



DEFENSE INFORMATION SYSTEMS AGENCY
JOINT INTEROPERABILITY TEST COMMAND
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FORT HUACHUCA, ARIZONA 85613-7051

IN REPLY
REFER TO: Networks and Transport Division (JTE)

23 August 2004

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of the Siemens Elektronisches Wählsystem Digital (EWSD) Remote Switching Unit (RSU) with Host Digital Switching System Software Release 19d, Patch Set 43, and Specified Software Patch Groups (Certified Specifically for Certain Sites)

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 Siemens EWSD RSU with host digital switching system software release 19d, patch set 43, and specified software patch groups, hereinafter referred to as the System Under Test (SUT), meets all the critical interoperability requirements that are applicable. The SUT is certified for joint use within the Defense Switched Network (DSN) for specified locations as seen in table 1. The SUT did not meet the critical interoperability requirement for Multi-Level Precedence and Preemption in stand-alone condition. However as seen in reference (c), the Joint Staff J6C waived this requirement for the sites shown in table 1. The SUT does not provide a Voice over Internet Protocol capability. The SUT met the critical interoperability requirements and provides the same user features as the following DSN switch types: End Office, Small End Office, Private Branch Exchange (PBX) 1, and PBX 2. 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 from 10 through 13 May 2004, patch verification testing conducted on 20 July 2004 at the JITC test facility, Fort Huachuca, AZ, and approval of vendor's letters of compliance on 14 July 2004. The Certification Testing Summary (enclosure 2) documents the test results and describes the test network. Users should verify interoperability before deploying the SUT in an environment that varies significantly from that described.
4. The specified software patch groups associated with the SUT host switch are shown in enclosure 3. The SUT interoperability summary is shown in table 2, the interoperability test

JITC Memo, JTE, Special Interoperability Test Certification of the Siemens Elektronisches Wählsystem Digital (EWS) Remote Switching Unit (RSU) with Host Digital Switching System with Software Release 19d, Patch Set 43, and Specified Software Patch Groups (Certified Specifically for Certain Sites)

status is shown in table 3, and the Capability Requirements (CRs) and Feature Requirements (FRs) are shown in table 4. This interoperability test status is based upon evaluation of:

- a. The following network interfaces as specified in reference (d): DSN, Defense Red Switch Network Gateway, and Public Switched Telecommunications Network Gateway.
- b. The interface and signaling requirements for trunk/line interfaces, and interoperability CRs and FRs derived from reference (e).
- c. The overall system interoperability performance derived from test procedures listed in reference (f).
- d. A review of the Letters of Compliance submitted by Siemens.

Table 1. RSU Sites Waived by Joint Staff J6C

Host Switch	RSU Sites				
Brussels NATO Support Activities End Office Switch	Brussels NATO				
Darmstadt Multifunction Switch	Darmstadt Sim Center	Babenhausen	Nathan		
Grafenwoehr Small Multifunction Switch	Camp Aachen	Vilseck			
Hanau Pioneer Small Multifunction Switch	Hanau Fliegerhorst	Hanau Hutier			
Heidelberg Campbell Large Multifunction Switch	Patton Barracks	Hammond Container	Germersheim	Heidelberg Hospital	
Hohenfels End Office Switch	Camp Albertshof				
Katterbach Multifunction Switch	Ansbach Barton	Illesheim			
Kitzingen Harvey End Office Switch	Larson Barracks				
Mannheim Funari Small Multifunction Switch	Sullivan Barracks	Taylor Barracks	Spinelli Barracks		
Wiesbaden Small Multifunction Switch	Wackernheim	Office Towers	Amelia Earhart	Dexheim	Mainz Kastel
Schweinfurt Ledward End Office Switch	Schweinfurt Conn				
Wuerzburg Leighton Multifunction Switch	Wuerzburg Hospital	Wuerzburg Faulenburg	Giebelstadt		
Kaiserslautern Kleber Multifunction Switch	Miesau	Rhein Ordinance Barracks			
Legend: NATO - North Atlantic Treaty Organization RSU - Remote Switching Unit					

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Table 2. SUT Interoperability Summary

Network	Critical	Status	Remarks
DSN	Yes	Certified (see note)	- VoIP not tested. - RSU certified for user features as EO, SMEO, PBX 1, and PBX 2. - Met all critical CRs and FRs that are applicable. MLPP in Stand-alone mode waived by Joint Staff J6C per reference (c). - The identified test discrepancies shown in enclosure 2 that remained open have an overall minor operational impact.
DRSN Gateway	Yes	Certified	Met all critical CRs and FRs.
PSTN Gateway	Yes	Certified	Met all critical CRs and FRs.
Legend:			
CRs	- Capability Requirements	PBX	- Private Branch Exchange
DRSN	- Defense Red Switch Network	PSTN	- Public Switched Telephone Network
DSN	- Defense Switched Network	RSU	- Remote Switching Unit
EO	- End Office	SMEO	- Small End Office
FRs	- Feature Requirements	SUT	- System Under Test
MLPP	- Multi-Level Precedence and Preemption	VoIP	- Voice over Internet Protocol
Note: SUT is only certified for joint use in specified sites in Europe as listed in table 1.			

Table 3. SUT Interoperability Test Status

DSN Trunk Interfaces			
Interface & Signaling	Critical	Status	Remarks
PCM-24 Proprietary Host-to-RSU SDC link	No ¹	Certified	Met all CRs and FRs with the following minor exceptions: MLPP not supported in stand-alone mode. ² BPA not supported when Host-to-RSU SDC link is 100% saturated. Operational impact is minor.
PCM-30 Proprietary Host-to-RSU SDC link	No ¹ (Europe only)	Certified	Met all CRs and FRs with the following minor exceptions: MLPP not supported in stand-alone mode. ² BPA not supported when Host-to-RSU SDC link is 100% saturated. Operational impact is minor.
DSN Line Interfaces			
Interface & Signaling	Critical	Status	Remarks
2-Wire Analog (GR-506-CORE)	Yes	Certified	Met all critical CRs and FRs.
ISDN BRI NI 1/2	Yes	Certified	Met all critical CRs and FRs.
DSN User Features and Capabilities			
Features and Capabilities	Critical	Status	Remarks
Common Features	Yes	Certified	Met all critical CRs and FRs.
Attendant	Yes	Certified	Met all critical CRs and FRs.
Public Safety	Yes	Certified	Met all critical CRs and FRs.
Preset Conferencing	Yes	Certified	Met all critical CRs and FRs with external DAKS Conferencing System Version 3E(2).
Nailed-up Connections	Yes	Yes	Met all critical CRs and FRs.
PAT	No	Not Tested	
DSN Hotline Services	Yes	Certified	Met all critical CRs and FRs.
ISDN Services (EKTS)	No	Certified	Met all critical CRs and FRs.
Reliability	Yes	Certified	Met all critical CRs and FRs.
Security ³	Yes	Certified	Met all CRs and FRs.
VoIP System	No	Not Tested	
VoIP LANs	No	Not Tested	

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Table 3. SUT Interoperability Test Status (continued)

Network Gateways																																				
	Interface & Signaling	Critical	Status	Remarks																																
DRSN	2-Wire Analog (GR-506-CORE)	Yes	Certified ⁴	Met all critical CRs and FRs.																																
PSTN	E1 ISDN PRI (Q.931)	Yes	Certified	Met all critical CRs and FRs.																																
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<table> <tbody> <tr> <td>BPA - Blocked Precedence Announcement</td> <td>LoC - Letters of Compliance</td> </tr> <tr> <td>BRI - Basic Rate Interface</td> <td>Mbps - Megabits per second</td> </tr> <tr> <td>CRs - Capability Requirements</td> <td>MLPP - Multi-Level Precedence and Preemption</td> </tr> <tr> <td>DAKS - Digitale Alarm- und Kommunikations-Server</td> <td>NI 1/2 - National ISDN one or two</td> </tr> <tr> <td>DRSN - Defense Red Switch Network</td> <td>PAT - Precedence Access Threshold</td> </tr> <tr> <td>DSN - Defense Switched Network</td> <td>PCM-24 - Pulse Code Modulation 24 Channels</td> </tr> <tr> <td>E1 - European Basic Multiplex Rate (2.048 Mbps)</td> <td>PCM-30 - Pulse Code Modulation 30 Channels</td> </tr> <tr> <td>EKTS - Electronic Key Telephone System</td> <td>PM - Program Manager</td> </tr> <tr> <td>FRs - Feature Requirements</td> <td>PRI - Primary Rate Interface</td> </tr> <tr> <td>GR - Generic Requirement (Telcordia)</td> <td>PSTN - Public Switched Telephone Network</td> </tr> <tr> <td>IATP - Information Assurance Test Plan</td> <td>Q.931 - ITU Signaling Standard for ISDN</td> </tr> <tr> <td>IAW - in accordance with</td> <td>RSU - Remote Switching Unit</td> </tr> <tr> <td>ISDN - Integrated Services Digital Network</td> <td>SDC - Secondary Digital Carrier</td> </tr> <tr> <td>ITU - International Telecommunication Union</td> <td>SONET - Synchronous Optical Network</td> </tr> <tr> <td>JITC - Joint Interoperability Test Command</td> <td>SUT - System Under Test</td> </tr> <tr> <td>LAN - Local Area Network</td> <td>VoIP - Voice over Internet Protocol</td> </tr> </tbody> </table>					BPA - Blocked Precedence Announcement	LoC - Letters of Compliance	BRI - Basic Rate Interface	Mbps - Megabits per second	CRs - Capability Requirements	MLPP - Multi-Level Precedence and Preemption	DAKS - Digitale Alarm- und Kommunikations-Server	NI 1/2 - National ISDN one or two	DRSN - Defense Red Switch Network	PAT - Precedence Access Threshold	DSN - Defense Switched Network	PCM-24 - Pulse Code Modulation 24 Channels	E1 - European Basic Multiplex Rate (2.048 Mbps)	PCM-30 - Pulse Code Modulation 30 Channels	EKTS - Electronic Key Telephone System	PM - Program Manager	FRs - Feature Requirements	PRI - Primary Rate Interface	GR - Generic Requirement (Telcordia)	PSTN - Public Switched Telephone Network	IATP - Information Assurance Test Plan	Q.931 - ITU Signaling Standard for ISDN	IAW - in accordance with	RSU - Remote Switching Unit	ISDN - Integrated Services Digital Network	SDC - Secondary Digital Carrier	ITU - International Telecommunication Union	SONET - Synchronous Optical Network	JITC - Joint Interoperability Test Command	SUT - System Under Test	LAN - Local Area Network	VoIP - Voice over Internet Protocol
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Notes:																																				
1 The Host-to-RSU proprietary link interface can be satisfied by PCM-24, PCM-30, or any SONET.																																				
2 This critical requirement is waived by Joint Staff J6C for specified sites in Europe listed in table 1.																																				
3 JITC verifies security via vendor LoC. Further testing IAW the IATP is required prior to being authorized connection approval.																																				
4 Interoperability Certification of the SUT does not constitute DRSN Program Manager's (PM) 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 4. SUT Capability and Feature Requirements

