



**DEFENSE INFORMATION SYSTEMS AGENCY**  
JOINT INTEROPERABILITY TEST COMMAND  
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IN REPLY  
REFER TO: Networks and Transport Division (JTE)

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of Avaya MultiVantage S8700, DEFINITY G3R and G3SI Digital Switching Systems with Software Release R011.7585.7.0.2 and Software Patch # 6153

References:

- (a) DOD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 11 January 2002
- (b) CJCSI 6212.01C, "Interoperability and Supportability of National Security Systems and Information Technology Systems," 20 November 2003

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 enclosure 1.

2. The Avaya MultiVantage S8700 Digital Switching System with Software Release R011x.7585.7.0.2 and Software Patch # 6153, hereinafter referred to as the system under test (SUT), meets all of its critical interoperability requirements, and is certified as interoperable for joint use within the Defense Switched Network (DSN). The identified test discrepancies shown in reference (c) that remained open after software patches were applied and regression testing was completed have an overall minor operational impact. The Avaya DEFINITY G3R and G3SI Digital Switching Systems employ the same software and trunk/line card hardware as the SUT; JITC analysis determined the G3R and G3SI to be functionally identical for interoperability certification purposes. The switching systems and their respective software releases covered under this certification are listed in table 1. The SUT was tested and met the critical interoperability requirements for the following DSN switch types: Small End Office, Private Branch Exchange (PBX) 1 and PBX 2. This certification expires upon changes that could affect interoperability, but no later than three years from the date of this memorandum.

3. This finding is based on interoperability testing of the Avaya MultiVantage S8700 Digital Switching System with Software Release R011.7585.7.0.2 conducted by JITC and certified on 17 October 2003 as shown in reference (c), and regression testing of Software Patch # 6153 conducted 8 through 12 December 2003 at the JITC facility at Ft. Huachuca, AZ. The test results and tested network and systems configurations can be found in enclosure 2 of reference

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(c). System interoperability should be verified before deployment in an operational environment that varies significantly from the test environment.

4. The interoperability summary of the SUT is indicated in table 2. The interoperability status and criticality are listed in table 3, Exchange Requirements (ERs) and Functional Requirements (FRs) for the DSN are listed in table 4, and description of Software Patch # 6153 is shown in table 5. The Avaya switch product line offers a Remote Switch Unit capability referred to as the Survivable Remote Processor Expansion Port Network. This product line also offers a Voice over Internet Protocol capability. Preliminary testing was performed on these capabilities, but neither is covered by this certification. Network Management (NM) capabilities of the SUT platform were tested in accordance with the DISA NS53 requirements as set forth in references (d) and (e). These references require that a switch provide NM capabilities via either Ethernet, serial (EIA-232), or serial (X.25 or BX.25 variant). The SUT meets the NM requirements through the use of either serial (EIA-232) or Ethernet connection as shown in reference (c). This interoperability test status is based upon evaluation of:

- a. The following network interfaces as specified in reference (f): DSN, Defense Red Switch Network Gateway, Tactical Network Gateway, North Atlantic Treaty Organization Gateway, and Public Switched Telecommunications Network or Commercial Network Gateway.
- b. The interface and signaling requirements for trunk/line interfaces, and interoperability ERs and FRs derived from references (g) and (h).
- c. The overall system interoperability performance derived from test procedures listed in reference (i).
- d. Review of Letters of Compliance submitted by Avaya.

**Table 1. Certified Avaya DEFINITY Software Releases**

Software Release	Software Medium	Switch Platform
R011x.7585.7.0.2 (See note)	Optical Disk	MultiVantage S8700
R011r.7585.7.0.2 (See note)	Optical Disk	DEFINITY G3R
R011i.7585.7.0.2 (See note)	PCMCIA	DEFINITY G3SI
<b>Legend:</b> PCMCIA – Personal Computer Memory Card International Association <b>Note:</b> The software is the same; however, Avaya distinguishes the different media and platforms by the fifth character of the Software Release (e.g. x, r, i).		

