



DEFENSE INFORMATION SYSTEMS AGENCY

JOINT INTEROPERABILITY TEST COMMAND

P.O. BOX 12798

FORT HUACHUCA, ARIZONA 85670-2798

IN REPLY
REFER TO:

Battlespace Communications Portfolio (JTE)

20 April 2007

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of Nortel CallPilot 1002rp Server Software Release 4.0 Build 04.04.04 with Nortel Communication Server (CS) 2100 Digital Switching Systems on the Telecom Switched Services Interoperability (TSSI) Approved Product List (APL)

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," 8 March 2006

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification. Additional references are provided in enclosure 1.

2. The Nortel CallPilot 1002rp Server Software Release 4.0 Build 04.04.04 is hereinafter referred to as the System Under Test (SUT). The SUT met all the critical interoperability requirements for customer premise equipment voice mail system. The SUT is certified for joint use within the Defense Switched Network (DSN) with the Nortel CS 2100 Digital Switching Systems on the TSSI APL. The SUT is certified with a line-side T1 interface. The SUT was tested and certified in the following two configurations: Configuration 1 - Directly connected to the CS 2100 via the Intelligent Peripheral Equipment Column (IPEC) with a line side T1 interface using ground-start supervision. Configuration 2 - Line-side T1 interface with ground-start supervision connected to a Carrier Access ADIT600 that converts the line-side T1 interface to an analog ground-start interface. The Carrier Access ADIT600 is the only channel bank certified for use with the SUT. The SUT meets the critical interoperability requirements set forth in reference (c) and 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 of the SUT with the CS 2100 and review of the vendor's Letters of Compliance (LoC). Interoperability certification testing of the SUT was conducted from 29 May through 16 June 2006. Regression testing was conducted from 12 through 15 February 2007. Review of the vendor's LoC was completed on 5 January 2007. 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.

JITC Memo, JTE, Special Interoperability Test Certification of Nortel CallPilot 1002rp Server Software Release 4.0 Build 04.04.04 with Nortel Communication Server (CS) 2100 Digital Switching Systems on the Telecom Switched Services Interoperability (TSSI) Approved Product List (APL)

4. The Functional Requirements used to evaluate the interoperability of the SUT and the interoperability statuses are depicted in table 1.

Table 1. SUT Functional Requirements and Interoperability Status

Interface	Critical	Certified	Functional Requirements	Status	GSCR Paragraph
EIA-232 Serial	No	Yes	EIA-232-F (C)	Met	A7.5
Line-Side T1 CAS (Ground-Start)	Yes	Yes	FCC Part 15/Part 68 (R)	Met	A7.5
			MLPP in accordance with GSCR Paragraph 3.3 (R)	Met	A7.5.5
			Security (R)	See note.	A7.6
LEGEND: A - Appendix C - Conditional CAS - Channel Associated Signaling DISA - Defense Information Systems Agency EIA - Electronic Industries Alliance EIA-232 - Standard for defining the mechanical and electrical characteristics for connecting Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) data communications devices FCC - Federal Communications Commission GSCR - Generic Switching Center Requirements Mbps - Megabits per second MLPP - Multi-Level Precedence and Preemption SUT - System Under Test T1 - Digital Transmission Link Level 1 (1.544 Mbps)					
NOTE: Security is tested by 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 TSSI website at <http://jitc.fhu.disa.mil/tssi>.

6. The JITC point of contact is Capt. Oskar Widecki, DSN 879-5269, commercial (520) 538-5269, or FAX DSN 879-4347. The e-mail address is oskar.widecki@disa.mil. The tracking number for the SUT is 51174.

FOR THE COMMANDER:

2 Enclosures a/s



MANUEL H. GARCIA, JR.
 Chief
 Battlespace Communications Portfolio

JITC Memo, JTE, Special Interoperability Test Certification of Nortel CallPilot 1002rp Server Software Release 4.0 Build 04.04.04 with Nortel Communication Server (CS) 2100 Digital Switching Systems on the Telecom Switched Services Interoperability (TSSI) Approved Product List (APL)

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U.S. Joint Forces Command, J68, Net-Centric Integration, Communications, and Capabilities Division, 1562 Mitscher Ave., Norfolk, VA 23551-2488

