



DEFENSE INFORMATION SYSTEMS AGENCY

JOINT INTEROPERABILITY TEST COMMAND

P.O. BOX 12798

FORT HUACHUCA, ARIZONA 85670-2798

IN REPLY
REFER TO:

Networks and Transport Division (JTE)

15 Apr 05

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of the VTEL Vista™ VX-P Video Teleconferencing (VTC) Media Station with Software Release 4.2.0.010

References: (a) DOD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01C, "Interoperability and Supportability of Information Technology and National Security Systems," 20 November 2003

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification. Additional references are provided in enclosure 1.
2. The VTEL Vista™ VX-P VTC Media Station with Software Release 4.2.0.010, hereinafter referred to as the system under test (SUT), meets all of the critical interface and functional requirements for a VTC system and is certified for joint use within the Defense Switched Network (DSN). The SUT met the interface and functional requirements for a VTC system as set forth in appendix 8 of reference (c). Although the SUT supports an Internet Protocol International Telecommunication Union (ITU) H.323 interface, there are no joint staff requirements defined for VTC via ITU H.323 to guarantee assured service, therefore, the ITU H.323 interface is not covered by this certification. Testing was conducted using test procedures derived from reference (d). This certification expires upon changes that affect interoperability, but no later than three years from the date of this memorandum.
3. This certification is based on interoperability testing conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, AZ, from 28 June through 2 July 2004, analysis of GSCR appendix 8 requirements, which were approved on 29 November 2004, and approval of vendor Letters of Compliance completed on 4 January 2005. Data review and verification was completed on 10 February 2005. The Certification Testing Summary (enclosure 2) documents the test results and describes the test configuration. Users should verify interoperability before deploying the SUT in an environment that varies significantly from that described.
4. The Functional Requirements used to evaluate the interoperability of the SUT and the interoperability statuses are indicated in table 1.

Table 1. SUT Functional Requirements and Interoperability Status

Interface	Critical	Requirements Required (R) or Conditional (C)	Status	Reference
ISDN BRI	No ¹	FTR 1080B-2002 (R)	Met	A8.5
		H.320 in accordance with FTR 1080B-2002 (R)	Met	A8.5
		Audio add-on interface, implemented independently of an IAS, shall be in accordance with GSCR, Appendix 7 (CPE) (C)	Not Tested ²	A8.5
		Integrated BRI interface shall be in conformance with Terminal Adaptor requirements in GSCR, Appendix 7 (CPE) (R)	Met	A8.5
ISDN PRI T1 ISDN PRI E1	No ¹	FTR 1080B-2002 (R)	Met	A8.5
		H.320 in accordance with FTR 1080B-2001 (R)	Met	FTR 1080B-2202 Section 9.1
		Audio add-on interface, implemented independently of an IAS, shall be in accordance with GSCR, Appendix 7 (CPE) (C)	Not Tested ²	A8.5
		Integrated PRI interface shall be in conformance with IAS requirements in GSCR, Appendix 6 (IAS) (R)	Met	A8.5
SERIAL INTERFACES EIA-366A EIA-449 EIA-530 ITU-T V.35 ³	No ¹	Connections shall be in conformance with the requirements for serial interface(s) as described in FTR 1080B-2002 (C)	Met	A8.5
		Physical, electrical, and software characteristics shall not degrade or impair switch and associated network operations (R)	Met	A8.5
	Yes	Security in accordance with DITSCAP (R)	Not Tested ⁴	A8.7
LEGEND: A - GSCR Appendix BRI - Basic Rate Interface C - Conditional CPE - Customer Premise Equipment DISA - Defense Information Systems Agency DITSCAP - Department of Defense Information Technology Security Certification and Accreditation Program DSN - Defense Switched Network E1 - European Basic Multiplex Rate (2.048 Mbps) EIA - Electronic Industries Alliance EIA-366A - Standard for interface between data terminal equipment and automatic calling equipment for data communication EIA-449 - Standard for 37-position and 9-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange EIA-530 - Standard for 25-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange FTR - Federal Telecommunications Recommendation GSCR - Generic Switching Center Requirements H.320 - ITU Standard for narrowband VTC IAS - Integrated Access Switch ISDN - Integrated Services Digital Network ITU - International Telecommunication Union ITU-T - International Telecommunication Union-Telecommunication Standardization Sector kbps - kilobits per second KHz - KiloHertz Mbps - Megabits per seconds PRI - Primary Rate Interface R - Required SUT - System Under Test T1 - Digital Transmission Link Level 1 (1.544 Mbps) V.35 - Standard for data transmission at 48 kbps using 60-108 KHz groupband circuits VTC - Video Teleconferencing				
NOTES: 1 The VTC system interface requirements can be met with an ISDN BRI, ISDN PRI, or Serial interface. 2 This is not supported by the SUT. It is a conditional requirement, therefore the operational impact is minor. 3 The electrical physical interface tested was ITU-T V.35 in accordance with ITU-T V.36/V.37. 4 DITSCAP information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report.				