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**Table 2. MultiVantage S8700, DEFINITY G3R and G3SI Digital Switching Systems Interoperability Summary**

Network	Critical	Status	Remarks
DSN	Yes	Certified	- VoIP not certified - Certified as SMEO & PBX1 - RSU not certified - E1 CAS and CDC certified (DISN-E only) - The identified test discrepancies shown in enclosure (2) of reference (c) that remained open have an overall minor operational impact.
DRSN Gateway	Yes	Certified	- All critical requirements met
Tactical Gateway	No	Certified	- All critical requirements met
NATO Gateway	No	Not Tested	
Commercial Gateway	Yes	Certified	- All critical requirements met
<b>Legend:</b>			
CAS	- Channel Associated Signaling	Mbps	- Megabits per second
CDC	- Common Data Channel	NATO	- North Atlantic Treaty Organization
DISN-E	- Defense Information System Network Europe	PBX1	- Private Branch Exchange 1
DRSN	- Defense Red Switch Network	RSU	- Remote Switching Unit
DSN	- Defense Switched Network	SMEO	- Small End Office
E1	- European Basic Rate (2.048 Mbps)	VoIP	- Voice over Internet Protocol

**Table 3. Interoperability Status**

Defense Switched Network	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DTMF	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DP	Yes	Certified	Met all critical ERs and FRs.
	PCM-30 E1 CAS HDB3 MFR1	No	Certified	Met all ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) ISDN PRI	Yes	Certified	Met all critical ERs and FRs. Full compliance to the ANSI T1.619a requirement not met. <sup>1</sup> Operational impact is minor.
	Analog E&M Signaling Type I	No	Certified	Met all ERs and FRs.
	Line Interfaces			
	Interface & Signaling	Critical	Status	Remarks
TPC ISDN BRI ST and U Interface Q.931	Yes	Certified	Met all critical ERs and FRs. ISDN Supplemental Services <sup>2</sup> and full compliance of DSN Announcements <sup>3</sup> not met. Operational impact is minor.	
TPC 2-Wire analog	Yes	Certified	Met all critical ERs and FRs. Full compliance of DSN Announcements <sup>3</sup> not met. Operational impact is minor.	
TPC 2-Wire Digital (Proprietary)	No	Certified	Met all ERs and FRs except for full compliance of DSN Announcements. <sup>3</sup> Operational impact is minor.	
Network Management Interfaces				
Interface & Signaling	Critical	Status	Remarks	
CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP	No <sup>4</sup>	Certified	Met all ERs and FRs.	
TPC EIA232 Asynchronous @ 9.6 kbps	No <sup>4</sup>	Certified	Met all ERs and FRs.	
TPC X.25 or BX.25 Synchronous	No <sup>4</sup>	Not Tested		

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**Table 3. Interoperability Status (continued)**

Defense Red Switch Network Gateway	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
	2-Wire Analog Loop	Yes	Certified	Met all critical ERs and FRs.
Tactical Network Gateway	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	No	Certified	Met all ERs and FRs.
	PCM-30 E1 HDB3 CAS MFR1	No	Certified	Met all ERs and FRs.
	Analog E&M Signaling Type I	No	Certified	Met all ERs and FRs.
NATO Gateway	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
		No	Not Tested	
Commercial Network Gateway	Trunk Interfaces			
	Interface & Signaling	Critical	Status	Remarks
	Same Interfaces and Signaling as DSN	Yes	Certified	See note 5.

**Legend:**

10BaseT - Ethernet Based Operation, Twisted Pair	HDB3 - High Density Bi-Polar Three
AMI - Alternate Mark Inversion	IEEE - Institute of Electrical and Electronic Engineering, Inc.
ANSI - American National Standards Institute	ISDN - Integrated Services Digital Network
B8ZS - Bipolar Eight Zero Substitution	kbps - kilobits per second
BRI - Basic Rate Interface	Mbps - Megabits per second
CAS - Channel Associated Signaling	MFR1 - Multi-Frequency R1
CAT - Category	NATO - North Atlantic Treaty Organization
DISN - Defense Information Systems Network	NM - Network Management
DP - Dial Pulse	PCM-24 - Pulse Code Modulation 24 Channels
DSN - Defense Switched Network	PCM-30 - Pulse Code Modulation 30 Channels
DTMF - Dual Tone Multi-Frequency	PRI - Primary Rate Interface
E1 - European Basic Rate (2.048 Mbps)	SF - Superframe
E&M - Ear and Mouth	ST - ISDN BRI Four-Wire Interface
EIA - Electronic Industries Alliance	SUT - System Under Test
ERs - Exchange Requirements	T1 - Digital Transmission Link level 1 (1.544 Mbps)
ESF - Extended Superframe	TCP/IP - Transmission Control Protocol/Internet Protocol
FRs - Functional Requirements	TPC - Twisted Pair Copper
GSCR - Generic Switching Center Requirements	U - ISDN BRI Two-Wire Interface
GSTP - Generic Switch Test Plan	

