



DEFENSE INFORMATION SYSTEMS AGENCY

JOINT INTEROPERABILITY TEST COMMAND

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IN REPLY
REFER TO:

Battlespace Communications Portfolio (JTE)

9 April 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)

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 S8700 series media servers 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

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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 8410D digital telephone based upon a desktop review. The S8710 and S8720 Digital Switching Systems with Software Release 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 8410D digital telephone for inclusion in the S8710 and S8720 Digital Switching Systems with Software Release CM 4.0 (R014x.00.2.731.7: Super Patch 14419) certification. The desktop review and analysis were completed on 24 March 2008. The 8410D digital telephone was previously tested from 24 October through 14 November 2005. Regression testing was conducted from 6 March through 21 April 2006 with the Avaya S8700 with Software Release CM 3.0 (R013x.00.0.340.3: Super Patch 11815).

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 (e) verified through JITC testing and/or vendor submission of LoC.
- c. SMEO and DVX CRs/FRs specified in reference (e) verified through JITC testing and/or vendor submission of LoC.
- d. Internet Protocol version 6 requirements specified in reference (e), 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 (f).

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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
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.

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Table 1. SUT Interoperability Test Summary (continued)

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 Context ^(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.	
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.

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Table 1. SUT Interoperability Test Summary (continued)

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.		

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Table 2. SMEO Requirements

DSN Trunk Interfaces							
Interface	Critical	Requirements Required or Conditional		References			
T1 SS7 (ANSI T1.619a)	No	Trunking	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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 			
E1 SS7 (ITU-T Q.735.3)	No (Europe only)						
T1 CAS (MFR1)	No						
T1 CAS (DTMF, DP)	Yes						
E1 CAS (MFR1, DTMF, DP)	Yes (Europe only)				Voice	<ul style="list-style-type: none"> • MOS (R) • MLPP (R) • Secure calls (R) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • GSCR Sect. 3 • CJCSI 6215.01B
					Facsimile	<ul style="list-style-type: none"> • Analog: TIA/EIA-465-A (R) 	<ul style="list-style-type: none"> • DISR
					Data	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • GSCR Sect. 3.10 • GSCR Sect. 3.10 • GSCR Sect. 3.10 • GSCR Sect. 3.10 • CJCSI 6215.01B
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes						
E1 ISDN PRI (ITU-T Q.955.3)	No (Europe only)	VTC	<ul style="list-style-type: none"> • ITU-T H.320 (R: PRI only) 	<ul style="list-style-type: none"> • DISR 			
DSN Line Interfaces							
Interface	Critical	Requirements Required or Conditional		References			
2-Wire Analog	Yes	Access	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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 			
ISDN BRI NI 1/2 (ANSI T1.619a)	Yes						
2W Digital Proprietary	No	Voice	<ul style="list-style-type: none"> • MOS (R) • Announcements (R) • MLPP (R) • Secure Calls (R) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • GSCR Sect. 3.1.3 • GSCR Sect. 3.4.3/3.9 • CJCSI 6215.01B 			
		Facsimile	<ul style="list-style-type: none"> • Analog: TIA/EIA-465-A (R) 	<ul style="list-style-type: none"> • DISR 			
		Data	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • GSCR Sect. 3.10 • GSCR Sect. 3.10 • GSCR Sect. 3.10 • GSCR Sect. 3.10 • CJCSI 6215.01B 			
VoIP (IEEE 802.3u)	No	VTC	<ul style="list-style-type: none"> • ITU-T H.320 (R: BRI only) 	<ul style="list-style-type: none"> • DISR 			

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Table 2. SMEO Requirements (continued)

SUT Voice Mail Interfaces			
Interface	Critical	Requirements Required or Conditional	References
2 Wire Digital Proprietary	No	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • DTMF out pulsing (C) • DISR compliance as applicable (R) • ROUTINE precedence only in accordance with GSCR, Section 3.3 (R) 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 retrieval and alternate address (C) • Bridge release (C) • Lost connection (C) • Secondary conferencing (C) • Address translation (C) 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • GSCR Sect. 2.8

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Table 2. SMEO Requirements (continued)