Host-to-RSU Interfaces				
Interface	Critical	Requirements Required (R) or Conditional (C)		References
PCM-24 Proprietary Host-to-RSU SDC link	No ¹	Trunking	<ul style="list-style-type: none"> • Framing (R) • Line Code (R) • Signaling (R) • Alarms (R) • Timing (R) • WWNDP (R) • Routing (R) • Trunk Groups (R) • Call Processing (R) • CAS to CCS trunk interworking (R) • PCM-24/PCM-30 Interoperation (R) • Direct Inward Dialing (R) 	<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. 11.1.1.2 • GSCR Sect. 4.5.1 • 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	<ul style="list-style-type: none"> • MOS (R) • MLPP (R) • Secure calls (R) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • CJCSI 6215.01B • CJCSI 6215.01B
PCM-30 Proprietary Host-to-RSU SDC link	No ¹ (Europe only)	Facsimile	<ul style="list-style-type: none"> • Analog: EIA/TIA-465-A (R) • Digital: MIL-STD-188-161D (C) 	<ul style="list-style-type: none"> • JTA • JTA
		Data	<ul style="list-style-type: none"> • Modem (VBD) (R) • 56-kbps switched data (R) • 64-kbps switched data (R) • NX56 synchronous BER (R) • NX64 synchronous BER (R) • Secure data (STE/STU-III) (R) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • GSCR Sect. 3.10
		VTC	<ul style="list-style-type: none"> • H.320 (R) 	<ul style="list-style-type: none"> • JTA
		RSU	<ul style="list-style-type: none"> • Normal Operating Conditions – Connected To The Host (R) 	<ul style="list-style-type: none"> • GSCR Sect. 2.10.2
			<ul style="list-style-type: none"> • Stand-alone Condition (R) 	<ul style="list-style-type: none"> • GSCR Sect. 2.10.3.1
<ul style="list-style-type: none"> • Partial stand-alone Condition (R) 	<ul style="list-style-type: none"> • GSCR Sect. 2.10.3.2 			
DSN Line Interfaces				
2-Wire Analog (GR-506-CORE)	Yes	Access	<ul style="list-style-type: none"> • DN Identification (R) • Line signaling (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 5.5 • GSCR Sect. 4.5 • GSCR Sect. 4.4 • GSCR Sect. 4.1 • GSCR Sect 4.3.3 • GSCR Sect 4.3.4.1
		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. 3.4.3/3.9 • CJCSI 6215.01B
ISDN BRI NI 1/2	Yes	Facsimile	<ul style="list-style-type: none"> • Analog: EIA/TIA-465-A (R) • Digital: MIL-STD-188-161D (C) 	<ul style="list-style-type: none"> • JTA • JTA
		Data	<ul style="list-style-type: none"> • Modem (VBD) (R) • 56-kbps switched data (R: ISDN BRI only) • 64-kbps switched data (R: ISDN BRI only) • NX56 synchronous BER (R: ISDN BRI only) • NX64 synchronous BER (R: ISDN BRI only) • Secure data (SWT, STE/STU-III) (R) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • GSCR Sect. 3.10
		VTC	<ul style="list-style-type: none"> • H.320 (R: ISDN BRI only) 	<ul style="list-style-type: none"> • JTA

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Table 4. SUT Capability and Feature Requirements (continued)

DSN Features and Capabilities			
Interface	Critical	Requirements Required (R) or Conditional (C)	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 (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	Yes	<ul style="list-style-type: none"> • Initiate all precedence levels (R) • Visual display (R) • Override class of service (R) • Override busy line (R) • Call deflection (R) • Auto recall (R) • Waiting queue (R) 	<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"> • 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	Yes	<ul style="list-style-type: none"> • Support 10 bridges; 1 originator and 20 conferees (R) • Assign up to 20 address numbers per bridge (R) • Use KXX codes for bridge access (R) • Conference notification recorded announcement (R) • Auto retrial and alternate address (R) • Bridge release (R) • Lost connection (R) • Secondary conferencing (R) • Address translation (R) 	<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	Yes	<ul style="list-style-type: none"> • Between any two like terminations (R) • PCM-24 and PCM-30, both CAS and CCS (R) • Supervision passed end-to-end for A/D or D/A (R) • Monitored and auto reconfigure (R) • Support at least 10% of circuits as nailed-up (R) • Non-preemptable (R) 	<ul style="list-style-type: none"> • GSCR Sect. 2.8
PAT	No	<ul style="list-style-type: none"> • Classmark 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) • Operation measurement registers (C) • Maintenance and Administration of thresholds (C) 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Hotline restrictions (R) • Auto initiate (R) • Analog and digital (R) • Subscription basis (R) • Protected hotline calling (R) • WWNDP interoperable (R) 	<ul style="list-style-type: none"> • 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

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Table 4. SUT Capability and Feature Requirements (continued)

DSN Features and Capabilities (continued)			
Interface	Critical	Requirements Required (R) or Conditional (C)	References
ISDN Services	No	<ul style="list-style-type: none"> • EKTS (C) 	<ul style="list-style-type: none"> • GSCR Sect. 10, table 10-3
Reliability	Yes	<ul style="list-style-type: none"> • GR-512-CORE (R) 	<ul style="list-style-type: none"> • GSCR Sect.12
Security ²	Yes	<ul style="list-style-type: none"> • DITSCAP (R) 	<ul style="list-style-type: none"> • DODI 8100.3
VoIP			
VoIP System	No	<p>VoIP function is conditional. If VoIP is provided, all of the following requirements must be met:</p> <ul style="list-style-type: none"> • LAN parameters • CoS /QoS • VLANs • IEEE Standards Conformance • .99999 availability • Modular devices • 2 sec. link restoral • LAN NM • Traffic Engineering 	<ul style="list-style-type: none"> • GSCR App. 3
LANs	No	<p>VoIP function is conditional. If VoIP is provided, all of the following requirements must be met:</p> <ul style="list-style-type: none"> • LAN parameters • CoS • Queuing mechanisms • Policing mechanism • VLAN support • NM and voice in different VLAN • IEEE Standards Conformance • 2 sec. link restoral • LAN NM • Traffic Engineering 	<ul style="list-style-type: none"> • GSCR App. 3

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Table 4. SUT Capability and Feature Requirements (continued)