**Notes:**

- The SUT will not allow calls between unlike DSN service domains when resources are available. The SUT meets the minimum requirements defined in reference (h). The operational impact is minor.
- ISDN Supplemental Services currently not used in the DISN. The operational impact is none.
- Met all DSN Announcement requirements except for Isolation Code Announcement. The SUT provides this announcement only for precedence calls above ROUTINE. ROUTINE precedence calls receive a fast busy signal.
- References (d) and (e) require that a switch provide NM capabilities via either Ethernet, serial (EIA-232), or serial (X.25 or BX.25 variant). The SUT meets the NM requirements through the use of either serial (EIA-232) or Ethernet connection.
- The certification/compliance of interoperability to commercial networks was satisfied based on the review of the vendor's letter of compliance to requirements identified as the "L" and "V" items listed in appendix E of the GSTP and specified in tables 2-1 through 2-15 of the GSCR.

**Table 4. Exchange and Functional Requirements**

	<b>Trunk Interfaces</b>	
	<b>Interface &amp; Signaling</b>	<b>Exchange &amp; Functional Requirements</b>
<b>Defense Switched Network</b>	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DTMF	<ul style="list-style-type: none"> <li>- MLPP</li> <li>- Hotline Services</li> <li>- System Interface                             <ul style="list-style-type: none"> <li>• Non-secure Voice and Data</li> <li>• Secure Voice and Data (STU-III and STE)</li> <li>• NX56 kbps and NX64 kbps Synchronous Data</li> <li>• Non-secure and Secure FAX</li> <li>• VTC</li> <li>• Alarms</li> </ul> </li> <li>- Integrated Services Digital Network (<i>ISDN PRI only</i>)</li> <li>- Attendant Services<sup>1</sup></li> <li>- System Administration, Measurements, and Service Standards</li> <li>- Y2K (Rollover, Valid and Invalid Dates)</li> <li>- Screening, Zone Restriction, and DSN Access Restriction</li> <li>- Automated Message Accounting</li> <li>- Network Integration</li> <li>- Common Data Channel (<i>T1 and E1 CAS only</i>)</li> <li>- ANSI T1.619a (<i>T1 ISDN PRI</i>)</li> </ul>
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DP	
	PCM-30 E1 CAS HDB3 MFR1	
	PCM-24 T1 B8ZS/ESF ISDN PRI	
	Analog E&M Signaling Type I	
	<b>Line Interfaces</b>	
	<b>Interface &amp; Signaling</b>	<b>Exchange &amp; Functional Requirements</b>
	TPC ISDN BRI ST and U Interface Q.931	<ul style="list-style-type: none"> <li>- MLPP</li> <li>- Hotline Services</li> <li>- ANSI T1.619a</li> <li>- ISDN Supplemental Services</li> <li>- Call Treatments</li> <li>- DSN Announcements</li> <li>- Attendant Services<sup>1</sup></li> <li>- EKTS</li> <li>- VTC</li> <li>- NX56 kbps and NX64 kbps Synchronous Data</li> <li>- Non-secure Voice and Data</li> <li>- Secure Voice and Data (STE)</li> </ul>
TPC 2-Wire analog	<ul style="list-style-type: none"> <li>- MLPP</li> <li>- Hotline Services</li> <li>- DSN Announcements</li> <li>- Traffic Measurements</li> <li>- Attendant Services<sup>1</sup></li> <li>- Call Treatments</li> <li>- Non-secure Voice and Data</li> <li>- Non-secure and Secure FAX</li> <li>- Secure Voice and Data (STU-III and STE)</li> </ul>	
TPC 2-Wire Digital and Analog (Proprietary)	<ul style="list-style-type: none"> <li>- MLPP</li> <li>- Hotline Services</li> <li>- DSN Announcements</li> <li>- Traffic Measurements</li> <li>- Attendant Services<sup>1</sup></li> <li>- Call Treatments</li> <li>- Non-secure Voice</li> </ul>	

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**Table 4. Exchange and Functional Requirements (continued)**