Network Gateways				
Gateway	Critical	Requirements Required or Conditional		References
PSTN ¹	Yes	Trunking	<ul style="list-style-type: none"> Positive Identification Control (R) On-Netting (R) Off-Netting (R) 	<ul style="list-style-type: none"> CJCSI 6215.01B CJCSI 6215.01B CJCSI 6215.01B
DRSN ²	Yes	Access	<ul style="list-style-type: none"> Alerting Signals and Tones (R) Call Processing (R) Call Treatments (R) Analog busy/idle (R) 	<ul style="list-style-type: none"> GSCR Sect. 5.5 GSCR Sect. 4.4 GSCR Sect. 4.1 GSCR Sect. 4.3.4.1
		Voice	<ul style="list-style-type: none"> MOS (C) MLPP (C) Secure calls (C) 	<ul style="list-style-type: none"> CJCSI 6215.01B GSCR Sect. 3 CJCSI 6215.01B
LEGEND: 2W - 2-Wire 802.3u - Standard for carrier sense multiple access with collision detection at 100 Mbps A - Appendix A/D - Analog to Digital Conversion ANSI - American National Standards Institute App. - Appendix BER - Bit Error Ratio BRI - Basic Rate Interface C - Conditional CAS - Channel Associated Signaling CCS - Common Channel Signaling CJCSI - Chairman of the Joint Chiefs of Staff Instruction D/A - Digital to Analog Conversion DIACAP - DoD Information Assurance Certification and Accreditation Process DISR - DoD IT Standards Registry DITSCAP - DoD IT Security Certification and Accreditation Process DN - Directory Number DoD - Department of Defense DP - Dial Pulse DSN - Defense Switched Network DRSN - Defense Red Switch Network DTMF - Dual Tone Multi-Frequency E1 - European Basic Multiplex Rate (2.048 Mbps) EKTS - Electronic Key Telephone System EIA - Electronic Industries Alliance FCC - Federal Communications Commission G.711 - Standard for PCM of Voice Frequencies GR - Generic Requirement (Telcordia) GR-512-CORE - LSSGR: Reliability, Section 12 GR-815 - Generic Requirements For Network Element/Network System (NE/NS) Security GSCR - Generic Switching Center Requirements H.320 - Standard for Narrowband VTC IEEE - Institute of Electrical and Electronics Engineers, Inc. IPv6 - Internet Protocol version 6 ISDN - Integrated Services Digital Network IT - Information Technology ITU-T - International Telecommunication Union - Telecommunication Standardization Sector LSSGR - Local Access and Transport Area (LATA) Switching Systems Generic Requirements kbps - kilobits per second KXX - K= any number 2-8; X= any number 1-9 Mbps - Megabits per second MFR1 - Multi-Frequency Recommendation 1 MLPP - Multi-Level Precedence and Preemption MOS - Mean Opinion Score NI 1/2 - National ISDN Standard 1 or 2 NX56 - Data format restricted to multiples of 56 kbps NX64 - Data format restricted to multiples of 64 kbps PAT - Precedence Access Threshold PCM - Pulse Code Modulation PCM-24 - Pulse Code Modulation - 24 Channels PCM-30 - Pulse Code Modulation - 30 Channels PRI - Primary Rate Interface PSTN - Public Switched Telephone Network Q.735.3 - SS7 Signaling Standard for E1 MLPP Q.955.3 - ISDN Signaling Standard for E1 MLPP R - Required Sect. - Section SMEO - Small End Office SS7 - Signaling System 7 STE - Secure Terminal Equipment STIGs - Security Technical Implementation Guides STU-III - Secure Telephone Unit - 3 rd Generation T1 - Digital Transmission Link Level 1 (1.544 Mbps) T1.619a - SS7 and ISDN MLPP Signaling Standard for T1 TIA - Telecommunications Industry Association TIA/EIA-465-A - Group 3 Facsimile Apparatus for Document Transmission TIA/EIA-470-B - Performance and Compatibility Requirements for Telephone Sets with Loop Signaling VBD - Variable bit data VoIP - Voice over Internet Protocol VTC - Video Teleconferencing 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.
5.1	Network Power Systems for External Interfaces	Yes	No	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
5.4.3	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 BRI - Basic Rate Interface CDR - Call Detail Recording CRs - Capability Requirements CS - Circuit Switched DSN - Defense Switched Network DSS1 - Digital Subscriber Signaling 1 DTMF - Dual Tone Multi-Frequency DVX - Deployable Voice Exchange E&M - Ear and Mouth FRs - Feature Requirements GSCR - Generic Switching Center Requirements ISDN - Integrated Services Digital Network MFR1 - Multi-Frequency Recommendation 1 MLPP - Multi-Level Precedence and Preemption NI 1/2 - National ISDN Standard 1 or 2 SMEO - Small End Office S/T - Four-wire ISDN BRI interface SUT - System Under Test					
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>.

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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) Defense Information Systems Agency, "Department of Defense Voice Networks Generic Switching Center Requirements (GSCR), Errata Change 2," 14 December 2006, Revised 27 March 2007
- (f) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006