5. 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, Special Interoperability Test Certification of the VTEL Vista™ VX-P Video Teleconferencing (VTC) Media Station with Software Release 4.2.0.010

6. The JITC point of contact is Mr. John Hooper, DSN 879-5041, commercial (520) 538-5041, FAX DSN 879-4347, or e-mail to john.hooper@disa.mil.

FOR THE COMMANDER:



MANUEL H. GARCIA, JR.
Acting Chief
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2 Enclosures a/s

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Commander, Defense Information Systems Agency (DISA), ATTN: GS23 (Mr. Osman), Room
5w23, 5275 Leesburg Pike (RTE 7), Falls Church, VA 22041

ADDITIONAL REFERENCES

- (c) Defense Information Systems Agency, "Department of Defense Voice Networks Generic Switching Center Requirements (GSCR)," 8 September 2003
- (d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP)," 23 April 2004

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. The VTEL Vista™ VX-P Video Teleconferencing (VTC) Media Station with Software Release 4.2.0.010, hereinafter referred to as the system under test (SUT).

2. PROPONENT. Defense Information Systems Agency (DISA).

3. PROGRAM MANAGER. Mr. Howard Osman, GS23, Room 5W23, 5275 Leesburg Pike, Falls Church, VA 22041, e-mail: Howard.Osman@disa.mil.

4. TESTER. Joint Interoperability Test Command (JITC), Ft. Huachuca, AZ.

5. SYSTEM UNDER TEST DESCRIPTION. The VTEL Vista™ VX-P VTC media station includes an internal input/output expansion board in a unit that is shelf- or rack-mountable. The Vista™ VX-P is a videoconferencing system with an integrated Windows® personal computer (PC) that uses familiar PC tools and applications in a video call or out of a call. The Vista™ VX-P is suited for medium to large groups, classrooms, corporate training centers, and custom applications. It includes a wireless, hand-held remote control and VTEL collaboration tools and supports Internet Protocol (IP) International Telecommunication Union (ITU) (H.323) or Integrated Services Digital Network (ISDN) (H.320).

The System includes: videoconferencing codec, integrated Windows® PC with Local Area Network connection, VTEL videoconferencing software and collaboration tools, digital video disk drive, three universal serial bus ports, pan-tilt-zoom video camera, omnidirectional microphone, wireless hand-held remote control, and external input/output expansion board.

6. OPERATIONAL ARCHITECTURE. The Generic Switching Center Requirements (GSCR) Defense Switched Network (DSN) architecture in figure 2-1 depicts the relationship of the SUT to the DSN switches.

