DEFENSE INFORMATION SYSTEMS AGENCY
JOINT INTEROPERABILITY TEST COMMAND
2001 BRAINARD ROAD
FORT HUACHUCA, ARIZONA 85613-7051

IN REPLY REFER TO: Networks and Transport Division (JTE) 22 June 2004

SUBJECT: Special Interoperability Test Certification of Siemens Elektronisches Wahl-System Digital (EWSD) Switching System Software Release 19d, Patch Set 43 with Specified Software Patch Groups

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 (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification. Additional references are provided in the enclosure.

2. The Siemens EWSD Digital Switching System with Software Release 19d and specified software patch groups listed in table 4, hereinafter referred to as the system under test (SUT), meets the critical interoperability requirements and is certified as interoperable for joint use within the Defense Switched Network (DSN). The SUT was tested and met the critical interoperability requirements for joint use within the DSN for the following switch types: Multifunction, End Office, Small End Office, Private Branch Exchange (PBX) 1, and PBX 2. The identified test discrepancies shown in reference (c) that remained open after software patches were applied and regression testing was completed have a minor operational impact. This certification expires upon system 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 at JITC, Fort Huachuca, AZ, and documented in reference (c), and regression testing of patch set 43 with specified patch groups listed in table 4 conducted from 22 December 2003 through 14 May 2004. The Certification Test Summary shown in reference (c) documents the test results and describes the tested network and system configurations. System interoperability should be verified before deployment in an operational environment that varies significantly from the test environment.

4. The SUT offers a Remote Switching Unit capability. The SUT also offers a Voice over Internet Protocol capability, however neither are covered under this certification. Network Management (NM) capabilities of the SUT were tested in accordance with the DISA NS53 requirements as set forth in references (f) and (g). These references require that a switch provide NM capabilities via either Ethernet, serial (Electronic Industries Alliance-232), or serial (X.25 or BX.25 variant). The SUT meets the NM requirements through the use of X.25 or BX.25 connections. Furthermore, the Enhanced Dual Data Port (EDDP) configuration required by the

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Defense Information System Network-Europe contract statement of requirement was also tested, and is covered by this certification. The EDDP allows for Ethernet NM interfaces and these were also covered under this certification. In order to meet the class of service display requirement for the attendant console, the SUT must be deployed with the Switching Control Center Network Management System. This interoperability test summary is based upon evaluation of:

a. The following network interfaces as specified in reference (e): DSN, Defense Red Switch Network Gateway, Tactical Network Gateway, North Atlantic Treaty Organization Gateway, and Public Switched Telecommunications Network or Commercial Network Gateway.

b. Interface and signaling requirements for trunk, line, and network management interfaces, and interoperability ERs and FRs derived from reference (g).

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

d. Review of Letters of Compliance submitted by Siemens.

Table 1. SUT Interoperability Summary

Network	Critical	Status	Remarks
DSN	Yes	Certified	- VoIP not certified. - Certified as MFS, EO, SMEO, PBX 1 and PBX 2. - RSU not certified. - E1 CAS and CDC certified (DISN-E only). - The identified test discrepancies shown in reference (c) that remained open have an overall minor operational impact.
DRSN Gateway	Yes	Certified	Met all critical ERs and FRs.
Tactical Gateway	Yes	Certified	Met all critical ERs and FRs.
NATO Gateway	No	Not Tested	
Commercial Gateway	Yes	Certified	Met all critical ERs and FRs.

Legend:

CAS	- Channel Associated Signaling	Mbps	- Megabits per second
CDC	- Common Data Channel	MFS	- Multifunction Switch
DISN-E	- Defense Information System Network-Europe	NATO	- North Atlantic Treaty Organization
DRSN	- Defense Red Switch Network	PBX	- Private Branch Exchange
DSN	- Defense Switched Network	RSU	- Remote Switching Unit
E1	- European Basic Rate (2.048 Mbps)	SMEO	- Small End Office
EO	- End Office	SUT	- System Under Test
ERs	- Exchange Requirements	VoIP	- Voice over Internet Protocol
FRs	- Functional Requirements		