Network Gateways																																																																		
Gateway	Critical	Requirements Required (R) or Conditional (C)		References																																																														
DRSN	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 (R) • MLPP (R) • Secure calls (R) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • GSCR Sect. 3 • CJCSI 6215.01B 																																																														
PSTN	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 																																																														
<p>Legend:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">2W - 2-Wire</td> <td style="width: 50%;">KXX - K= any number 2-8; X= any number 1-9</td> </tr> <tr> <td>911 - 911 Emergency Service</td> <td>LAN - Local Area Network</td> </tr> <tr> <td>A/D - Analog to Digital</td> <td>LoC - Letter(s) of Compliance</td> </tr> <tr> <td>App - Appendix</td> <td>MIL-STD - Military Standard</td> </tr> <tr> <td>BER - Bit Error Ratio</td> <td>MLPP - Multi-Level Precedence and Preemption</td> </tr> <tr> <td>BRI - Basic Rate Interface</td> <td>MOS - Mean Opinion Score</td> </tr> <tr> <td>C - Conditional</td> <td>NI 1/2 - National ISDN Standard 1 or 2</td> </tr> <tr> <td>CAS - Channel Associated Signaling</td> <td>NM - Network Management</td> </tr> <tr> <td>CCS - Common Channel Signaling</td> <td>NX56 - Data format restricted to multiples of 56 kbps</td> </tr> <tr> <td>CJCSI - Chairman of the Joint Chiefs of Staff Instruction</td> <td>NX64 - Data format restricted to multiples of 64 kbps</td> </tr> <tr> <td>CoS - Class of Service</td> <td>PAT - Precedence Access Threshold</td> </tr> <tr> <td>D/A - Digital to Analog</td> <td>PCM-24 - Pulse Code Modulation 24 Channels</td> </tr> <tr> <td>DITSCAP - Department of Defense Information Technology Security Certification and Accreditation Process</td> <td>PCM-30 - Pulse Code Modulation 30 Channels</td> </tr> <tr> <td>DN - Directory Number</td> <td>PSTN - Public Switched Telephone Network</td> </tr> <tr> <td>DODI - Department of Defense Instruction</td> <td>QoS - Quality of Service</td> </tr> <tr> <td>DRSN - Defense Red Switch Network</td> <td>R - Required</td> </tr> <tr> <td>DSN - Defense Switched Network</td> <td>RSU - Remote Switching Unit</td> </tr> <tr> <td>EIA - Electronic Industries Alliance</td> <td>SDC - Secondary Digital Carrier</td> </tr> <tr> <td>EKTS - Electronic Key Telephone System</td> <td>sec. - second</td> </tr> <tr> <td>GR - Generic Requirement (Telcordia)</td> <td>Sect. - section</td> </tr> <tr> <td>GSCR - Generic Switching Center Requirements</td> <td>SONET - Synchronous Optical Network</td> </tr> <tr> <td>H.320 - ITU Standard for narrowband VTC</td> <td>STE - Secure Terminal Equipment</td> </tr> <tr> <td>IATP - Information Assurance Test Plan</td> <td>STU-III - Secure Telephone Unit-Third Generation</td> </tr> <tr> <td>IAW - in accordance with</td> <td>SUT - System Under Test</td> </tr> <tr> <td>IEEE - Institute of Electrical and Electronics Engineers, Inc.</td> <td>SWT - Secure Wire-Line Terminal</td> </tr> <tr> <td>ISDN - Integrated Services Digital Network</td> <td>TIA - Telecommunications Industry Association</td> </tr> <tr> <td>ITU - International Telecommunication Union</td> <td>VBD - Variable bit data</td> </tr> <tr> <td>JITC - Joint Interoperability Test Command</td> <td>VLAN - Virtual Local Area Network</td> </tr> <tr> <td>JTA - Joint Technical Architecture</td> <td>VoIP - Voice over Internet Protocol</td> </tr> <tr> <td>kbps - kilobits per second</td> <td>VTC - Video Teleconferencing</td> </tr> <tr> <td></td> <td>WWNDP - Worldwide Numbering and Dialing Plan</td> </tr> </table> <p>Notes:</p> <ol style="list-style-type: none"> 1 The Host-to-RSU proprietary link interface can be satisfied by PCM-24, PCM-30, or any SONET. 2 JITC verifies security via vendor LoC. Further testing IAW the IATP is required prior to being authorized connection approval. 					2W - 2-Wire	KXX - K= any number 2-8; X= any number 1-9	911 - 911 Emergency Service	LAN - Local Area Network	A/D - Analog to Digital	LoC - Letter(s) of Compliance	App - Appendix	MIL-STD - Military Standard	BER - Bit Error Ratio	MLPP - Multi-Level Precedence and Preemption	BRI - Basic Rate Interface	MOS - Mean Opinion Score	C - Conditional	NI 1/2 - National ISDN Standard 1 or 2	CAS - Channel Associated Signaling	NM - Network Management	CCS - Common Channel Signaling	NX56 - Data format restricted to multiples of 56 kbps	CJCSI - Chairman of the Joint Chiefs of Staff Instruction	NX64 - Data format restricted to multiples of 64 kbps	CoS - Class of Service	PAT - Precedence Access Threshold	D/A - Digital to Analog	PCM-24 - Pulse Code Modulation 24 Channels	DITSCAP - Department of Defense Information Technology Security Certification and Accreditation Process	PCM-30 - Pulse Code Modulation 30 Channels	DN - Directory Number	PSTN - Public Switched Telephone Network	DODI - Department of Defense Instruction	QoS - Quality of Service	DRSN - Defense Red Switch Network	R - Required	DSN - Defense Switched Network	RSU - Remote Switching Unit	EIA - Electronic Industries Alliance	SDC - Secondary Digital Carrier	EKTS - Electronic Key Telephone System	sec. - second	GR - Generic Requirement (Telcordia)	Sect. - section	GSCR - Generic Switching Center Requirements	SONET - Synchronous Optical Network	H.320 - ITU Standard for narrowband VTC	STE - Secure Terminal Equipment	IATP - Information Assurance Test Plan	STU-III - Secure Telephone Unit-Third Generation	IAW - in accordance with	SUT - System Under Test	IEEE - Institute of Electrical and Electronics Engineers, Inc.	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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),

JITC Memo, JTE, Special Interoperability Test Certification of the Siemens Elektronisches Wählsystem Digital (EWSD) Remote Switching Unit (RSU) with Host Digital Switching System with Software Release 19d, Patch Set 43, and Specified Software Patch Groups (Certified Specifically for Certain Sites)

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 Capt. Michel Roy, DSN 821-8575, commercial (520) 533-8575, or fax DSN 879-4347. The e-mail address is roym@fhu.disa.mil.

FOR THE COMMANDER:

3 Enclosures a/s

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Chief
Networks and Transport Division

Distribution:

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Defense Information Systems Agency, GIG-Combat Support Directorate, DSN SYSTEMS MANAGEMENT BRANCH, ATTN: GS235, Rm. 5W248A, 5275 Leesburg Pike, Falls Church, VA 22041

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Headquarters US Air Force, AF/XICC, 1250 Pentagon, Washington, DC 20330-1250

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Office of Under Secretary of Defense, OUSD(AT&L), Room 3E144, 3070 Defense Pentagon, Washington, DC 20301

US Joint Forces Command, J6I, C4 Plans and Policy, 1562 Mitscher Ave, Norfolk, VA 23551-2488

Defense Intelligence Agency, ATTN: DS-CIO, Bldg 6000, Bolling AFB, Washington, DC 20340-3342

National Security Agency, ATTN: DT, Suite 6496, 9800 Savage Road, Fort Meade, MD 20755-6496

JITC Memo, JTE, Special Interoperability Test Certification of the Siemens Elektronisches Wählsystem Digital (EWSD) Remote Switching Unit (RSU) with Host Digital Switching System with Software Release 19d, Patch Set 43, and Specified Software Patch Groups (Certified Specifically for Certain Sites)

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

ADDITIONAL REFERENCES

- (c) Chief, Joint Staff (JCS-J6T), Memorandum for the Defense Information Systems Agency, "Mission Waiver for Remote Switching Units (RSU) in Stand-Alone Mode," 5 May 2004
- (d) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B, "Policy for Department of Defense Voice Services," 23 September 2001
- (e) Defense Information Systems Agency (DISA), "Department of Defense Voice Networks Generic Switching Center Requirements (GSCR)," 8 September 2003
- (f) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP)," 23 April 2004

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. Siemens Elektronisches Wählsystem Digital (EWSD) Remote Switching Unit (RSU) with Host Digital Switching System Software Release 19d, Patch Set 43, and Specified Software Patch Groups, 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: Osmanh@ncr.disa.mil.

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

5. SYSTEM UNDER TEST DESCRIPTION. The Siemens RSU is a switching system capable of providing 128-time division multiplexed Pulse Code Modulation carriers referred to as Secondary Digital Carriers (SDCs). This allows the RSU to provide a total capacity of 16,384 channels. The SDCs can be either a standard 24-channel T1 carrier or a European standard E1 carrier utilizing proprietary signaling between the host and remote switches. A maximum of ten T1 carriers or eight E1 carriers can be configured between the host and remote switch. The RSU can be provisioned for redundant operation by equipping the host and remote switches with duplicate modules, which gives the RSU an active and standby plane. The SUT meets all the critical interoperability requirements that are applicable, and is certified for joint use within the Defense Switched Network (DSN) only for specified locations in Europe. The SUT did not meet the critical interoperability requirement for Multi-Level Precedence and Preemption (MLPP) in stand-alone mode. However, per reference (c), the Joint Staff J6C waived this requirement only for the sites shown in table 2-1. The SUT does not provide a Voice over Internet Protocol capability. The SUT met the critical interoperability requirements providing the same user features for the following DSN switch types: End Office (EO), Small End Office (SMEO), Private Branch Exchange (PBX) 1, and PBX 2.

Table 2-1. RSU Sites Waived by Joint Staff J6C

Host Switch	RSU Sites				
Brussels NATO Support Activities End Office Switch	Brussels NATO				
Darmstadt Multifunction Switch	Darmstadt Sim Center	Babenhausen	Nathan		
Grafenwoehr Small Multifunction Switch	Camp Aachen	Vilseck			
Hanau Pioneer Small Multifunction Switch	Hanau Fliegerhorst	Hanau Hutier			
Heidelberg Campbell Large Multifunction Switch	Patton Barracks	Hammond Container	Germersheim	Heidelberg Hospital	
Hohenfels End Office Switch	Camp Albertshof				
Katterbach Multifunction Switch	Ansbach Barton	Illesheim			

Table 2-1. RSU Sites Waived by Joint Staff J6C (continued)

Host Switch	RSU Sites				
Kitzingen Harvey End Office Switch	Larson Barracks				
Mannheim Funari Small Multifunction Switch	Sullivan Barracks	Taylor Barracks	Spinelli Barracks		
Wiesbaden Small Multifunction Switch	Wackernheim	Office Towers	Amelia Earhart	Dexheim	Mainz Kastel
Schweinfurt Ledward End Office Switch	Schweinfurt Conn				
Wuerzburg Leighton Multifunction Switch	Wuerzburg Hospital	Wuerzburg Faulenburg	Giebelstadt		
Kaiserslautern Kleber Multifunction Switch	Miesau	Rhein Ordinance Barracks			
Legend: NATO - North Atlantic Treaty Organization RSU - Remote Switching Unit					

6. OPERATIONAL ARCHITECTURE. The DSN architecture is a two-level network hierarchy consisting of DSN backbone switches and Military/Agency installation switches. Joint Staff policy and subscriber mission requirements determine which type of switch can be used at a particular location. The DSN architecture, therefore, consists of several categories of switches including PBXs. The Generic Switching Center Requirements (GSCR) operational DSN Architecture is depicted in figure 2-1. The architecture depicts the relationship of Military Department PBX 1s to the other DSN switch types.