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 (DISA), "Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR), Incorporated Change 1," 1 March 2005
- (d) Joint Interoperability Test Command (JITC), "Defense Switched Network Generic Switch Test Plan (GSTP), Change 1, Revision 1," 1 June 2005

CERTIFICATION TESTING SUMMARY

- 1. SYSTEM TITLE.** Nortel CallPilot 1002rp Server Software Release 4.0 Build 04.04.04; hereinafter referred to as the System Under Test (SUT) with Nortel Communication Server (CS) 2100 Digital Switching Systems on the Telecom Switched Services Interoperability (TSSI) Approved Product List (APL).
- 2. PROPONENT.** Defense Information Systems Agency (DISA).
- 3. PROGRAM MANAGERS.** 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), Fort Huachuca, Arizona.
- 5. SYSTEM UNDER TEST DESCRIPTION.** The SUT is a Voice Messaging System that offers a high-end capacity multimedia telephony server. It is designed as a high-availability, increased redundancy platform. It resides outside the switch cabinet in a rackmount configuration. The server features a passive backplane design with the processor on a separate circuit board. Its survivability features include dual hot-swappable redundant drives, dual hot-swappable redundant cooling fans, dual hot-swappable redundant power supplies. The SUT is a flexible multimedia telephony server designed to integrate with the Nortel Succession Defense Switched Network (DSN) switches. The SUT hardware consists of the 1002rp standalone server and a standalone web-server. A twenty-four-channel Digital Transmission Link Level 1 (T1) Channel Associated Signaling interface provides voice from the 1002rp server to either a Carrier Access ADIT600 channel bank that converts the digital T1 signal to twenty-four analog circuits with ground-start signaling or directly to an Intelligent Peripheral Equipment Column (IPEC). Two Ethernet controllers on the 1002rp's motherboard provide Ethernet interface. These controllers provide the network interfaces for Customer Local Area Network (CLAN). The SUT uses a web-based application; CallPilot Manager on the standalone web-server to create and maintain the information needed to provide CallPilot messaging services to authorized mailbox owners. This information includes user groups and permissions, system settings, messaging service settings, and maintenance and diagnostics. The SUT applications include: CallPilot Manager, CallPilot Reporter, and MyCallPilot. The SUT offers fax and email messages; however, these capabilities were not tested and are not covered under this certification. The SUT is certified specifically with the Nortel CS 2100 Digital Switching Systems posted on the TSSI APL. The SUT is certified with a line-side T1 interface. The SUT was tested and certified in the following two configurations: Configuration 1 - Directly connected to the CS 2100 via the IPEC with a line side T1 interface using ground-start supervision. Configuration 2 - Line-side T1 interface with ground-start supervision connected to a Carrier Access ADIT600 that converts the line- side T1 interface to an analog ground-start interface.