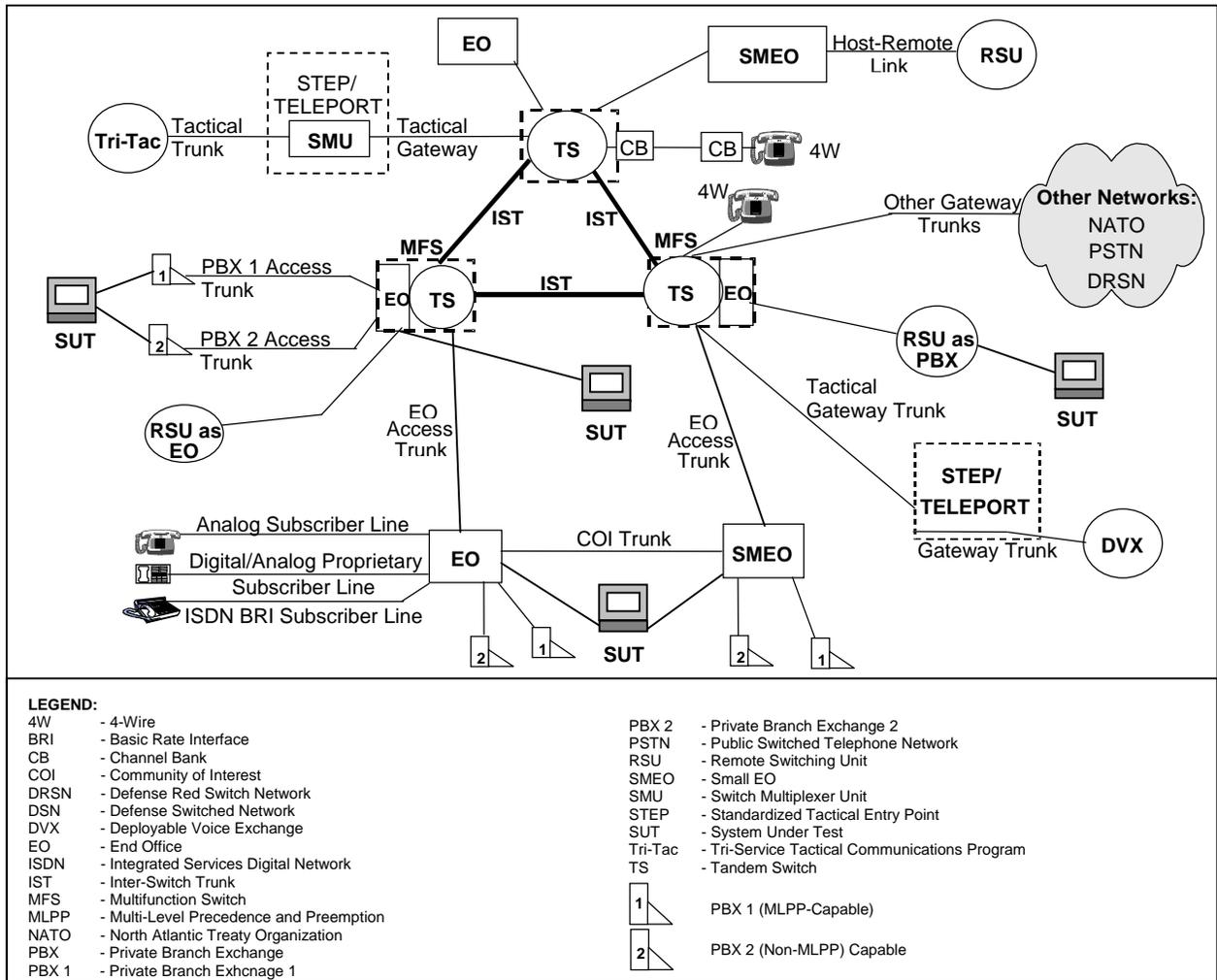


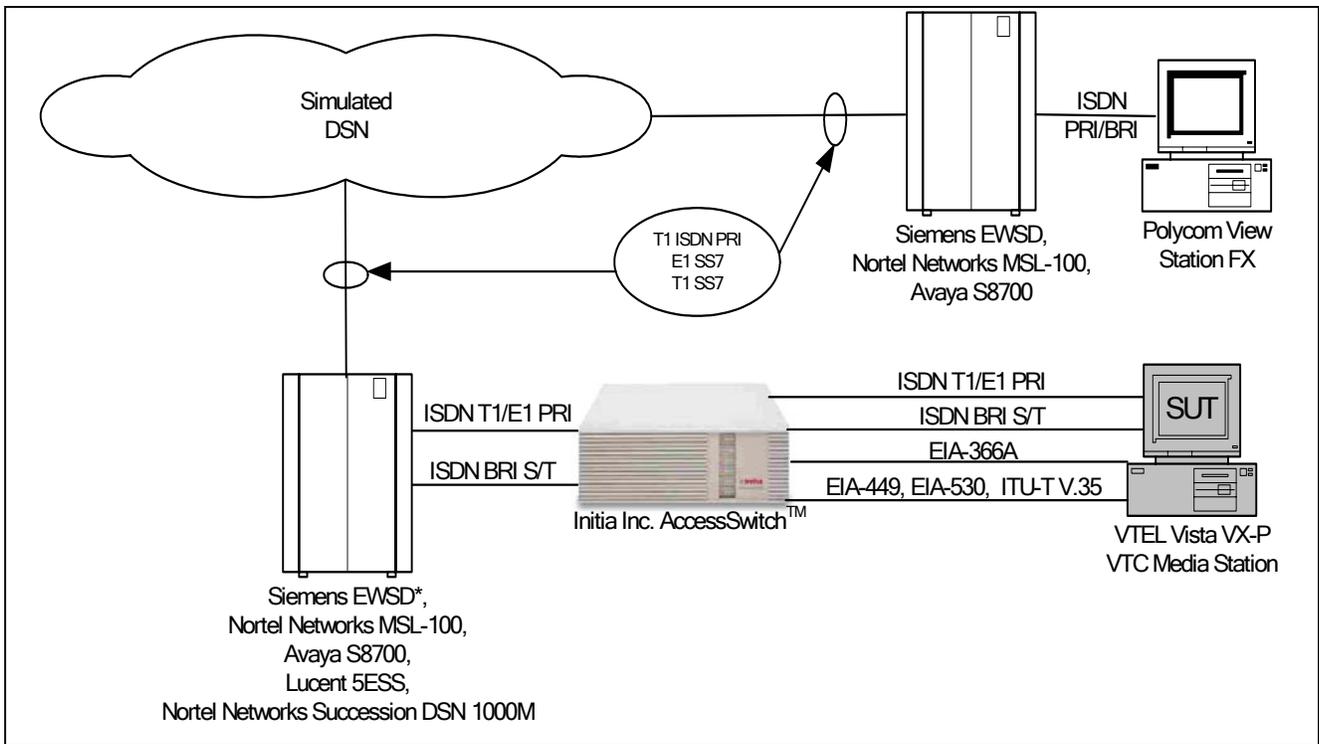
Figure 2-1. DSN Architecture

7. REQUIRED SYSTEM INTERFACES. Requirements specific to the SUT and interoperability results are listed in table 2-1. These requirements are derived from the GSCR, appendix 8, Interface and Functional Requirements (FRs) and verified through JITC testing and review of vendor's Letter(s) of Compliance (LoC).

Table 2-1. SUT Functional Requirements and Interoperability Status

Interface	Critical	Requirements Required (R) or Conditional (C)	Status	Reference
ISDN BRI	No ¹	FTR 1080B-2002 (R)	Met	A8.5
		H.320 in accordance with FTR 1080B-2002 (R)	Met	A8.5
		Audio add-on interface, implemented independently of an IAS, shall be in accordance with GSCR, Appendix 7 (CPE) (C)	Not Tested ²	A8.5
		Integrated BRI interface shall be in conformance with Terminal Adaptor requirements in GSCR, Appendix 7 (CPE) (R)	Met	A8.5
ISDN PRI T1 ISDN PRI E1	No ¹	FTR 1080B-2002 (R)	Met	A8.5
		H.320 in accordance with FTR 1080B-2001 (R)	Met	FTR 1080B-2202 Section 9.1
		Audio add-on interface, implemented independently of an IAS, shall be in accordance with GSCR, Appendix 7 (CPE) (C)	Not Tested ²	A8.5
		Integrated PRI interface shall be in conformance with IAS requirements in GSCR, Appendix 6 (IAS) (R)	Met	A8.5
SERIAL INTERFACES EIA-366A EIA-449 EIA-530 ITU-T V.35 ³	No ¹	Connections shall be in conformance with the requirements for serial interface(s) as described in FTR 1080B-2002 (C)	Met	A8.5
		Physical, electrical, and software characteristics shall not degrade or impair switch and associated network operations (R)	Met	A8.5
	Yes	Security in accordance with DITSCAP (R)	Not Tested ⁴	A8.7