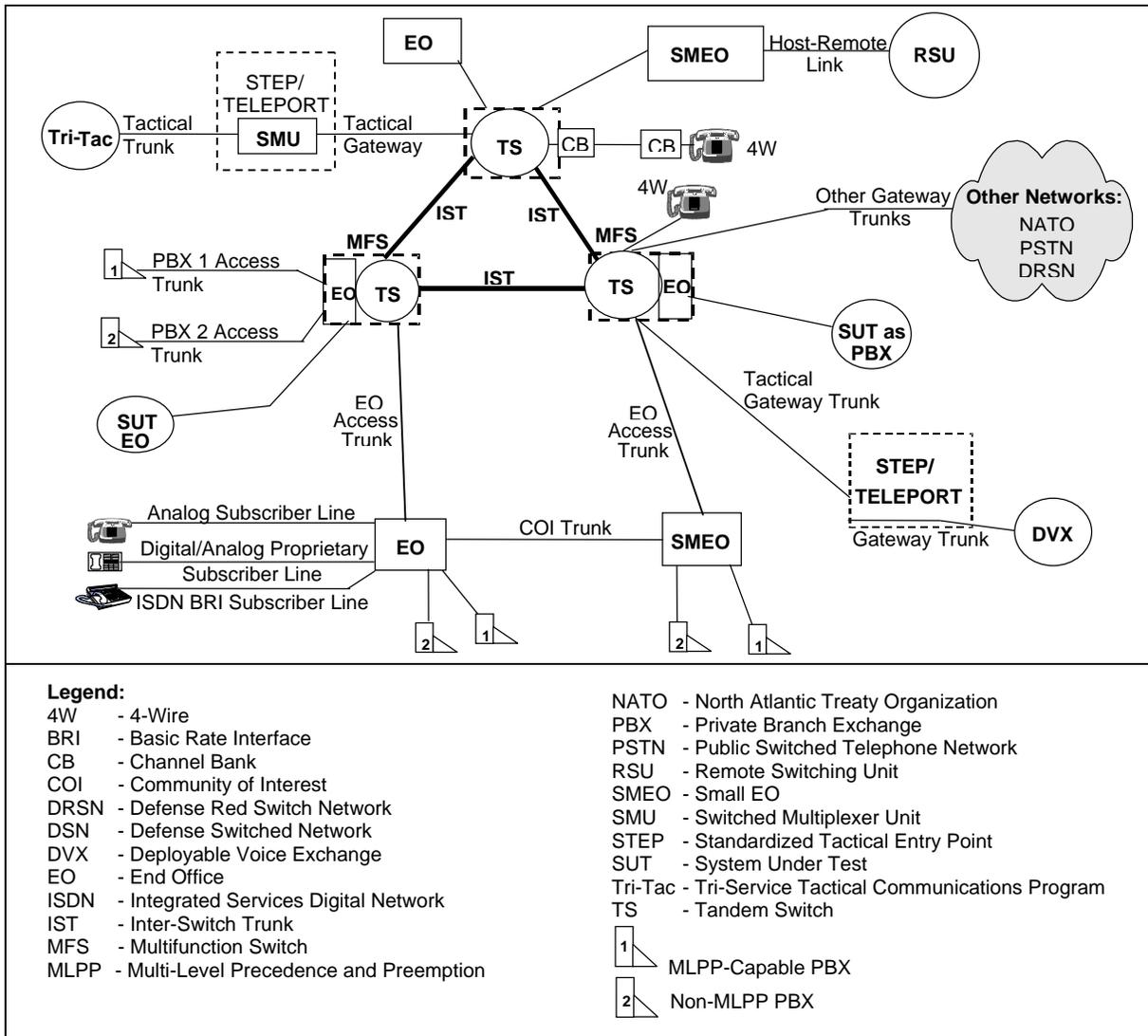


Figure 2-1. DSN Architecture

7. REQUIRED SYSTEM INTERFACES. The specified software patch groups associated with the SUT host switch are shown in enclosure 3. The SUT interoperability summary is shown in table 2-2, and the Capability Requirements (CRs) and Functional Requirements (FRs) for the SUT are shown in table 2-3. This interoperability test status is based upon evaluation of:

- a. The following network interfaces as specified in reference (d): DSN, Defense Red Switch Network Gateway, and Public Switched Telecommunications Network Gateway.
- b. The interface and signaling requirements for trunk/line interfaces, and interoperability CRs and FRs derived from reference (e).

c. The overall system interoperability performance derived from test procedures listed in reference (f).

d. A review of the Letters of Compliance submitted by Siemens.

Table 2-2. SUT Interoperability Summary

Network	Critical	Status	Remarks
DSN	Yes	Certified (see note)	- VoIP not certified. - RSU certified for user features as EO, SMEO, PBX 1, and PBX 2. - Met all critical CRs and FRs that are applicable. MLPP in Stand-alone mode waived by Joint Staff J6C per reference (c). - The identified test discrepancies shown in enclosure 2 that remained open have an overall minor operational impact.
DRSN Gateway	Yes	Certified	Met all critical CRs and FRs.
PSTN Gateway	Yes	Certified	Met all critical CRs and FRs.
Legend:			
CRs - Capability Requirements		PBX - Private Branch Exchange	
DRSN - Defense Red Switch Network		PSTN - Public Switched Telephone Network	
DSN - Defense Switched Network		RSU - Remote Switching Unit	
EO - End Office		SMEO - Small End Office	
FRs - Feature Requirements		SUT - System Under Test	
MLPP - Multi-Level Precedence and Preemption		VoIP - Voice over Internet Protocol	
Note: SUT certified for joint use at specified sites as enclosure of reference (c).			

Table 2-3. SUT Capability and Feature Requirements

Host-to-RSU Interfaces				
Interface	Critical	Requirements Required (R) or Conditional (C)		References
PCM-24 Proprietary Host-to-RSU SDC link	No ¹	Trunking	<ul style="list-style-type: none"> • Framing (R) • Line Code (R) • Signaling (R) • Alarms (R) • Timing (R) • WWNDP (R) • Routing (R) • Trunk Groups (R) • Call Processing (R) • CAS to CCS trunk interworking (R) • PCM-24/PCM-30 Interoperation (R) • Direct Inward Dialing (R) 	<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. 11.1.1.2 • GSCR Sect. 4.5.1 • 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	<ul style="list-style-type: none"> • MOS (R) • MLPP (R) • Secure calls (R) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • CJCSI 6215.01B • CJCSI 6215.01B
PCM-30 Proprietary Host-to-RSU SDC link	No ¹ (Europe only)	Facsimile	<ul style="list-style-type: none"> • Analog: EIA/TIA-465-A (R) • Digital: MIL-STD-188-161D (C) 	<ul style="list-style-type: none"> • JTA • JTA
		Data	<ul style="list-style-type: none"> • Modem (VBD) (R) • 56-kbps switched data (R) • 64-kbps switched data (R) • NX56 synchronous BER (R) • NX64 synchronous BER (R) • Secure data (STE/STU-III) (R) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • GSCR Sect. 3.10
		VTC	<ul style="list-style-type: none"> • H.320 (R) 	<ul style="list-style-type: none"> • JTA
		RSU	<ul style="list-style-type: none"> • Normal Operating Conditions – Connected To The Host (R) 	<ul style="list-style-type: none"> • GSCR Sect. 2.10.2
			<ul style="list-style-type: none"> • Stand-alone Condition (R) • Partial stand-alone Condition (R) 	<ul style="list-style-type: none"> • GSCR Sect. 2.10.3.1 • GSCR Sect. 2.10.3.2
DSN Line Interfaces				
2-Wire Analog (GR-506-CORE)	Yes	Access	<ul style="list-style-type: none"> • DN Identification (R) • Line signaling (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 5.5 • GSCR Sect. 4.5 • GSCR Sect. 4.4 • GSCR Sect. 4.1 • GSCR Sect 4.3.3 • GSCR Sect 4.3.4.1
		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. 3.4.3/3.9 • CJCSI 6215.01B
ISDN BRI NI 1/2	Yes	Facsimile	<ul style="list-style-type: none"> • Analog: EIA/TIA-465-A (R) • Digital: MIL-STD-188-161D (C) 	<ul style="list-style-type: none"> • JTA • JTA
		Data	<ul style="list-style-type: none"> • Modem (VBD) (R) • 56-kbps switched data (R: ISDN BRI only) • 64-kbps switched data (R: ISDN BRI only) • NX56 synchronous BER (R: ISDN BRI only) • NX64 synchronous BER (R: ISDN BRI only) • Secure data (SWT, STE/STU-III) (R) 	<ul style="list-style-type: none"> • CJCSI 6215.01B • GSCR Sect. 3.10
		VTC	<ul style="list-style-type: none"> • H.320 (R: ISDN BRI only) 	<ul style="list-style-type: none"> • JTA

Table 2-3. SUT Capability and Feature Requirements (continued)

DSN Features and Capabilities			
Interface	Critical	Requirements Required (R) or Conditional (C)	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 (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	Yes	<ul style="list-style-type: none"> • Initiate all precedence levels (R) • Visual display (R) • Override class of service (R) • Override busy line (R) • Call deflection (R) • Auto recall (R) • Waiting queue (R) 	<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"> • 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	Yes	<ul style="list-style-type: none"> • Support 10 bridges; 1 originator and 20 conferees (R) • Assign up to 20 address numbers per bridge (R) • Use KXX codes for bridge access (R) • Conference notification recorded announcement (R) • Auto retrieval and alternate address (R) • Bridge release (R) • Lost connection (R) • Secondary conferencing (R) • Address translation (R) 	<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	Yes	<ul style="list-style-type: none"> • Between any two like terminations (R) • PCM-24 and PCM-30, both CAS and CCS (R) • Supervision passed end-to-end for A/D or D/A (R) • Monitored and auto reconfigure (R) • Support at least 10% of circuits as nailed-up (R) • Non-preemptable (R) 	<ul style="list-style-type: none"> • GSCR Sect. 2.8
PAT	No	<ul style="list-style-type: none"> • Classmark 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) • Operation measurement registers (C) • Maintenance and Administration of thresholds (C) 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Hotline restrictions (R) • Auto initiate (R) • Analog and digital (R) • Subscription basis (R) • Protected hotline calling (R) • WWNDP interoperable (R) 	<ul style="list-style-type: none"> • 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