Table 2. Interoperability Status

Defense Switched Network	**Trunk Interfaces**			
	Interface & Signaling	**Critical**	**Status**	**Remarks**
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DTMF	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DP	Yes	Certified	Met all critical ERs and FRs.
	PCM-30 E1 CAS HDB3 MFR1, DTMF, DP	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) SS7	Yes	Certified	Met all critical ERs and FRs.
	PCM-30 E1 HDB3 SS7	Yes	Certified	Met all critical ERs and FRs.
	PCM-24 T1 (B8ZS/ESF) ISDN PRI	Yes	Certified	Met all critical ERs and FRs.
	Line Interfaces			
	Interface & Signaling	**Critical**	**Status**	**Remarks**
	TPC ISDN BRI ST and U Interface Q.931	Yes	Certified	Met all critical ERs and FRs. ISDN supplemental services[1] not met. Operational impact is minor.
	TPC 2-Wire analog	Yes	Certified	Met all critical ERs and FRs
	Network Management Interfaces			
	Interface & Signaling	**Critical**	**Status**	**Remarks**
	CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP (via EDDP)	No	Certified	Met all critical ERs and FRs.
	X.25 or BX.25	No	Certified	Met all critical ERs and FRs.
Defense Red Switch Network Gateway	**Trunk Interfaces**			
	Interface & Signaling	**Critical**	**Status**	**Remarks**
	TPC 2-Wire analog	Yes	Certified[2]	Met all critical ERs and FRs.
Tactical Network Gateway	**Trunk Interfaces**			
	Interface & Signaling	**Critical**	**Status**	**Remarks**
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	No	Certified	Met all critical ERs and FRs.
	PCM-30 E1 HDB3 CAS MFR1	No	Certified	Met all critical ERs and FRs.
NATO Gateway	**Trunk Interfaces**			
	Interface & Signaling	**Critical**	**Status**	**Remarks**
		No	Not Tested	See note 3.

Table 2. SUT Interoperability Status (continued)

Commercial Network Gateway	Trunk Interfaces			
	Interface & Signaling	**Critical**	**Status**	**Remarks**
	Same Interfaces and Signaling as DSN above	Yes	Certified[4]	Met all critical ERs and FRs.

Legend:

802.3	- IEEE Ethernet Protocol	ISDN	- Integrated Services Digital Network
10BaseT	- Ethernet Based Operation, Twisted Pair	ITU	- International Telecommunications Union
AMI	- Alternate Mark Inversion	Mbps	- Megabits per second
B8ZS	- Bipolar Eight Zero Substitution	MFR1	- Multi-Frequency R1
BRI	- Basic Rate Interface	MLPP	- Multi-Level Precedence and Preemption
CAS	- Channel Associated Signaling	NATO	- North Atlantic Treaty Organization
CAT	- Category	PCM-24	- Pulse Code Modulation 24 Channels
DP	- Dial Pulse	PCM-30	- Pulse Code Modulation 30 Channels
DISN	- Defense Information Systems Network	PM	- Program Manager
DRSN	- Defense Red Switch Network	PRI	- Primary Rate Interface
DSN	- Defense Switched Network	Q.931	- ITU Signaling Standard for ISDN
DTMF	- Dual Tone Multi-Frequency	SF	- Superframe
E1	- European Basic Rate (2.048 Mbps)	SS7	- Signaling System Number 7
EDDP	- Enhanced Dual Data Port	ST	- ISDN BRI Four-Wire Interface
EKTS	- Electronic Key Telephone Service	SUT	- System Under Test
ERs	- Exchange Requirements	T1	- Digital Transmission Link level 1 (1.544 Mbps)
ESF	- Extended Superframe	TPC	- Twisted Pair Copper
FRs	- Functional Requirements	TCP/IP	- Transmission Control Protocol/Internet Protocol
HDB3	- High Density Bi-Polar Three	U	- ISDN BRI Two-Wire Interface
IEEE	- Institute of Electrical and Electronics Engineers, Inc.		

Notes:

1 ISDN supplemental services currently not used in the DISN. The operational impact is minor.

2 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.