LEGEND: A - GSCR Appendix BRI - Basic Rate Interface C - Conditional CPE - Customer Premise Equipment DISA - Defense Information Systems Agency DITSCAP - Department of Defense Information Technology Security Certification and Accreditation Program DSN - Defense Switched Network E1 - European Basic Multiplex Rate (2.048 Mbps) EIA - Electronic Industries Alliance EIA-366A - Standard for interface between data terminal equipment and automatic calling equipment for data communication EIA-449 - Standard for 37-position and 9-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange EIA-530 - Standard for 25-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange FTR - Federal Telecommunications Recommendation GSCR - Generic Switching Center Requirements H.320 - ITU Standard for narrowband VTC IAS - Integrated Access Switch ISDN - Integrated Services Digital Network ITU - International Telecommunication Union ITU-T - International Telecommunication Union-Telecommunication Standardization Sector kbps - kilobits per second KHz - KiloHertz Mbps - Megabits per seconds PRI - Primary Rate Interface R - Required SUT - System Under Test T1 - Digital Transmission Link Level 1 (1.544 Mbps) V.35 - Standard for data transmission at 48 kbps using 60-108 KHz groupband circuits VTC - Video Teleconferencing				
NOTES: 1 The VTC system interface requirements can be met with an ISDN BRI, ISDN PRI, or Serial interface. 2 This is not supported by the SUT. It is a conditional requirement, therefore the operational impact is minor. 3 The electrical physical interface tested was ITU-T V.35 in accordance with ITU-T V.36/V.37. 4 DITSCAP information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report.				