Table 2-3. SUT Capability and Feature Requirements (continued)

DSN Features and Capabilities (continued)			
Interface	Critical	Requirements Required (R) or Conditional (C)	References
ISDN Services	No	<ul style="list-style-type: none"> • EKTS (C) 	<ul style="list-style-type: none"> • GSCR Sect. 10, table 10-3
Reliability	Yes	<ul style="list-style-type: none"> • GR-512-CORE (R) 	<ul style="list-style-type: none"> • GSCR Sect.12
Security ²	Yes	<ul style="list-style-type: none"> • DITSCAP (R) 	<ul style="list-style-type: none"> • DODI 8100.3
VoIP			
VoIP System	No	<p>VoIP function is conditional. If VoIP is provided, all of the following requirements must be met:</p> <ul style="list-style-type: none"> • LAN parameters • CoS /QoS • VLANs • IEEE Standards Conformance • .99999 availability • Modular devices • 2 sec. link restoral • LAN NM • Traffic Engineering 	<ul style="list-style-type: none"> • GSCR App. 3
LANs	No	<p>VoIP function is conditional. If VoIP is provided, all of the following requirements must be met:</p> <ul style="list-style-type: none"> • LAN parameters • CoS • Queuing mechanisms • Policing mechanism • VLAN support • NM and voice in different VLAN • IEEE Standards Conformance • 2 sec. link restoral • LAN NM • Traffic Engineering 	<ul style="list-style-type: none"> • GSCR App. 3

Table 2-3. SUT Capability and Feature Requirements (continued)

Network Gateways				
Gateway	Critical	Requirements Required (R) or Conditional (C)		References
DRSN	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 (R) MLPP (R) Secure calls (R) 	<ul style="list-style-type: none"> CJCSI 6215.01B GSCR Sect. 3 CJCSI 6215.01B
PSTN	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

Legend:

2W	- 2-Wire	KXX	- K= any number 2-8; X= any number 1-9
911	- 911 Emergency Service	LAN	- Local Area Network
A/D	- Analog to Digital	LoC	- Letter(s) of Compliance
App	- Appendix	MIL-STD	- Military Standard
BER	- Bit Error Ratio	MLPP	- Multi-Level Precedence and Preemption
BRI	- Basic Rate Interface	MOS	- Mean Opinion Score
C	- Conditional	NI 1/2	- National ISDN Standard 1 or 2
CAS	- Channel Associated Signaling	NM	- Network Management
CCS	- Common Channel Signaling	NX56	- Data format restricted to multiples of 56 kbps
CJCSI	- Chairman of the Joint Chiefs of Staff Instruction	NX64	- Data format restricted to multiples of 64 kbps
CoS	- Class of Service	PAT	- Precedence Access Threshold
D/A	- Digital to Analog	PCM-24	- Pulse Code Modulation 24 Channels
DITSCAP	- Department of Defense Information Technology Security Certification and Accreditation Process	PCM-30	- Pulse Code Modulation 30 Channels
DN	- Directory Number	PSTN	- Public Switched Telephone Network
DODI	- Department of Defense Instruction	QoS	- Quality of Service
DRSN	- Defense Red Switch Network	R	- Required
DSN	- Defense Switched Network	RSU	- Remote Switching Unit
EIA	- Electronic Industries Alliance	SDC	- Secondary Digital Carrier
EKTS	- Electronic Key Telephone System	sec.	- second
GR	- Generic Requirement (Telcordia)	Sect.	- section
GSCR	- Generic Switching Center Requirements	SONET	- Synchronous Optical Network
H.320	- ITU Standard for narrowband VTC	STE	- Secure Terminal Equipment
IATP	- Information Assurance Test Plan	STU-III	- Secure Telephone Unit-Third Generation
IAW	- in accordance with	SUT	- System Under Test
IEEE	- Institute of Electrical and Electronics Engineers, Inc.	SWT	- Secure Wire-Line Terminal
ISDN	- Integrated Services Digital Network	TIA	- Telecommunications Industry Association
ITU	- International Telecommunication Union	VBD	- Variable bit data
JITC	- Joint Interoperability Test Command	VLAN	- Virtual Local Area Network
JTA	- Joint Technical Architecture	VoIP	- Voice over Internet Protocol
kbps	- kilobits per second	VTC	- Video Teleconferencing
		WWNDP	- Worldwide Numbering and Dialing Plan

Note:

- The Host-to-RSU proprietary link interface can be satisfied by PCM-24, PCM-30, or any SONET.
- JITC verifies security via vendor LoC. Further testing IAW the IATP is required prior to being authorized connection approval.

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. This test was conducted using the notional configuration depicted in figure 2-2.