3 Not all switches are required to perform this function. Operational impact is minimal.

4 The certification of interoperability with commercial networks was verified based on the review of the vendor's letter of compliance to requirements identified as the "Letter" and "Verify" items listed in appendix E of reference (d) and specified in tables 2-1 through 2-15 of reference (e).

Table 3. SUT Exchange and Functional Requirements

<table>
<tr><td rowspan="10">Defense Switched Network</td><td colspan="2">Trunk Interfaces</td></tr>
<tr><td>Interface & Signaling</td><td>Exchange & Functional Requirements</td></tr>
<tr><td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DTMF</td><td rowspan="8">- Preset Conference
- MLPP
- Hotline services
- System Interface
• Non-Secure Voice and Data
• Secure Voice and Data (STU-III and STE)
• NX56 and NX64 Synchronous Data
• Non-Secure and Secure FAX
• VTC
• Alarms
- CCS/ SS7 (T1 and E1 SS7 only)
- Integrated Services Digital Network (ISDN PRI only)
- Attendant services (See note 1)
- System Administration, Measurements, and Service Standards
- Y2K (Rollover, Valid, and Invalid Dates)
- Screening, Zone Restriction, and DSN Access Restriction
- COI
- Automated Message Accounting
- Internal Overload Control
- Automatic Call Gap Manual Controls
- Nailed-Up Connections (T1 and E1 CAS only)
- Network Integration
- Common Data Channel (T1 and E1 CAS only)
- ANSI T1.619a (T1 ISDN PRI and SS7 only)</td></tr>
<tr><td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1</td></tr>
<tr><td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DP</td></tr>
<tr><td>PCM-30 E1 CAS HDB3 MFR1, DTMF, DP</td></tr>
<tr><td>PCM-24 T1 (B8ZS/ESF) SS7</td></tr>
<tr><td>PCM-30 E1 HDB3 SS7</td></tr>
<tr><td>PCM-24 T1 B8ZS/ESF ISDN PRI</td></tr>
<tr><td colspan="2">Line Interfaces</td></tr>
<tr><td>Interface & Signaling</td><td>Exchange & Functional Requirements</td></tr>
<tr><td>TPC ISDN BRI ST and U Interface Q.931</td><td>- Preset Conference
- MLPP
- Hotline services
- ANSI T1.619a
- ISDN supplemental services
- COI
- Call Treatments
- ESP
- DSN Announcements
- Attendant services
- EKTS
- VTC
- NX56 and NX64 Synchronous Data
- Non-Secure Voice and Data
- Secure Voice and Data (STE)</td></tr>
<tr><td>TPC 2-Wire analog</td><td>- Preset Conference
- MLPP
- Hotline services
- DSN Announcements
- COI
- Traffic Measurements
- Attendant services[1]
- Call Treatments
- ESP
- Non-Secure Voice and Data
- Non-Secure and Secure FAX
- Secure Voice and Data (STU-III and STE)</td></tr>
</table>

Table 3. SUT Exchange and Functional Requirements (continued)

Defense Switched Network (continued)	**Network Management Interfaces**	
	Interface & Signaling	**Exchange & Functional Requirements**
	CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP (via EDDP)	- Automated Message Accounting - Traffic Measurements - Alarms - Man Machine Language
	X.25 or BX.25	- Automated Message Accounting - Traffic Measurements - Alarms - Man Machine Language
Defense Red Switch Network Gateway	**Trunk Interfaces**	
	Interface & Signaling	**Exchange & Functional Requirements**
	TPC 2-Wire analog	- MLPP - Secure Voice (STU-III and STE)
Tactical Network Gateway	**Trunk Interfaces**	
	Interface & Signaling	**Exchange & Functional Requirements**
	PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1	- MLPP - Non-Secure Voice
	PCM-30 E1 HDB3 CAS MFR1, DTMF, DP	
NATO Gateway	**Trunk Interfaces**	
	Interface & Signaling	**Exchange & Functional Requirements**
	Not tested	See note 2.
Commercial Network Gateway	**Trunk Interfaces**	
	Interface & Signaling	**Exchange & Functional Requirements**
	ISDN E1 PRI plus the same interfaces and signaling as shown in DSN above	See note 3.