8. TEST NETWORK DESCRIPTION. The SUT was tested at JITC's Global Information Grid Network Test Facility in a manner and configuration similar to that of the DSN operational environment. Testing the system's required functions and features was conducted using the test configurations depicted in figures 2-2 and 2-3.



LEGEND:

BRI	- Basic Rate Interface	ITU-T	- International Telecommunication Union - Telecommunications Standardization Sector
DSN	- Defense Switched Network	kpbs	- kilobits per second
E1	- European Basic Multiplex Rate (2.048 Mbps)	KHz	- KiloHertz
EIA	- Electronic Industries Alliance	Mbps	- Megabits per second
EIA-366A	- Standard for interface between data terminal equipment and automatic calling equipment for data communication	MSL	- Meridian Switching Load
EIA-449	- Standard for 37-position and 9-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange	PRI	- Primary Rate Interface
EIA-530	- Standard for 25-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange	SS7	- Signaling System 7
EWSD	- Elektronisches Wählsystem Digital	S/T	- ISDN BRI 4-Wire Interface
ISDN	- Integrated Services Digital Network	T1	- Digital Transmission Link Level 1 (1.544 Mbps)
		V.35	- Standard for data transmission at 48 kbps using 60-108 KHz groupband circuits - wideband modems
		VTC	- Video Teleconferencing

NOTE: The Siemens EWSD is the only switch tested able to support E1 PRI.