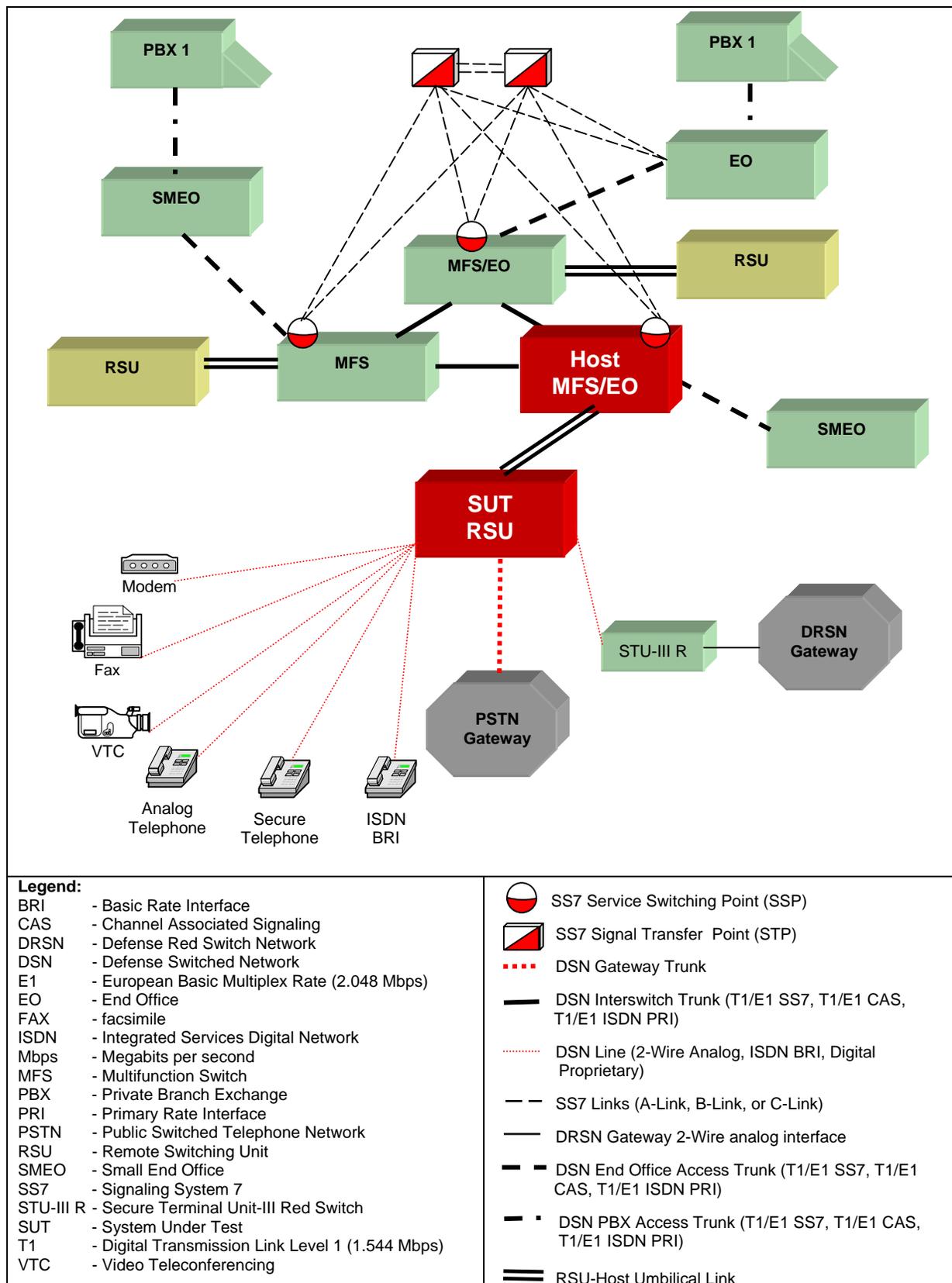


Figure 2-2. Notional Test Configuration

9. SYSTEM CONFIGURATIONS. Table 2-4 provides the system configurations used in the test.

Table 2-4. Tested System Configurations

System Name		Software Release	
Siemens EWSD Host		19d with Patch Set 43	
Siemens EWSD RSU (SUT)		Card Number	Software Release
Time/Space Switching Matrix Card		S3813-Q015-X101	Host Software Release 19d with Patch Set 43 and Specified Patch Groups listed in Enclosure 3
AMUX Card		S30813-Q104-X	
Remote Switching Unit Controller Card		S30813-Q98-X S30813-Q98-X1	
Message Handler Card		S30813-Q97-X S30813-Q97-X1	
Digital Interface Unit 240A		S30813-Q106-X1	
Digital Interface Unit 240B		S30813-Q107-X1	
Subscriber Line Module Analog (FPF)		S30810-Q1330-X-1	
Subscriber Line Module Digital (QFB)		S30810-Q1431-X-5	
Subscriber Line Module Digital (QSB)		S30810-Q1433-X-101	
Digital Interface Unit 60		S30810-Q1328-X200 S30810-Q1328-X201	
Digital Interface Unit 48B		S30810-Q1328-X101	
Nortel Networks MSL-100		SE06	
REDCOM IGX		6.0A R1P3	
Avaya MultiVantage		R012x.00.0.221.1	
Siemens KNS-4100		APS4V2.3	
Lucent 5ESS		5E16.2	
Nortel Networks Broadband STP		Release 8.0.4.38E	
SMU 96 Tactical Gateway		Version RD302185	
SDS Red Switch		Version 8.03	
MARCONI ATM switch ASX-1000 and ASX-200BX		Versions 6.0.1 and 6.2	
SUT Telephone Instruments			
Interface Type		Model (s)/ Release	
2-Wire Analog		Panasonic KX-TS15-W, OMNI Secure Wire Line Terminal (E252), Motorola Sectera Wire Line Terminal (8.9), Motorola STU Sectal 1500	
ISDN BRI		Optiset NI 1200S, CENTREX Endgerate, Nortel Networks M5317T, STE 2.3	
Legend:			
AMUX	- Asynchronous Multiplexer	MSL	- Meridian Switching Load
ATM	- Asynchronous Transfer Mode	RSU	- Remote Switching Unit
5ESS	- Class 5 Electronic Switching System	SDS	- Secure Digital Switch
BRI	- Basic Rate Interface	SMU	- Switch Multiplexer Unit
EWSD	- Elektronisches Wählsystem Digital	STE	- Secure Terminal Equipment
FPF	- For Program Type F	STP	- Signal Transfer Point
IGX	- ISDN Gateway Exchange	STU	- Secure Telephone Unit
ISDN	- Integrated Services Digital Network	SUT	- System Under Test

10. TESTING LIMITATIONS. None.

11. TEST RESULTS

a. RSU Normal Operating Conditions. SUT met all critical interoperability certification requirements for an RSU when the umbilical is fully connected to the host switch in normal operating conditions. Detailed trunk configurations and associated lessons learned can be found on the DISA web page: <http://jitc.fhu.disa.mil/>.

b. RSU Stand-Alone Condition. The SUT met all critical interoperability requirements for stand-alone condition that are applicable with the following exception: the SUT did not meet the critical interoperability requirement for MLPP in stand-alone condition. However, per reference (c), the Joint Staff J6C waived this requirement only for the European sites listed in table 2-1. The operational impact is minor.

c. RSU Partial Stand-Alone Condition. SUT met all critical interoperability certification requirements with the following minor exception: when the umbilical between the host switch and the RSU is 100 percent saturated, the RSU will not provide a Blocked Precedence Announcement when a call is placed from a subscriber on the RSU that is equal or lower precedence than the established calls between the host switch and the RSU. Instead, a T-120 busy tone is received. The operational impact is minor.

d. DSN Line Interfaces. SUT met all critical interoperability certification requirements for DSN line interfaces per the GSCR. Refer to table 2-4 for specific instrument models tested under this certification.

e. Network Gateways. The SUT met all critical interoperability certification requirements for Network Gateways.

f. System Interoperability Results. The SUT meets all the critical interoperability requirements that are applicable, and is certified for joint use within the DSN only for specified locations in Europe as listed in table 2-1. The SUT did not meet the critical interoperability requirement for MLPP in stand-alone condition, however the Joint Staff J6C waived this requirement per reference (c) only for the sites shown in table 2-1. The SUT met the critical interoperability requirements and provides the same user features as the following DSN switch types: EO, SMEO, PBX 1, and PBX 2. Minor discrepancies identified during testing will have no adverse operational impact. The interoperability test summary is shown in table 2-5 and the detailed interoperability test status is shown table 2-6.

Table 2-5. SUT Interoperability Test Summary

DSN Trunk Interfaces			
Interface & Signaling	Critical	Status	Remarks
PCM-24 Proprietary Host-to-RSU SDC link	No ¹	Certified	Met all CRs and FRs with the following minor exceptions: MLPP not supported in stand-alone mode. ² BPA not supported when Host-to-RSU SDC link is 100% saturated. Operational impact is minor.
PCM-30 Proprietary Host-to-RSU SDC link	No ¹ (Europe only)	Certified	Met all CRs and FRs with the following minor exceptions: MLPP not supported in stand-alone mode. ² BPA not supported when Host-to-RSU SDC link is 100% saturated. Operational impact is minor.
DSN Line Interfaces			
Interface & Signaling	Critical	Status	Remarks
2-Wire Analog (GR-506-CORE)	Yes	Certified	Met all critical CRs and FRs.
ISDN BRI NI 1/2	Yes	Certified	Met all critical CRs and FRs.
DSN User Features and Capabilities			
Features and Capabilities	Critical	Status	Remarks
Common Features	Yes	Certified	Met all critical CRs and FRs.
Attendant	Yes	Certified	Met all critical CRs and FRs.
Public Safety	Yes	Certified	Met all critical CRs and FRs.
Preset Conferencing	Yes	Certified	Met all critical CRs and FRs with external DAKS Conferencing System Version 3E(2).
Nailed-up Connections	Yes	Yes	Met all critical CRs and FRs.
PAT	No	Not Tested	
DSN Hotline Services	Yes	Certified	Met all critical CRs and FRs.
ISDN Services (EKTS)	No	Certified	Met all critical CRs and FRs.
Reliability	Yes	Certified	Met all critical CRs and FRs.
Security ³	Yes	Certified	Met all CRs and FRs.
VoIP System	No	Not Tested	
VoIP LANs	No	Not Tested	

Table 2-5. SUT Interoperability Test Summary (continued)

Network Gateways				
	Interface & Signaling	Critical	Status	Remarks
DRSN	2-Wire Analog (GR-506-CORE)	Yes	Certified ⁴	Met all critical CRs and FRs.
PSTN	E1 ISDN PRI (Q.931)	Yes	Certified	Met all critical CRs and FRs.
Legend: BPA - Blocked Precedence Announcement BRI - Basic Rate Interface CRs - Capability Requirements DAKS - Digitale Alarm- und Kommunikations-Server DRSN - Defense Red Switch Network DSN - Defense Switched Network E1 - European Basic Multiplex Rate (2.048 Mbps) EKTS - Electronic Key Telephone System FRs - Feature Requirements GR - Generic Requirement (Telcordia) IATP - Information Assurance Test Plan IAW - in accordance with ISDN - Integrated Services Digital Network ITU - International Telecommunication Union JITC - Joint Interoperability Test Command LAN - Local Area Network LoC - Letters of Compliance Mbps - Megabits per second MLPP - Multi-Level Precedence and Preemption NI 1/2 - National ISDN 1 or 2 PAT - Precedence Access Threshold PCM-24 - Pulse Code Modulation 24 Channels PCM-30 - Pulse Code Modulation 30 Channels PM - Program Manager PRI - Primary Rate Interface PSTN - Public Switched Telephone Network Q.931 - ITU Signaling Standard for ISDN RSU - Remote Switching Unit SDC - Secondary Digital Carrier SONET - Synchronous Optical Network SUT - System Under Test VoIP - Voice over Internet Protocol				
Notes: 1 The Host-to-RSU proprietary link interface can be satisfied by PCM-24, PCM-30, or any SONET. 2 This critical requirement is waived by Joint Staff J6C for specified sites in Europe listed in table 1. 3 JITC verifies security via vendor LoC. Further testing IAW the IATP is required prior to being authorized connection approval. 4 Interoperability Certification of the SUT does not constitute DRSN Program Manager's (PM) approval for connectivity to the DRSN. It is the user's responsibility to request connectivity approval directly from the PM.				

12. TEST AND ANALYSIS REPORT. No detailed test report was developed per 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>.

Table 2-6. SUT Interoperability Requirements/Status

Host-to-RSU Interfaces							
Interface	Critical	Interface Status	GSCR Requirement Required (R) Conditional (C)		Reference	Test Results	Operational Impact
PCM-24 Proprietary Host-to-RSU SDC link	No ¹	Certified	Trunking	Framing (R)	GSCR Sect. 7	Met	
				Line Code (R)	GSCR Sect. 7	Met	
				Signaling (R)	GSCR Sect. 5	Met	
				Alarms (R)	GSCR Sect. 2.5.7, 7.1.4 & 7.2.2	Met	
				Timing (R)	GSCR Sect. 11.1.1.2	Met	
				WWNDP (R)	GSCR Sect. 4.5.1	Met	
				Outpulsing digit formats (R)	GSCR Sect. 4.5.2	Met	
				Routing (R)	GSCR Sect. 4.2	Met	
				Trunk Groups(R)	GSCR Sect. 2.5.5 & 2.5.6	Met	
				Call Processing (R)	GSCR Sect. 4	Met	
				CAS to CCS trunk interworking (R)	GSCR Sect. 3.10	Met	
				PCM-24/PCM-30 Interoperation (R)	GSCR Sect. 7.3	Met	
			Direct Inward Dialing (R)	GSCR Sect. 2.3.2	Met		
			Voice	MOS (R)	CJCSI 6215.01B	Met	
				MLPP (R)	GSCR Sect. 3	Met ²	Minor
				Secure calls (R)	CJCSI 6215.01B	Met	
			Facsimile	Analog: EIA/TIA-465-A (R)	JTA	Met	
				Digital: MIL-STD-188-161D (C)	JTA	Not Tested	
			Data	Modem (VBD) (R)	CJCSI 6215.01B	Met	
				56-kbps switched data (R: ISDN PRI only)	GSCR Sect. 3.10	Met	
				64-kbps switched data (R: ISDN PRI only)	GSCR Sect. 3.10	Met	
				NX56 synchronous BER (R: ISDN PRI only)	GSCR Sect. 3.10	Met	
				NX64 synchronous BER (R: ISDN PRI only)	GSCR Sect. 3.10	Met	
				Secure data (STE/STU-III) (R)	GSCR Sect. 3.10	Met	
			VTC	H.320 (R: ISDN PRI only)	JTA	Met	
			RSU	Normal Operating Conditions – Connected To The Host (R)	GSCR Sect. 2.10.2	Met	
				Stand-alone Condition (R)	GSCR Sect. 2.10.3.1	Not Met ³	Minor
Partial stand-alone Condition (R)	GSCR Sect. 2.10.3.2	Met					

