Internal Stratum 4 (R)	• GSCR Sect. 11.1.1.2 • GSCR Sect. 11.1.2.2
Reliability	Yes	• GR-512-CORE (R)	• GSCR Sect. 12
Security	Yes	• GR-815, STIGs, and DIACAP (replacement for DITSCAP) (R)	• GSCR Sect. 13
VoIP			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
VoIP System	No	VoIP function is conditional. If VoIP is provided, **all** of the following requirements must be met: • Voice Quality with MOS of 4.0 or better • Class of Service (CoS) and Quality of Service (QoS) • ITU-T G.711 PCM Codec • Traffic Engineering • Security • Network Management • Line timing • Internal Clock • Latency ≤ 60 milliseconds • Packet Loss • IPv6 capable	 • GSCR App. 3 • GSCR App. 3 • GSCR App. 3 • GSCR App. 3 • GSCR App. 3 • GSCR App. 3 • GSCR App. 3 • GSCR App. 3 • GSCR App. 3 • GSCR App. 3 • GSCR paragraph 1.7

Table 2. SMEO Requirements (continued)

Network Gateways				
Gateway	**Critical**	**Requirements Required or Conditional**		**References**
PSTN[1]	Yes	Trunking	• Positive Identification Control (R) • On-Netting (R) • Off-Netting (R)	• CJCSI 6215.01B • CJCSI 6215.01B • CJCSI 6215.01B
DRSN[2]	Yes	Access	• Alerting Signals and Tones (R) • Call Processing (R) • Call Treatments (R) • Analog busy/idle (R)	• GSCR Sect. 5.5 • GSCR Sect. 4.4 • GSCR Sect. 4.1 • GSCR Sect. 4.3.4.1
		Voice	• MOS (C) • MLPP (C) • Secure calls (C)	• CJCSI 6215.01B • GSCR Sect. 3 • CJCSI 6215.01B

LEGEND:

2W	- 2-Wire	EKTS	- Electronic Key Telephone System	NX56	- Data format restricted to multiples of 56 kbps
802.3u	- Standard for carrier sense multiple access with collision detection at 100 Mbps	EIA	- Electronic Industries Alliance	NX64	- Data format restricted to multiples of 64 kbps
		FCC	- Federal Communications Commission	PAT	- Precedence Access Threshold
A	- Appendix	G.711	- Standard for PCM of Voice Frequencies	PCM	- Pulse Code Modulation
A/D	- Analog to Digital Conversion	GR	- Generic Requirement (Telcordia)	PCM-24	- Pulse Code Modulation - 24 Channels
ANSI	- American National Standards Institute	GR-512-CORE	- LSSGR: Reliability, Section 12	PCM-30	- Pulse Code Modulation - 30 Channels
App.	- Appendix	GR-815	- Generic Requirements For Network Element/Network System (NE/NS) Security	PRI	- Primary Rate Interface
BER	- Bit Error Ratio			PSTN	- Public Switched Telephone Network
BRI	- Basic Rate Interface			Q.735.3	- SS7 Signaling Standard for E1 MLPP
C	- Conditional	GSCR	- Generic Switching Center Requirements	Q.955.3	- ISDN Signaling Standard for E1 MLPP
CAS	- Channel Associated Signaling	H.320	- Standard for Narrowband VTC	R	- Required
CCS	- Common Channel Signaling	IEEE	- Institute of Electrical and Electronics Engineers, Inc.	Sect.	- Section
CJCSI	- Chairman of the Joint Chiefs of Staff Instruction			SMEO	- Small End Office
		IPv6	- Internet Protocol version 6	SS7	- Signaling System 7
D/A	- Digital to Analog Conversion	ISDN	- Integrated Services Digital Network	STE	- Secure Terminal Equipment
DIACAP	- DoD Information Assurance Certification and Accreditation Process	IT	- Information Technology	STIGs	- Security Technical Implementation Guides
		ITU-T	- International Telecommunication Union - Telecommunication Standardization Sector	STU-III	- Secure Telephone Unit – 3rd Generation
DISR	- DoD IT Standards Registry			T1	- Digital Transmission Link Level 1 (1.544 Mbps)
DITSCAP	- DoD IT Security Certification and Accreditation Process			T1.619a	- SS7 and ISDN MLPP Signaling Standard for T1
		LSSGR	- Local Access and Transport Area (LATA) Switching Systems Generic Requirements	TIA	- Telecommunications Industry Association
DN	- Directory Number			TIA/EIA-465-A	- Group 3 Facsimile Apparatus for Document Transmission
DoD	- Department of Defense	kbps	- kilobits per second		
DP	- Dial Pulse	KXX	- K= any number 2-8; X= any number 1-9	TIA/EIA-470-B	- Performance and Compatibility Requirements for Telephone Sets with Loop Signaling
DSN	- Defense Switched Network	Mbps	- Megabits per second		
DRSN	- Defense Red Switch Network	MFR1	- Multi-Frequency Recommendation 1	VBD	- Variable bit data
DTMF	- Dual Tone Multi-Frequency	MLPP	- Multi-Level Precedence and Preemption	VoIP	- Voice over Internet Protocol
E1	- European Basic Multiplex Rate (2.048 Mbps)	MOS	- Mean Opinion Score	VTC	- Video Teleconferencing
		NI 1/2	- National ISDN Standard 1 or 2	WWNDP	- Worldwide Numbering and Dialing Plan

NOTES:
1 Voice, facsimile, data, and VTC service requirements for PSTN are identical to DSN with the exception of MLPP.
2 Facsimile, data, and VTC services are not provided via the DSN to DRSN interface.