Figure 2-2. Test Configuration with Integrated Access Switch

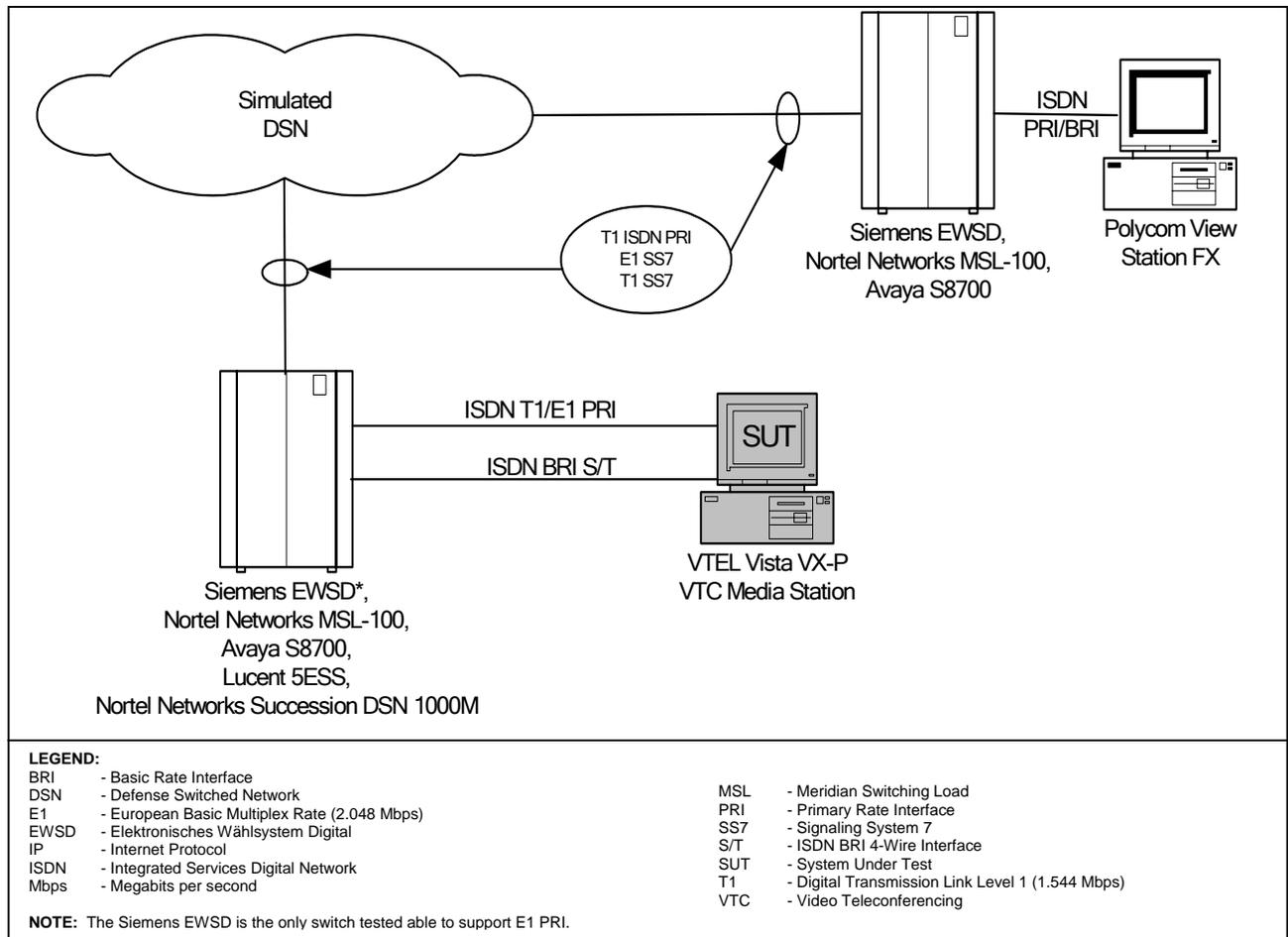


Figure 2-3. Test Configuration without Integrated Access Switch

9. SYSTEM CONFIGURATIONS. Table 2-2 provides the system configurations used in the test.

Table 2-2. Tested System Configurations

System Name	Software Release	
Siemens EWSD	19d with Patch Set 43	
Nortel Networks MSL-100	SE06	
Nortel Networks DSN 1000M	Succession 3.0	
Avaya S8700	CM 2.0.1 (R012x.00.1.221.1)	
Lucent 5ESS	5E16.2 SU 4-10	
Initia Inc. AccessSwitch™ 60	2004	
Polycom View Station-FX	6.0.1 FX	
VTEL Vista VX-P VTC Media Station	Software	Hardware
	Release 4.2.0.010	T1/ E1 PRI Series 2 Interface Module
		Data Dial Module (Module supports ITU-T V.35, EIA-449, EIA-530, and EIA-366A Interfaces)
	Quad - BRI Series 2 Module with S/T Interface	
LEGEND: 5ESS - Class 5 Electronic Switching System BRI - Basic Rate Interface CM - Communication Manager DSN - Defense Switched Network E1 - European Basic Multiplex Rate (2.048 Mbps) EIA - Electronic Industries Alliance EIA-366A - Standard for interface between data terminal equipment and automatic calling equipment for data communication EIA-449 - Standard for 37-position and 9-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange EIA-530 - Standard for 25-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange EWSD - Elektronisches Wählsystem Digital ISDN - Integrated Services Digital Network ITU-T - International Telecommunication Union - Telecommunications Standardization Sector kbps - kilobits per second KHz - KiloHertz Mbps - Megabits per second MSL - Meridian Switching Load PRI - Primary Rate Interface SE - Succession Enterprise SU - Software Update S/T - 4-Wire ISDN BRI Interface T1 - Digital Transmission Link Level 1 (1.544 Mbps) V.35 - Standard for data transmission at 48 kbps using 60-108 KHz groupband circuits VTC - Video Teleconferencing		

10. TEST LIMITATIONS. None

11. TEST RESULTS

a. Discussion. The SUT minimum critical interface and functional requirements were met through both interoperability certification testing conducted at the JITC Global Information Grid Network Test Facility and review of the vendor's LoC.