Table 2-6. SUT Interoperability Requirements/Status (continued)

DSN Trunk Interfaces							
Interface	Critical	Interface Status	GSCR Requirement Required (R) Conditional (C)		Reference	Test Results	Operational Impact
PCM-30 Proprietary Host-to-RSU SDC link	No ¹	Certified	Trunking	Framing (R)	GSCR Sect. 7	Met	
				Line Code (R)	GSCR Sect. 7	Met	
				Signaling (R)	GSCR Sect. 5	Met	
				Alarms (R)	GSCR Sect. 2.5.7, 7.1.4 & 7.2.2	Met	
				Timing (R)	GSCR Sect. 11.1.1.2	Met	
				WWNDP (R)	GSCR Sect. 4.5.1	Met	
				Outpulsing digit formats (R)	GSCR Sect. 4.5.2	Met	
				Routing (R)	GSCR Sect. 4.2	Met	
				Trunk Groups(R)	GSCR Sect. 2.5.5 & 2.5.6	Met	
				Call Processing (R)	GSCR Sect. 4	Met	
				CAS to CCS trunk interworking (R)	GSCR Sect. 3.10	Met	
				PCM-24/PCM-30 Interoperation (R)	GSCR Sect. 7.3	Met	
			Direct Inward Dialing (R)	GSCR Sect. 2.3.2	Met		
			Voice	MOS (R)	CJCSI 6215.01B	Met	
				MLPP (R)	GSCR Sect. 3	Met ²	Minor
				Secure calls (R)	CJCSI 6215.01B	Met	
			Facsimile	Analog: EIA/TIA-465-A (R)	JTA	Met	
				Digital: MIL-STD-188-161D (C)	JTA	Not Tested	
			Data	Modem (VBD) (R)	CJCSI 6215.01B	Met	
				56-kbps switched data (R: ISDN PRI only)	GSCR Sect. 3.10	Met	
				64-kbps switched data (R: ISDN PRI only)	GSCR Sect. 3.10	Met	
				NX56 synchronous BER (R: ISDN PRI only)	GSCR Sect. 3.10	Met	
				NX64 synchronous BER (R: ISDN PRI only)	GSCR Sect. 3.10	Met	
			Secure data (STE/STU-III) (R)	GSCR Sect. 3.10	Met		
			VTC	H.320 (R: ISDN PRI only)	JTA	Met	
			RSU	Normal Operating Conditions – Connected To The Host (R)	GSCR Sect. 2.10.2	Met	
				Stand-alone Condition (R)	GSCR Sect. 2.10.3.1	Not Met ³	Minor
Partial stand-alone Condition (R)	GSCR Sect. 2.10.3.2	Met					

Table 2-6. SUT Interoperability Requirements/Status (continued)

DSN Line Interfaces							
Interface	Critical	Interface Status	GSCR Requirement Required (R) Conditional (C)		Reference	Test Results	Operational Impact
2-Wire Analog (GR-506-CORE)	Yes	Certified	Access	DN Identification (R)	GSCR Sect 2.1.1	Met	
				Line signaling (R)	GSCR Sect 5.2	Met	
				Alerting Signals and Tones (R)	GSCR Sect 5.5	Met	
				WWNDP (R)	GSCR Sect. 4.5	Met	
				Call Processing (R)	GSCR Sect. 4.4	Met	
				Call Treatments (R)	GSCR Sect. 4.1	Met	
				2W user access (R)	GSCR Sect 4.3.3	Met	
			Analog busy/idle (R)	GSCR Sect 4.3.4.1	Met		
			Voice	MOS (R)	CJCSI 6215.01B	Met	
				MLPP (R)	GSCR Sect. 3.4.3, 3.9	Met ²	Minor
				Secure calls (R)	CJCSI 6215.01B	Met	
			Facsimile	Analog: EIA/TIA-465-A (R)	JTA	Met	
				Digital: MIL-STD-188-161D (C)	JTA	Not Tested	
			Data	Modem (VBD) (R)	CJCSI 6215.01B	Met	
				Secure data (STE/STU-III) (R)	GSCR Sect. 3.10	Met	
VTC	H.320 (R: ISDN BRI only)	JTA	Not Tested				

Table 2-6. SUT Interoperability Requirements/Status (continued)

DSN Line Interfaces (continued)							
Interface	Critical	Interface Status	GSCR Requirement Required (R) Conditional (C)		Reference	Test Results	Operational Impact
ISDN BRI NI 1/2	Yes	Certified	Access	DN Identification (R)	GSCR Sect 2.1.1	Met	
				Line signaling (R)	GSCR Sect 5.2	Met	
				Alerting Signals and Tones (R)	GSCR Sect 5.5	Met	
				WWNDP (R)	GSCR Sect. 4.5	Met	
				Call Processing (R)	GSCR Sect. 4.4	Met	
				Call Treatments (R)	GSCR Sect. 4.1	Met	
			Voice	MOS (R)	CJCSI 6215.01B	Met	
				MLPP (R)	GSCR Sect. 3.4.3, 3.9	Met ²	Minor
				Secure calls (R)	CJCSI 6215.01B	Met	
			Data	Modem (VBD) (R)	CJCSI 6215.01B	Met	
				56-kbps switched data (R))	GSCR Sect. 3.10	Met	
				64-kbps switched data (R)	GSCR Sect. 3.10	Met	
				NX56 synchronous BER (R)	GSCR Sect. 3.10	Met	
				NX64 synchronous BER (R)	GSCR Sect. 3.10	Met	
				Secure data (STE/STU-III) (R)	GSCR Sect. 3.10	Met	
			VTC	H.320 (R: ISDN BRI only)	JTA	Met	

Table 2-6. SUT Interoperability Requirements/Status (continued)

DSN Features & Capabilities						
Features/ Capabilities	Critical	Status	GSCR Requirement Required (R) Conditional (C)	Reference	Test Results	Operational Impact
Common Features	Yes	Certified	Selective call rejection (C)	GSCR Sect. 2.1.2	Not Tested	
			Denied originating service (C)	GSCR Sect. 2.1.3	Not Tested	
			Code restriction and diversion (R)	GSCR Sect. 2.1.4	Met	
			Three-way calling (C)	GSCR Sect. 2.1.5	Met	
			Add-on transfer and conference calling (C)	GSCR Sect. 2.1.6	Met	
			Call forwarding (C)	GSCR Sect. 2.1.7	Met	
			Call pick-up (C)	GSCR Sect. 2.1.8	Met	
Call waiting (C)	GSCR Sect. 2.1.9	Met				
Attendant	Yes	Certified	Initiate all precedence levels (R)	GSCR Sect. 2.2.1	Met	
			Visual display (R)	GSCR Sect. 2.2.2	Met	
			Override class of service (R)	GSCR Sect. 2.2.3	Met	
			Override busy line (R)	GSCR Sect. 2.2.4	Met	
			Call deflection (R)	GSCR Sect. 2.2.5	Met	
			Auto recall (R)	GSCR Sect. 2.2.6	Met	
Waiting queue (R)	GSCR Sect. 2.2.7	Met				
Public Safety	Yes	Certified	911 (C)	GSCR Sect. 2.4.1	Not Tested	
			Trace of terminating calls (R)	GSCR Sect. 2.4.2	Met	
			Outgoing call trace (R)	GSCR Sect. 2.4.3	Met	
			Tandem call trace (R)	GSCR Sect. 2.4.4	Met	
			Trace of a call in progress (R)	GSCR Sect. 2.4.5	Met	

Table 2-6. SUT Interoperability Requirements/Status (continued)

DSN Features & Capabilities (continued)						
Features/ Capabilities	Critical	Status	GSCR Requirement Required (R) Conditional (C)	Reference	Test Results	Operational Impact
Preset Conferencing	Yes	Certified	Support 10 bridges; 1 originator and 20 conferees (R)	GSCR Sect. 2.6.1	Met	
			Assign up to 20 address numbers per bridge (R)	GSCR Sect. 2.6	Met	
			Use KXX codes for bridge access (R)	GSCR Sect. 2.6	Met	
			Conference notification recorded announcement (R)	GSCR Sect. 2.6.1	Met	
			Auto retrieval and alternate address (R)	GSCR Sect. 2.6.2	Met	
			Bridge release (R)	GSCR Sect. 2.6.3	Met	
			Lost connection (R)	GSCR Sect. 2.6.4	Met	
			Secondary conferencing (R)	GSCR Sect. 2.6.5	Met	
Nailed-Up Connections	Yes	Certified	Address translation (R)	GSCR Sect. 2.7	Met	
			Between any two like terminations (R)	GSCR Sect. 2.8	Met	
			PCM-24 and PCM-30, both CAS and CCS (R)	GSCR Sect. 2.8	Met	
			Supervision passed end-to-end for A/D or D/A (R)	GSCR Sect. 2.8	Met	
			Monitored and auto reconfigure (R)	GSCR Sect. 2.8	Met	
PAT	No	Not Tested	Support at least 10% of circuits as nailed-up (R)	GSCR Sect. 2.8	Met	
			Non-preemptable (R)	GSCR Sect. 2.8	Met	
			Classmark for/not for PAT screening (C)	GSCR Sect. 2.11.1	Not Tested	
			7 PAT mechanisms (C)	GSCR Sect. 2.11.1	Not Tested	
			Outgoing call screening (C)	GSCR Sect. 2.11.1.1	Not Tested	
			Functional structure (C)	GSCR Sect. 2.11.1.2	Not Tested	
			Overflow Process (C)	GSCR Sect. 2.11.1.3	Not Tested	
			Simultaneous calls limitation (C)	GSCR Sect. 2.11.1.4	Not Tested	
			Decrementing call-in-progress count (C)	GSCR Sect. 2.11.1.5	Not Tested	
			Call treatment (C)	GSCR Sect. 2.11.1.6	Not Tested	
DSN Hotline Services	Yes	Not Tested	Queuing (C)	GSCR Sect. 2.11.1.7	Not Tested	
			Attendant calls (C)	GSCR Sect. 2.11.1.8	Not Tested	
			Op measurement registers (C)	GSCR Sect. 2.11.1.9	Not Tested	
			Maintenance and Administration of thresholds (C)	GSCR Sect. 2.11.1.10	Not Tested	
			Hotline restrictions (R)	GSCR Sect. 2.12	Met	
			Auto initiate (R)	GSCR Sect. 2.12	Met	
			Analog and digital (R)	GSCR Sect. 2.12	Met	
			Subscription basis (R)	GSCR Sect. 2.12	Met	
			Protected hotline calling (R)	GSCR Sect. 2.12.1-4	Met	
			WWNDP interoperable (R)	GSCR Sect. 2.12.5	Met	