Defense Switched Network (continued)	Network Management Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP	- Automated Message Accounting - Traffic Measurements
	TPC EIA232 Asynchronous @ 9.6 kbps	- Alarms ( <i>TCP/IP interface only</i> ) - Man Machine Language
Defense Red Switch Network Gateway	Trunk Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	TPC 2-Wire analog	- MLPP - Secure Voice (STU-III & STE)
Tactical Network Gateway	Trunk Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	- MLPP
	PCM-30 E1 HDB3 CAS MFR1	- Non-secure Voice
	Analog E&M Signaling Type I	
NATO Gateway	Trunk Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	Not tested	See note 2.
Commercial Network Gateway	Trunk Interfaces	
	Interface & Signaling	Exchange & Functional Requirements
	Same Interfaces and Signaling as DSN	See note 3.
<b>Legend:</b> 10BaseT - Ethernet Based Operation, Twisted Pair AMI - Alternate Mark Inversion ANSI - American National Standards Institute B8ZS - Bipolar Eight Zero Substitution BRI - Basic Rate Interface CAS - Channel Associated Signaling CAT - Category DP - Dial Pulse DSN - Defense Switched Network DTMF - Dual Tone Multi-Frequency E1 - European Basic Multiplex Rate (2.048 Mbps) E&M - Ear and Mouth EIA - Electronic Industries Alliance EKTS - Electronic Key Telephone Service ESF - Extended Superframe FAX - Facsimile GSCR - Generic Switching Center Requirements GSTP - Generic Switch Test Plan HDB3 - High Density Bi-Polar Three IEEE - Institute of Electrical and Electronic Engineering, Inc. ISDN - Integrated Services Digital Network kbps - kilobits per second Mbps - Megabits per second MFR1 - Multi-Frequency R1 MLPP - Multi-Level Precedence and Preemption NATO - North Atlantic Treaty Organization NX56 - Data format restricted to multiples of 56 kbps NX64 - Data format restricted to multiples of 64 kbps PCM-24 - Pulse Code Modulation 24 Channels PCM-30 - Pulse Code Modulation 30 Channels PRI - Primary Rate Interface SF - Superframe ST - ISDN BRI Four-Wire Interface STE - Secure Terminal Equipment STU-III - Secure Telephone Unit-III SUT - System Under Test T1 - Digital Transmission Link level 1 (1.544 Mbps) TCP/IP - Transmission Control Protocol/Internet Protocol TPC - Twisted Pair Copper U - ISDN BRI Two-Wire Interface VTC - Video Teleconferencing Y2K - Year 2000		
<b>Notes:</b> 1 SUT meets all the GSCR exchange requirements for attendant services with the following console: Lucent Attendant Console Model 302C. 2 NATO interface requirements are in accordance with the GSCR paragraph 10.8. Not all switches are required to perform this function. 3 The certification/compliance of interoperability to commercial networks was satisfied based on the review of the vendor's letter of compliance to requirements identified as the "L" and "V" items listed in appendix E of the GSTP and specified in tables 2-1 through 2-15 of the GSCR.		

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**Table 4. Software Patch # 6153 Description**

Software Patch #	Patch Description
6153	<ol style="list-style-type: none"> <li>1. Deletion of the MLPP ANSI T1.619a information elements on a non-DSN ISDN PRI Trunkgroup (DSN Term=No).</li> <li>2. Allows for Remote Access with PIN from DSN to local commercial extensions.</li> </ol>
<p>ANSI - American National Standards Institute            DSN - Defense Switched Network            ISDN - Integrated Services Digital Network            Mbps - Megabits per second            MLPP - Multi-Level Precedence and Preemption            PIN - Personal Identification Number            PRI - Primary Rate Interface            T1 - Digital Transmission Link level 1 (1.544 Mbps)</p>	

5. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses unclassified (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>.

6. The JITC point of contact is Mr. John Gese, DSN 879-5164 commercial (520) 538-5164, FAX DSN 879-4347, or e-mail to [gesej@fhu.disa.mil](mailto:gesej@fhu.disa.mil).

1 Enclosure:  
Additional References

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**Distribution:**

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## ADDITIONAL REFERENCES

- (c) Joint Interoperability Test Command Memorandum, Networks, Transmission and Integration Division (JTE), "Joint Interoperability Test Certification of Avaya MultiVantage S8700 Digital Switching System with Software Release R011.7585.7.0.2," 17 October 2003
- (d) Defense Information Systems Agency (DISA) NS53, Memorandum, "DSN Switch Network Management Interface," 26 July 2001
- (e) Defense Information Systems Agency (DISA) NS53, Memorandum, "DSN Network Management Requirements for End Offices," 2 August 2001
- (f) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B, "Policy for Department of Defense Voice Services," 23 September 2001
- (g) Defense Information Systems Agency (DISA), Joint Interoperability and Engineering Organization (JIEO), Technical Report 8249, "Defense Information Systems Network (DISN) Circuit Switched Subsystem, Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR)," March 1997
- (h) Defense Information Systems Agency (DISA) NS53, Memorandum, "DSN Global Network Requirements for Tandem (Standalone), Multifunction, End Office, and Small End Office Switches," 30 January 2003
- (i) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP)," 17 June 1999