(1) Test Conduct. The term bonding in ISDN transmissions refers to joining two or more 64-kilobits per second (kbps) B channels together. Five 384-kbps bonding mode 1 test calls at different durations (15-minute, 30-minute, 1-hour, and 24-hours) were placed over the test networks shown in figures 2-2 and 2-3 via all the combinations shown in table 2-3. A passed test result as shown in table 2-3 was based on 100% of the calls receiving a score of four or better on the subjective quality scale as defined in table 2-4. Seven- and ten-digit calls were placed to verify that the SUT met the capability to support both the North American Numbering Plan and the DSN World Wide Numbering and Dialing Plan. To simulate a DSN network,

Asynchronous Transfer Mode transport equipment was used along with an ADTRAN SX-14 satellite simulator to inject delay and bit errors.

(2) Test Results. Table 2-3 depicts the bonding mode 1 VTC test calls and results.

Table 2-3. SUT 384-kbps Bonding Mode 1 Interface Test Results

SUT Interface to IAS	IAS Interface to DSN	384-kbps Bonding Mode 1 Test Results	
EIA-366A with EIA-449, EIA-530 and ITU-T V.35	ISDN BRI	Passed	
EIA-366A with EIA-449, EIA-530 and ITU-T V.35	ISDN T1 PRI	Passed	
EIA-366A with EIA-449, EIA-530 and ITU-T V.35	ISDN E1 PRI	Passed	
ISDN T1 PRI	ISDN T1 PRI	Passed	
ISDN T1 PRI	ISDN E1 PRI	Passed	
ISDN E1 PRI	ISDN T1 PRI	Passed	
ISDN E1 PRI	ISDN E1PRI	Passed	
ISDN BRI	ISDN E1 PRI	Passed	
ISDN BRI	ISDN BRI	Passed	
ISDN BRI	ISDN T1 PRI	Passed	
SUT interface to DSN		384-kbps Bonding Mode 1 Test Results	
ISDN BRI		Passed	
ISDN T1 PRI		Passed	
ISDN E1 PRI		Passed	
LEGEND:			
BRI	- Basic Rate Interface	IAS	- Integrated Access Switch
DSN	- Defense Switched Network	ISDN	- Integrated Services Digital Network
E1	- European Basic Multiplex Rate (2.048 Mbps)	ITU-T	- International Telecommunication Union-Telecommunications Standardization Sector
EIA	- Electronic Industries Alliance	kbps	- kilobits per second
EIA-366A	- Standard for interface between data terminal equipment and automatic calling equipment for data communication	KHz	- KiloHertz
EIA-449	- Standard for 37-position and 9-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange	Mbps	- Megabits per second
EIA-530	- Standard for 25-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange	PRI	- Primary Rate Interface
		SUT	- System Under Test
		T1	- Digital Transmission Link Level 1 (1.544 Mbps)
		V.35	- Standard for data transmission at 48 kbps using 60-108 KHz groupband circuits

Table 2.4. Video and Voice Subjective Quality Scale

Rating	Reference	Definition
1	<i>Unusable</i>	<u>Quality is unusable.</u> Voice and video may be heard and seen but is unrecognizable.
2	<i>Poor</i>	<u>Quality is unusable.</u> Words and phrases are not fully understandable or video cannot be properly identified.
3	<i>Fair</i>	<u>Quality is seriously affected by distortion.</u> Repeating words and phrases are required to convey speech or video is seriously impacted and barely recognizable.
4	<i>Good</i>	<u>Quality is usable.</u> Audio or video is not impaired but some distortion is noticeable
5	<i>Excellent</i>	<u>Quality is unaffected.</u> No discernable problems with either audio or video.
NOTE: Audio and video quality during a conference will receive a subjective rating on the Data Collection Form. A rating of lower than 4 on this reference scale is considered a failure.		

b. Test Summary. The SUT met the critical interface and functional requirements for a VTC system for the interfaces depicted in table 2-1, as set forth in reference (c), and is certified for joint use within the DSN. Although the SUT supports

an IP ITU H.323 interface, there are no joint staff requirements defined for VTC via ITU H.323 to guarantee assured service, therefore, the ITU H.323 interface is not covered by this certification.

12. TEST AND ANALYSIS REPORT. No detailed test report was developed, in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), 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>.