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

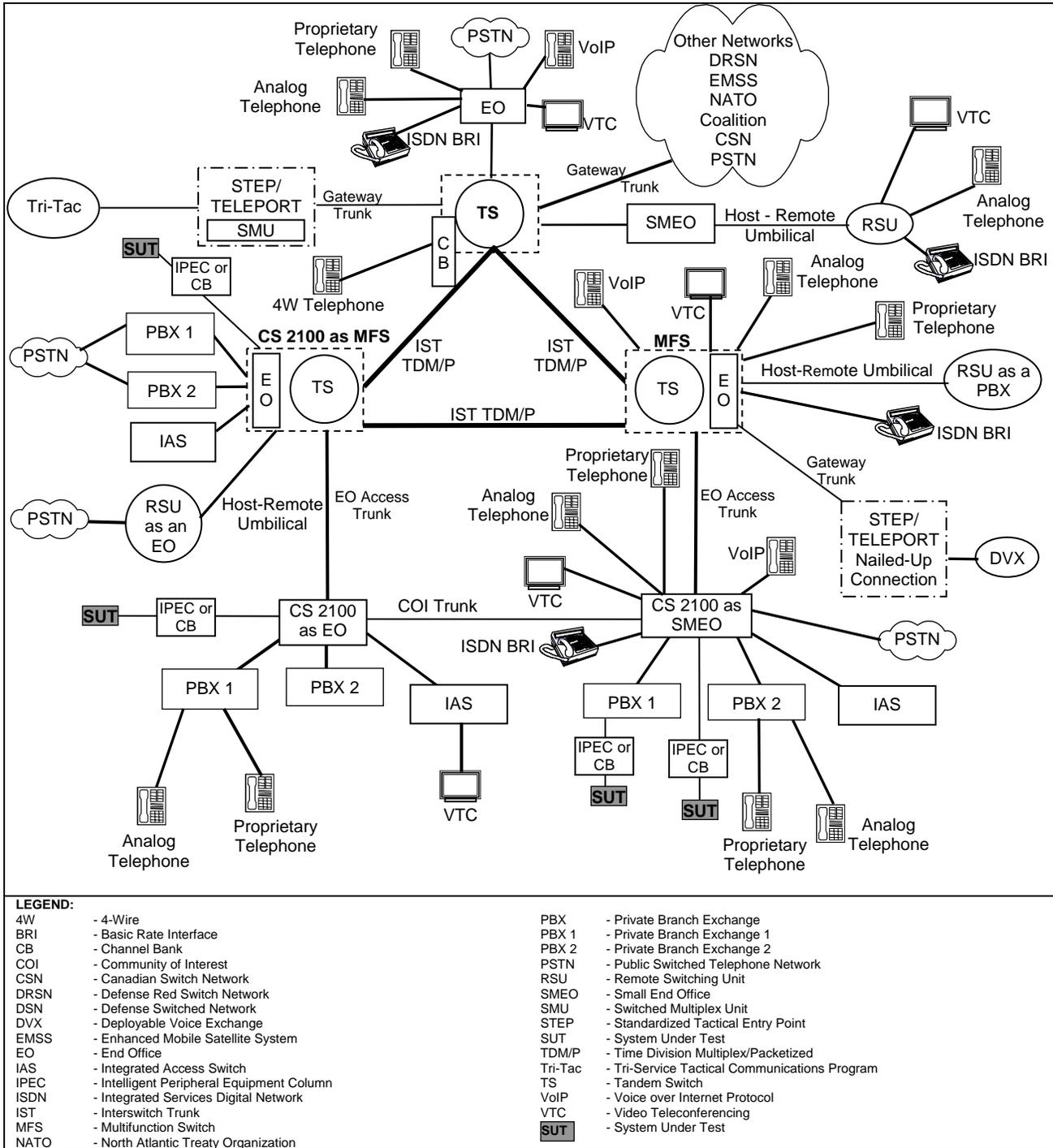


Figure 2-1. DSN Architecture

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 Interface and Functional Requirements verified through JITC testing.

Table 2-1. SUT Functional Requirements and Interoperability Status

Interface	Critical	Certified	Functional Requirements	Status	GSCR Paragraph
EIA-232 Serial	No	Yes	EIA-232-F (C)	Met	A7.5
Line-side T1 CAS (Ground-Start)	Yes	Yes	FCC Part 15/Part 68 (R)	Met	A7.5
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LEGEND: A - Appendix C - Conditional CAS - Channel Associated Signaling DISA - Defense Information Systems Agency EIA - Electronic Industries Alliance EIA-232 - Standard for defining the mechanical and electrical characteristics for connecting Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) data communications devices FCC - Federal Communications Commission GSCR - Generic Switching Center Requirements Mbps - Megabits per second MLPP - Multi-Level Precedence and Preemption SUT - System Under Test T1 - Digital Transmission Link Level 1 (1.544 Mbps)					
NOTE: Security is tested by DISA-led Information Assurance test teams and published in a separate report.					

8. TEST NETWORK DESCRIPTION. The SUT was tested at the JITC Global Information Grid Network Test Facility in a manner and configuration similar to that of the DSN operational environment. The system's required functions and features were tested using the configurations depicted in figures 2-2 and 2-3. The SUT direct line-side T1 interface configuration is depicted in figure 2-2. The SUT line-side T1 to analog ground-start interface using the Carrier Access ADIT600 channel bank is depicted in figure 2-3.

