



## 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)

5 February 2007

### MEMORANDUM FOR DISTRIBUTION

**SUBJECT:** Special Interoperability Test Certification of Nortel CallPilot Software Release 4.0 Build 04.04.04 with Specified Nortel Option 11C Digital Switching Systems with Software Release 4.5w

**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 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 automated receiving device and is certified for joint use within the Defense Switched Network (DSN) with the Nortel Digital Switching Systems specified in table 1. The SUT was tested with the DSN Communication Server (CS) 1000M Cabinet with Software Release 4.5w. Since the other certified Digital Switching Systems listed in table 1 utilize the same software and trunk/line card hardware, JITC determined them to be functionally identical for interoperability certification purposes. 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.

**Table 1. Nortel Certified Digital Switching Systems**

Software Release 4.5w (See note.)	
Nortel TDM Switch without VoIP	Nortel TDM Switch VoIP Enabled
Nortel DSN Option 11C Cabinet	Nortel DSN CS1000M Cabinet
Nortel DSN Option 11C Chassis	Nortel DSN CS1000M Chassis
<b>LEGEND:</b> CS - Communications Server DSN - Defense Switched Network M - Meridian TDM - Time Division Multiplexer SUT - System Under Test VoIP - Voice over Internet Protocol	
<b>NOTE:</b> The SUT was tested with the Nortel DSN CS1000M Cabinet with software release 4.5w and specified Product Enhancement Packages as listed in reference (e). The other certified Digital Switching Systems with software release 4.5w listed in this table use the same software and trunk/line card hardware and the SUT is also certified for use with these switches.	

3. This certification is based on interoperability testing of the Nortel Digital Switching Systems depicted in table 1, interoperability testing of the SUT, and review of the vendor's Letters of Compliance (LoC). Interoperability testing of the Nortel Digital Switching Systems was conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, Arizona documented in reference (e). Interoperability certification testing of the SUT with Nortel Digital Switching Systems with Software Release 4.5w was conducted from 25 July through 1 September 2006. Additional testing was conducted from 27 November through 18 December 2006. Review of the LoC was completed on 05 January 2007. Final review of the test results and the switch comparison was completed on 9 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.

4. The Functional Requirements used to evaluate the interoperability of the SUT and the interoperability statuses are depicted in table 2.

**Table 2. SUT Functional Requirements and Interoperability Status**

Interface	Critical	Certified	Functional Requirements	Status	Reference
Voice Messaging System via the 201i card via backplane	Yes	Yes	FCC Part 15/Part 68 (R)	Met	A7.5
			MLPP in accordance with GSCR Paragraph 3.3 (R)	Met	A7.5.5
	Yes	See note.	Security (R)	See note.	A7.6.5
<b>LEGEND:</b> A - GSCR Appendix DISA - Defense Information Systems Agency FCC - Federal Communications Commission GSCR - Generic Switching Center Requirements MLPP - Multi-Level Precedence and Preemption R - Required SUT - System Under Test					
<b>NOTE:</b> Information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report.					

5. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/.gov users on the NIPRNet

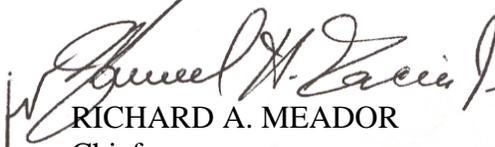
JITC Memo, JTE, Special Interoperability Test Certification of Nortel CallPilot Software Release 4.0 Build 04.04.04 with Specified Nortel Option 11C Digital Switching Systems with Software Release 4.5w

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 <https://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>.

6. The JITC point of contact is Mr. Joseph Schulte, DSN 879-5164, commercial (520) 538-5164, or FAX DSN 879-4347, or e-mail to [joseph.schulte@disa.mil](mailto:joseph.schulte@disa.mil). The tracking number for the SUT is 51171.

FOR THE COMMANDER:

2 Enclosures a/s

  
RICHARD A. MEADOR  
Chief  
Battlespace Communications Portfolio

JITC Memo, JTE, Special Interoperability Test Certification of Nortel CallPilot Software Release 4.0 Build 04.04.04 with Specified Nortel Option 11C Digital Switching Systems with Software Release 4.5w

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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
- (e) JITC Memorandum, JTE, "Special Interoperability Test Certification of Nortel Defense Switched Network (DSN) Communications Server (CS) 1000M Cabinet and CS1000M Chassis (including Voice over Internet Protocol [VoIP]) and DSN Meridian 1 (M1) Option 11C Digital Switching System with Software Release 4.5w and Product Enhancement Packages," 7 March 2007