Table 3. SUT SMEO/DVX Requirement Differences and Interoperability Status

GSCR Paragraph	Requirement	SMEO Critical	DVX Critical	Status	Remarks
2.3.3	NI 1/2 BRI	No	Yes	Certified	Met all critical CRs and FRs.
A2.5.2.1	Preset Conferencing	No	Yes	Certified	Met all critical CRs and FRs.
2.11.1.10	Maintenance and Administration of Thresholds	No	Yes	Certified	Met all critical CRs and FRs.
2.12	DSN Hotline Service	Yes	No	Certified	Met all critical CRs and FRs.
3.6	ISDN BRI MLPP interactions	Yes	No	Certified	Met all critical CRs and FRs.
4.3.1	E&M Lead Signaling States	No	Yes	Certified	Met all critical CRs and FRs.
4.3.2	Four Wire E&M Analog User Access Lines	No	Yes	Certified	Met all critical CRs and FRs.
4.5.1.8	Emergency Service 911 Conflict Resolution	Yes	No	Certified	Met all critical CRs and FRs.
Table 4-9	DSN Switch MFR1 Out pulsing Digit Format	No	Yes	Certified	Met all critical CRs and FRs.
Table 4-10	DSN Switch DTMF Out pulsing Digit Format	No	Yes	Certified	Met all critical CRs and FRs.

Table 3. SUT SMEO/DVX Requirement Differences and Interoperability Status (continued)

GSCR Paragraph	Requirement	SMEO Critical	DVX Critical	Status	Remarks
5.1	Network Power Systems for External Interfaces	Yes	No	Certified	Met all critical CRs and FRs.
5.4.3	MFR1 2/6 Signaling	No	Yes	Certified	Met all critical CRs and FRs.
5.7.1.2.1	S/T Reference Point	Yes	No	Certified	Met all critical CRs and FRs.
5.7.1.3	Data-Link Layer	Yes	No	Certified	Met all critical CRs and FRs.
5.7.1.3.1	Data-Link Connections	Yes	No	Certified	Met all critical CRs and FRs.
5.7.1.3.2	Peer-to-Peer Procedures of the Data-Link Layer	Yes	No	Certified	Met all critical CRs and FRs.
5.7.1.4	Layer 3 DSN User-to-Network Signaling	Yes	No	Certified	Met all critical CRs and FRs.
5.7.1.4.2	DSN User-to Network Signaling for CS Bearer Service	Yes	No	Certified	Met all critical CRs and FRs.
5.7.1.4.3	Sequence of Messages for DSN CS Calls	Yes	No	Certified	Met all critical CRs and FRs.
5.7.1.4.4	Message Functional Definitions and Content	Yes	No	Certified	Met all critical CRs and FRs.
5.7.1.4.5	General Message Format and Information Elements Coding	Yes	No	Certified	Met all critical CRs and FRs.
9.5.1	DSN Settable CDR Fields	Yes	No	Certified	Met all critical CRs and FRs.
Section 12	Reliability	Yes	No	Certified	Met all critical CRs and FRs.
Section 13	Security	Yes	No	Certified	Met all critical CRs and FRs.

LEGEND:

A	- Appendix	FRs	- Feature Requirements
BRI	- Basic Rate Interface	GSCR	- Generic Switching Center Requirements
CDR	- Call Detail Recording	ISDN	- Integrated Services Digital Network
CRs	- Capability Requirements	MFR1	- Multi-Frequency Recommendation 1
CS	- Circuit Switched	MLPP	- Multi-Level Precedence and Preemption
DSN	- Defense Switched Network	NI 1/2	- National ISDN Standard 1 or 2
DSS1	- Digital Subscriber Signaling 1	SMEO	- Small End Office
DTMF	- Dual Tone Multi-Frequency	S/T	- Four-wire ISDN BRI interface
DVX	- Deployable Voice Exchange	SUT	- System Under Test
E&M	- Ear and Mouth		

NOTE: The requirements for SMEOs and DVXs are identical except for those listed in above.

5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) System, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125 (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi.

JITC Memo, JTE, Extension of the Special Interoperability Test Certification of the Avaya S8710 and S8720 Digital Switching Systems with Software Release Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419) to include the S8700 with Software Release CM 4.0 (R014x.00.2.731.7: Super Patch 14419)

6. The JITC point of contact is Mr. Joseph Schulte, DSN 879-5164, commercial (520) 538-5164, FAX DSN 879-4347, or e-mail to joseph.schulte@disa.mil. The tracking number for the SUT is 0700401.

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JITC Memo, JTE, Extension of the Special Interoperability Test Certification of the Avaya S8710 and S8720 Digital Switching Systems with Software Release Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419) to include the S8700 with Software Release CM 4.0 (R014x.00.2.731.7: Super Patch 14419)

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ADDITIONAL REFERENCES

(c) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B, "Policy for Department of Defense Voice Services," 23 September 2001

(d) Joint Interoperability Test Command, Memo, JTE, "Special Interoperability Test Certification of the Avaya S8710 and S8720 Digital Switching Systems with Software Release Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419)," 2 October 2007

(e) Joint Interoperability Test Command, Memo, JTE, "Special Interoperability Test Certification of Avaya S8700 with Software Release Communication Manager (CM) 2.1 (R012x.01.0.411.7) and G3SI with Software Release CM 2.1 (R012i.01.0.411.7) Digital Switching Systems (Includes Voice over Internet Protocol)," 28 January 2005

(f) Defense Information Systems Agency, "Department of Defense Voice Networks Generic Switching Center Requirements (GSCR), Errata Change 2," 14 December 2006, Revised 27 March 2007

(g) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006