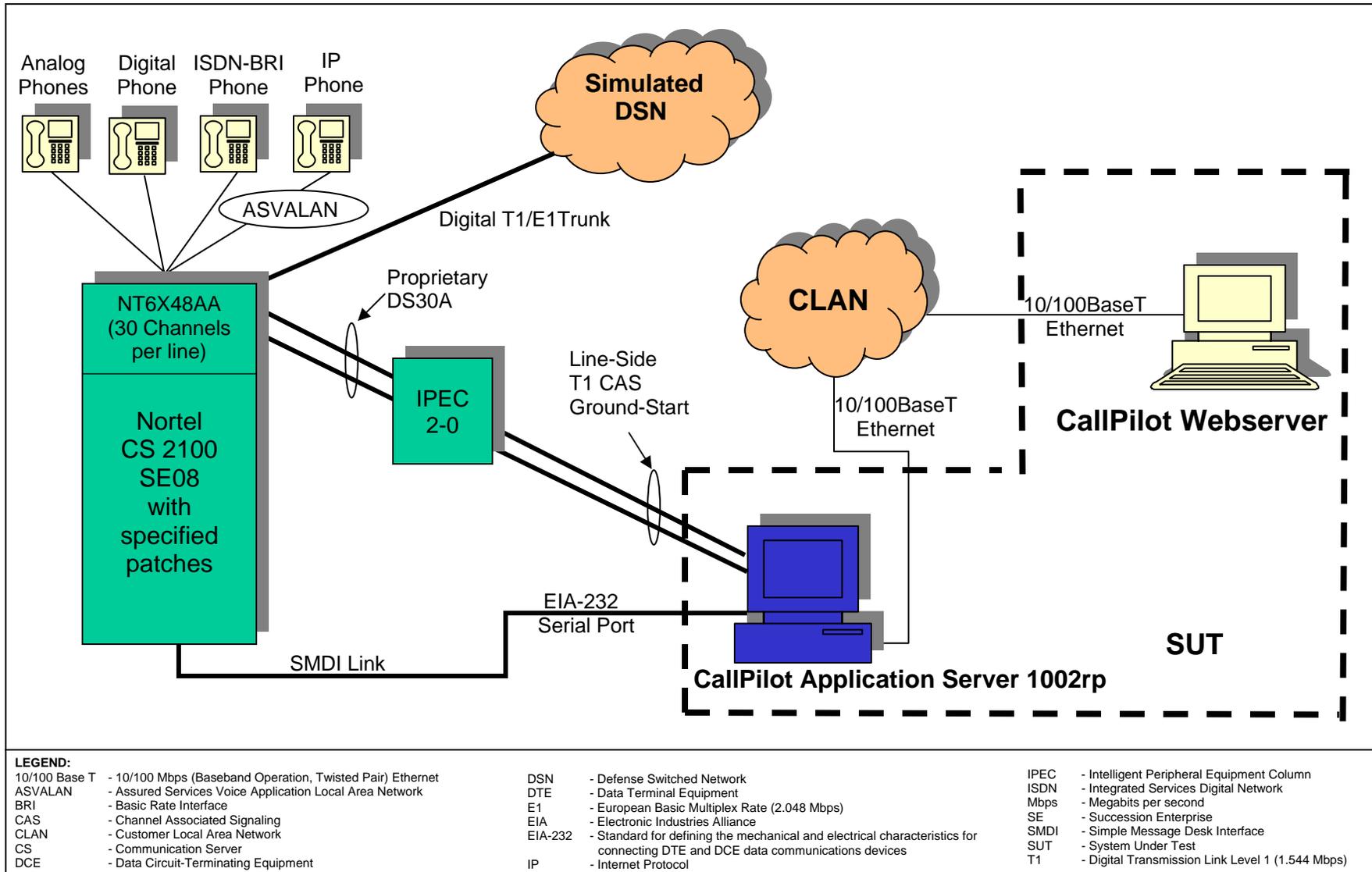