Legend:

802.3	- IEEE Ethernet Protocol	Mbps	- Megabits per second
10BaseT	- Ethernet Based Operation, Twisted Pair	MFR1	- Multi-Frequency R1
AMI	- Alternate Mark Inversion	MLPP	- Multi-Level Precedence and Preemption
ANSI	- American National Standards Institute	NATO	- North Atlantic Treaty Organization
B8ZS	- Bipolar Eight Zero Substitution	NX56	- Data format restricted to multiples of 56 kbps
BRI	- Basic Rate Interface	NX64	- Data format restricted to multiples of 64 kbps
CAS	- Channel Associated Signaling	PCM-24	- Pulse Code Modulation 24 Channels
CAT	- Category	PCM-30	- Pulse Code Modulation 30 Channels
CCS	- Common Channel Signaling	PRI	- Primary Rate Interface
COI	- Community of Interest	Q.931	- ITU Signaling Standard for ISDN
DP	- Dial Pulse	SF	- Superframe
DSN	- Defense Switched Network	SS7	- Signaling System Number 7
DTMF	- Dual Tone Multi-Frequency	ST	- ISDN BRI Four-Wire Interface
E1	- European Basic Rate (2.048 Mbps)	STE	- Secure Terminal Equipment
EDDP	- Enhanced Dual Data Port	STU-III	- Secure Telephone Unit-III
EKTS	- Electronic Key Telephone Service	SUT	- System Under Test
ESF	- Extended Superframe	T1	- Digital Transmission Link level 1 (1.544 Mbps)
ESP	- Essential Service Protection	T1.619a	- SS7 and ISDN Signaling Standard for T1
FAX	- Facsimile	TCP/IP	- Transmission Control Protocol/Internet Protocol
HDB3	- High Density Bi-Polar Three	TPC	- Twisted Pair Copper
IEEE	- Institute of Electrical and Electronic Engineers, Inc.	U	- ISDN BRI Two-Wire Interface
ISDN	- Integrated Services Digital Network	VTC	- Video Teleconferencing
ITU	- International Telecommunications Union	Y2K	- Year 2000
kbps	- kilobits per second		

Notes:

1 In order to meet the class of service display requirement for the attendant console, the SUT must be deployed with the Switching Control Center Network Management System.

2 The SUT is not currently used as a NATO Gateway switch; no operational impact.

3 The certification of interoperability with commercial networks was verified based on the review of the vendor's letter of compliance to requirements identified as the "Letter" and "Verify" items listed in appendix E of reference (d) and specified in tables 2-1 through 2-15 of reference (e).

Table 4. SUT Specified Patch Group List

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
Patch Group 552-A	
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
Patch Group 555-A	B0715L4D.A0A0

Legend:
DSN - Defense Switched Network
ID - Identification
SUT - System Under Test

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.

6. The JITC point of contact is Capt. Michel Roy, DSN 821-8575, commercial (520) 533-8575, FAX DSN 879-4347, or e-mail roym@fhu.disa.mil.

FOR THE COMMANDER:

Enclosure a/s

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JITC Memo, JTE, Special Interoperability Test Certification of Siemens Elektronisches Wahl-System Digital (EWSD) Switching System Software Release 19d, Patch Set 43 with Specified Software Patch Groups

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

ADDITIONAL REFERENCES

(c) Joint Interoperability Test Command Memorandum, Networks, Transmission and Integration Division (JTE), "Joint Interoperability Test Certification of Siemens Elektronisches Wahl-System Digital (EWSD) Switching System Software Release 19d with Patch Set 25," 29 August 2003
(d) Defense Information Systems Agency (DISA), Joint Interoperability and Engineering Organization (JIEO), Technical Report 8249, "Defense Information Systems Network (DISN) Circuit Switched Subsystem, Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR)," March 1997
(e) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP)," 17 June 1999
(f) Defense Information Systems Agency (DISA) NS53, Memorandum, "DSN Switch Network Management Interface," 26 July 2001
(g) Defense Information Systems Agency (DISA) NS53, Memorandum, "DSN Network Management Requirements for End Offices," 2 August 2001