Table 2-6. SUT Interoperability Requirements/Status (continued)

DSN Features & Capabilities (continued)						
Features/ Capabilities	Critical	Status	GSCR Requirement Required (R) Conditional (C)	Reference	Test Results	Operational Impact
ISDN Services	No	Certified	EKTS (C)	GSCR Sect. 10, table 10-3	Met	
Reliability	Yes	Certified	GR-512-CORE (R)	GSCR Sect. 12	Met	
Security ⁴	Yes	Certified	DITSCAP (R)	DODI 8100.3	Met	
VoIP System	No	Not Tested	MOS 4.0 or better (C)	GSCR App. 3	Not Tested	
			G.711 PCM Codec (C)	GSCR App. 3	Not Tested	
			Security IAW DITSCAP (C)	GSCR App. 3	Not Tested	
			NM (C)	GSCR App. 3	Not Tested	
			Line timing (C)	GSCR App. 3	Not Tested	
			Internal Clock (C)	GSCR App. 3	Not Tested	
			Latency @ 60 msec or less (C)	GSCR App. 3	Not Tested	
			IPv6 capable (C)	GSCR App. 3	Not Tested	
LANs	No	Not Tested	LAN parameters (C)	GSCR App. 3	Not Tested	
			CoS /QoS (C)	GSCR App. 3	Not Tested	
			VLANs (C)	GSCR App. 3	Not Tested	
			IEEE Standards Conformance (C)	GSCR App. 3	Not Tested	
			.99999 availability (C)	GSCR App. 3	Not Tested	
			Modular devices (C)	GSCR App. 3	Not Tested	
			2 sec. link restoral (C)	GSCR App. 3	Not Tested	
			LAN NM (C)	GSCR App. 3	Not Tested	
Traffic Engineering (C)	GSCR App. 3	Not Tested				

Table 2-6. SUT Interoperability Requirements/Status (continued)

Network Gateway							
Gateway	Critical	Interface Status	GSCR Requirement Required (R) Conditional (C)		Reference	Test Results	Operational Impact
DRSN	Yes	Certified	Access	Alerting Signals and Tones (R)	GSCR Sect. 5.5	Met	
				Call Processing (R)	GSCR Sect. 4.4	Met	
				Call Treatments (R)	GSCR Sect. 4.1	Met	
				Analog busy/idle (R)	GSCR Sect. 4.3.4.1	Met	
			Voice	MOS (R)	CJCSI 6215.01B	Met	
				MLPP (R)	GSCR Sect. 3	Met	
PSTN	Yes	Certified	Trunking	Secure calls (R)	CJCSI 6215.01B	Met	
				Positive Identification Control (R)	CJCSI 6215.01B	Met	
				On-Netting (R)	CJCSI 6215.01B	Met	
				Off-Netting (R)	CJCSI 6215.01B	Met	

Legend:

2W	- 2-Wire	H.320	- ITU standard for VTC	PAT	- Precedence Access Threshold
911	- Emergency 911 Service	IATP	- Information Assurance Test Plan	PCM-24	- Pulse Code Modulation 24 Channels
A/D	- Analog to Digital	IAW	- In accordance with	PCM-30	- Pulse Code Modulation 30 Channels
App.	- Appendix	IEEE	- Institute of Electrical and Electronics Engineers, Inc.	PRI	- Primary Rate Interface
BER	- Bit Error Ratio	ISDN	- Integrated Services Digital Network	PSTN	- Public Switched Telephone Network
BRI	- Basic Rate Interface	ITU	- International Telecommunication Union	QoS	- Quality of Service
C	- conditional	JITC	- Joint Interoperability Test Command	R	- Required
CAS	- Channel Associated Signaling	JTA	- Joint Technical Architecture	RSU	- Remote Switching Unit
CCS	- Common Channel Signaling	Kbps	- kilobits per second	SDC	- Secondary Digital Carrier
CJCSI	- Chairman of the Joint Chiefs of Staff Instruction	KXX	- K= any number 2-8; X= any number 1-9	Sec.	- Seconds
CoS	- Class of Service	LAN	- Local Area Network	Sect.	- Section
D/A	- Digital to Analog	LoC	- Letter(s) of Compliance	SONET	- Synchronous Optical Network
DITSCAP	- Department of Defense Information Technology Security and Accreditation Process	MIL-STD	- Military Standard	STE	- Secure Terminal Equipment
DN	- Directory Number	MLPP	- Multi-Level Precedence and Preemption	STU-III	- Secure Telephone Unit-Third Generation
DODI	- Department of Defense Instruction	MOS	- Mean Opinion Score	SUT	- System Under Test
DRSN	- Defense Red Switch Network	msec	- milliseconds	TIA	- Telecommunications Industry Association
DSN	- Defense Switched Network	NI 1/2	- National ISDN Standard one or two	VBD	- Variable bit data
EIA	- Electronic Industries Alliance	NM	- Network Management	VLAN	- Virtual LAN
EKTS	- Electronic Key Telephone System	NX56	- Data format restricted to multiples of 56 kbps	VoIP	- Voice over Internet Protocol
GR	- Generic Requirement (Telcordia)	NX64	- Data format restricted to multiples of 64 kbps	VTC	- Video Teleconferencing
GSCR	- Generic Switching Center Requirements	Op	- Operations	WWNDP	- Worldwide Numbering and Dialing Plan

Notes:

- The Host-to-RSU proprietary link interface can be satisfied by PCM-24, PCM-30, or any SONET.
- The SUT did not meet the requirement for MLPP in stand-alone condition. However, this requirement was waived by the Joint Staff J6C for specified locations in Europe as shown in table 2-1. When the Host-to-RSU proprietary interface is 100% saturated with traffic, and a subsequent lower precedence call above ROUTINE is attempted, the caller receives a T-120 busy tone rather than the required blocked precedence announcement. The operational impact for both discrepancies is minor.
- This critical requirement is waived by Joint Staff J6C for specified sites in Europe listed in table 2-1.
- JITC verifies security via vendor LoC. Further testing IAW the IATP is required prior to being authorized connection approval.

Table 3-1. SUT Host Switch Specified Patch Identification Numbers

Patch Group ID Number	Associated Patch ID
Patch Set 43	Includes various patch groups for both commercial and DSN applications
Patch Group 538-A	B0605L4D.A0A0, B0665L4D.A0A0, B0697L4D.A0A0, CU758L2Z.A0A0, CX306L4D.A0A0, B0703L4D.A0A0
Patch Group 541-A	B0614L41.A0A0
Patch Group 543-A	CX120L4D.A0A0, CV556L4D.A0A0
Patch Group 545-A	DE44L2Z.A0A0
Patch Group 546-A	BZ177L4D.A0A0
Patch Group 547-A	DD998L4D.A0A0, DI045L4D.A0A0
Patch Group 548-A	CZ566L2Z.A0A0, CZ576L2Z.A0A0, CZ577L2Z.A0A0
Patch Group 549-A	DH390L4D.A0A0, DH394L2Z.A0A0
Patch Group 550-A	DI131L2Z.A0A0
Patch Group 551-A	DK235L2Z.A0A0, DH393L2Z.A0A0
See Note 1	DO224N0Z.0001.0
See Note 2	DO029L4D.A0A0
Patch Group 552-A	DM604L2Z.A0A0
Patch Group 553-A	DM771L2Z.A0A0, Z6103L2Z.IFA1, Z3155L2Z.IFA1, X4127L2Z.IFA0, X2441L2Z.IGA2, X1426L2Z.IGA2, X0333L2Z.IIA1, W9884L2Z.IEA0, S6697L2Z.A3A1, U6134L2Z.IFA1
Patch Group 554-A	DJ578L2Z.A0A0, DJ50L2Z.A0A0
Patch Group 555-A	B0715L4D.A0A0
Patch Group 556-A	DK411L4D.A0A0
Patch Group 557-A	DL476L4D.A0A0
Patch Group 558-A	DO029L4D.A0A0
<p>Legend: DSN - Defense Switched Network ID - Identification PSTN - Public Switched Telephone Network RSU - Remote Switching Unit SUT - System Under Test</p>	
<p>Note: 1 This patch is a site-specific patch, designed specifically for the RSU. It allows site-specific PSTN office codes destined for the RSU to complete to their corresponding DSN directory numbers when the RSU is in stand-alone mode. 2 This is an RSU specific patch that provides the proper treatment when a precedence call is placed from the RSU in stand-alone mode.</p>	