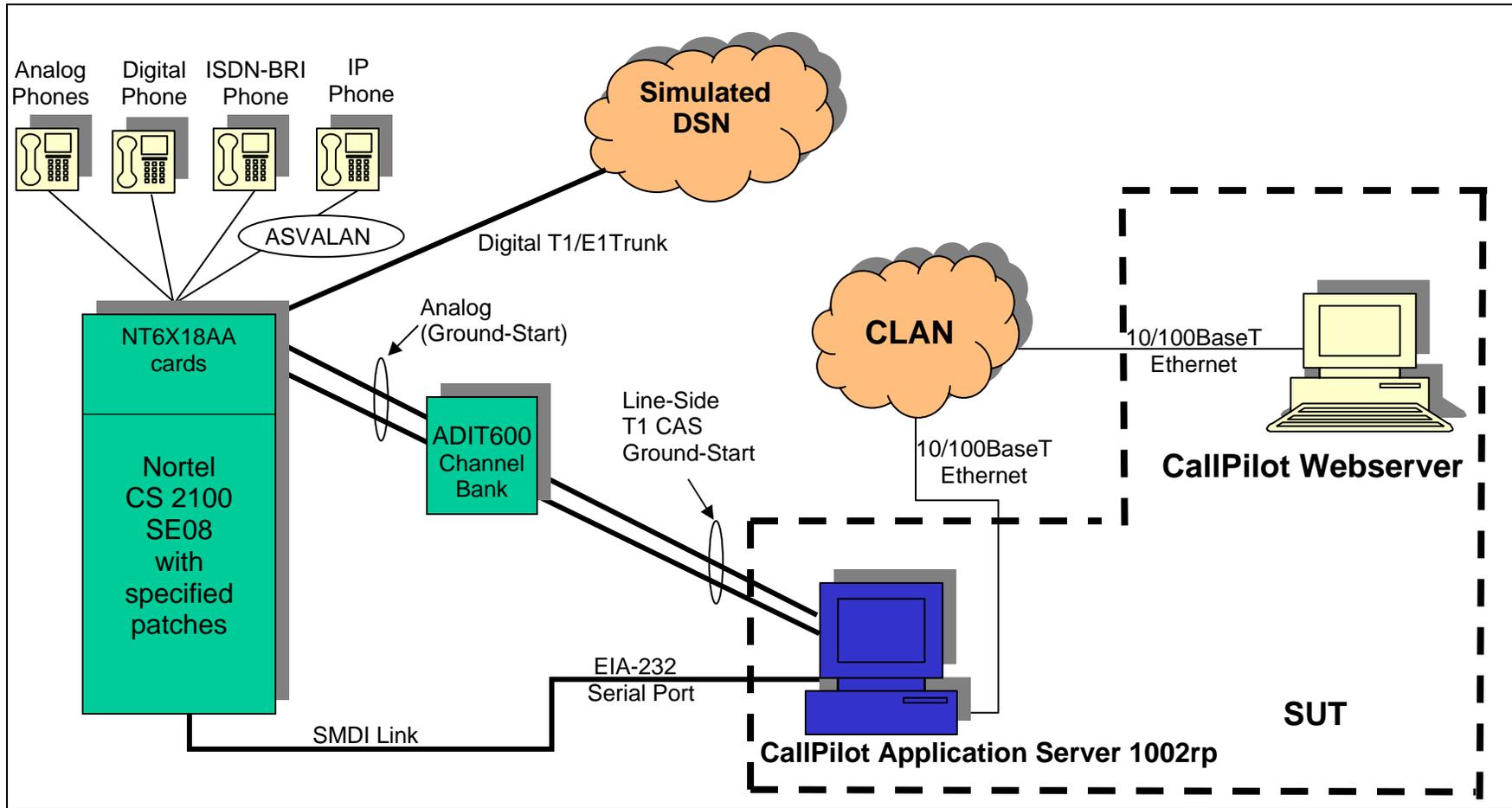


Figure 2-2. SUT IPEC Test Configuration



LEGEND:

- 10/100 Base T - 10/100 Mbps (Baseband Operation, Twisted Pair) Ethernet
- ASVALAN - Assured Services Voice Application Local Area Network
- BRI - Basic Rate Interface
- CAS - Channel Associated Signaling
- CLAN - Customer Local Area Network
- CS - Communication Server
- DCE - Data Circuit-Terminating Equipment

- DSN - Defense Switched Network
- DTE - Data Terminal Equipment
- E1 - European Basic Multiplex Rate (2.048 Mbps)
- EIA - Electronic Industries Alliance
- EIA-232 - Standard for defining the mechanical and electrical characteristics for connecting DTE and DCE data communications devices
- IP - Internet Protocol

- ISDN - Integrated Services Digital Network
- Mbps - Megabits per second
- SE - Succession Enterprise
- SMDI - Simple Message Desk Interface
- SUT - System Under Test
- T1 - Digital Transmission Link Level 1 (1.544 Mbps)

NOTE: In this configuration, the only channel bank tested and certified for use is the Carrier Access ADIT600. There is no other channel bank certified for use with the SUT.

Figure 2-2. SUT Channel Bank Test Configuration

9. SYSTEM CONFIGURATIONS. Table 2-2 provides the system configurations and their respective software used in the test.

Table 2-2. Tested System Configurations

System Name	Hardware/Software Release		
Siemens EWSD (See note.)	19d with Patch Set 46		
Nortel CS 2100	Software Release SE08 with Specified Software Patches		
SUT with Release 4.0, build 04.04.04	Sub Components	Hardware/Software	
	CallPilot Application Server 1002rp	Dual Pentium III 864MHz, 512 MB RAM, 36GB SCSI HDD, RAID 1 - 3 pairs, WIN2003 Server, Appliance Edition, SP1	
	Web Server	WIN2003 Server SP1 IIS Version 6.0	
ADIT600 Channel Bank Version 2.0	Sub Components		Software/Firmware
	T1 Card		9.0.0
	FXO Card		1.12
IPEC (Optional peripheral added to the CS 2100 for voicemail)	Description	Product Code	Version
	IPE Power Supply	NT6D40BA	3
	Ring Generator	NT6D42CD	3
	Controller	NT7D07AB	7
	Line Side T1 Interface	NT5D11AE	2
Telephones	Phone Types	Model	Firmware
	2-Wire Analog	Panasonic KX-TS15-W	Not Applicable
	ISDN BRI	Nortel M5317T	5.0 1999
	P- Phone	Nortel P-Phone Digital Display	Not Applicable
	Digital Phone	Nortel M5008	Not Applicable
	ISDN BRI	Tone Commander Telephones: 6210U, 6210T, 6220U, 6220T, 6220T TSG	01.06.12
LEGEND: CS - Communication Server BRI - Basic Rate Interface DSN - Defense Switched Network EWSD - Elektronisches Wählsystem Digital FXO - Foreign Exchange Office GB - Gigabits HDD - Hard Disk Drive IIS - Internet Information Services IPE - Intelligent Peripheral Equipment IPEC - Intelligent Peripheral Equipment Column ISDN - Integrated Services Digital Network M - Meridian MB - Megabits MHz - Megahertz RAID - Redundant Array of Inexpensive Disks RAM - Random Access Memory SCSI - Small Computer System Interface SE - Succession Enterprise SP1 - Service Pack 1 SUT - System Under Test T1 - Digital Transmission Link Level 1 (1.544 Mbps) U - U interface T - S/T interface TSG - Telephone Secure Group WIN - Windows NOTE: The Siemens EWSD was only used to simulate inter-switch DSN calls.			

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion. Voice mail interaction with Multi-Level Precedence and Preemption (MLPP). The Nortel CS 2100 voice mail system using the SUT was tested to insure that it properly interacted with MLPP as required in the GSCR. MLPP interaction with voice mail was successfully tested with the instruments listed in

table 2-2. Intra-switch calls and inter-switch call were placed at different precedence levels to subscribers on the CS 2100 assigned voice mail with the following results:

(1) All ROUTINE calls placed to a voice mail subscriber that was busy or did not answer were properly routed to voice mail.

(2) All calls above ROUTINE placed to a voice mail subscriber that was busy or did not answer were not routed to voice mail, and if they were not answered within a specified period of time (15-45 seconds) were properly diverted to the attendant console as described in the GSCR, section 3.

(3) Instruments that were assigned Call Forwarding Busy (CFB) and Call Forward Do Not Answer (CFD) without voice mail were tested to insure proper MLPP interaction with all precedence levels as required by the GSCR, section 3. Instruments assigned CFB and CFD properly allowed forwarding of all precedence levels to the call forwarding directory number.

c. Test Summary. The SUT meets the critical interoperability requirements for a customer premise equipment voicemail system in accordance with appendix 7 of the GSCR. The SUT is certified for joint use within the DSN. The SUT is certified specifically with the Nortel CS 2100 Digital Switching Systems posted on the TSSI APL. The SUT is certified with a line-side T1 interface using the two configurations depicted in figures 2-2 and 2-3.

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 TSSI website at <http://jitc.fhu.disa.mil/tssi>.