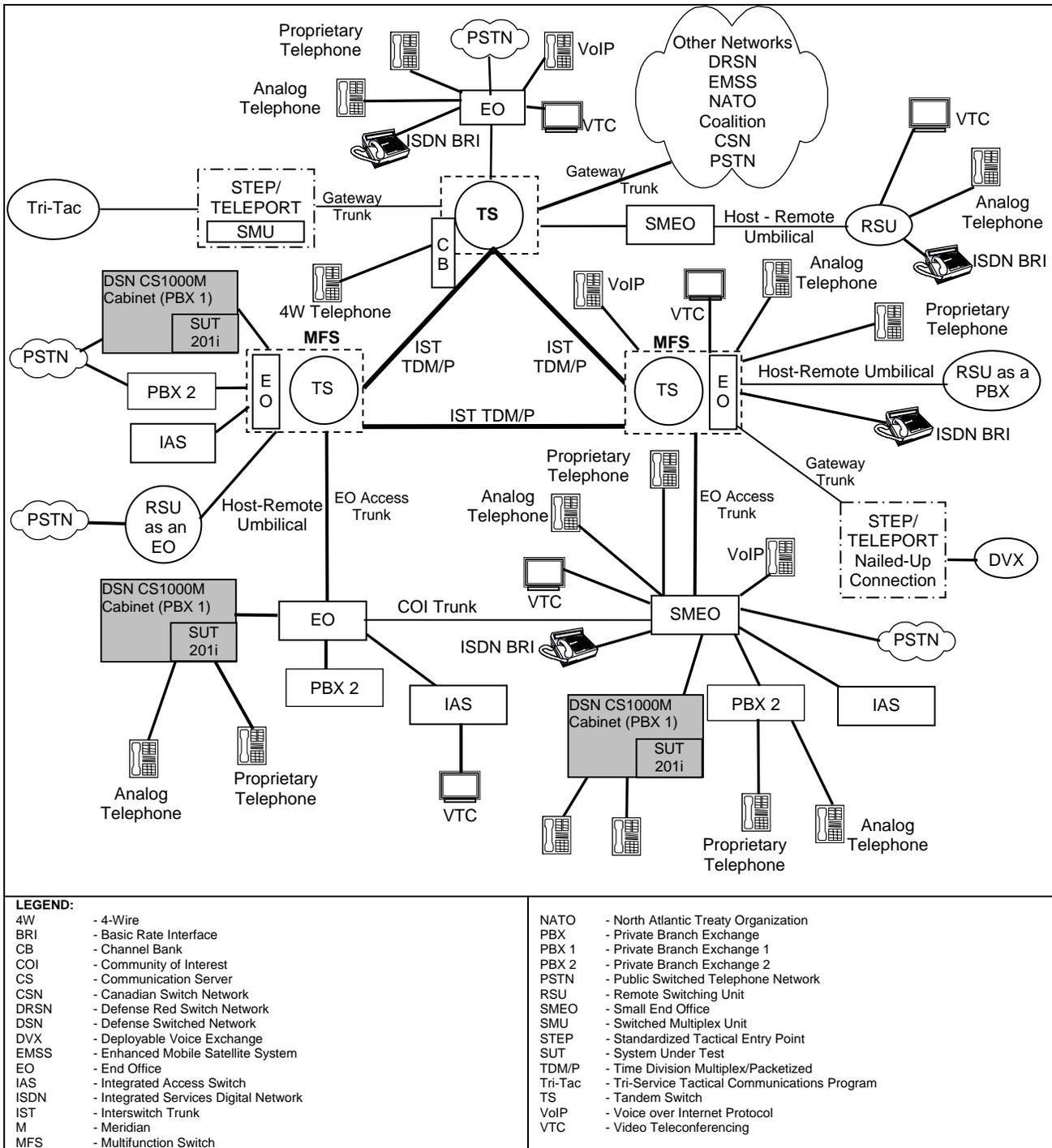
## **CERTIFICATION TESTING SUMMARY**

- 1. SYSTEM TITLE.** Nortel CallPilot Software Release 4.0 Build 04.04.04; hereinafter referred to as the System Under Test (SUT), with Specified Nortel Option 11C Digital Switching Systems with Software Release 4.5w.
- 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. The SUT is a multimedia telephony server designed to integrate with the Nortel Networks switches listed in table 2-1. The SUT hardware consists of the 201i CallPilot two-slot card that resides within the switch and a standalone web-server. The 201i card's motherboard houses the interfaces needed to communicate with the switch and to facilitate data communications on Ethernet networks. Two Ethernet controllers on the server's motherboard provide Ethernet capability. These controllers provide the network interfaces for both the embedded Local Area Network (LAN) and the customer LAN. The SUT uses the web-based application called 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 messaging; however these capabilities were not tested and are not covered under this certification. The SUT was tested with the DSN Communication Server (CS)1000M Cabinet; however since the other certified switches listed in table 2-1 employ the same software and trunk/line card hardware as DSN CS1000M Cabinet, JITC determined them to be functionally identical for certification purposes.

**Table 2-1. Nortel Certified Digital Switching Systems**

<b>Software Release 4.5w (See note.)</b>							
<b>Nortel TDM Switch without VoIP</b>	<b>Nortel TDM Switch VoIP Enabled</b>						
Nortel DSN Option 11C Cabinet	Nortel DSN CS1000M Cabinet						
Nortel DSN Option 11C Chassis	Nortel DSN CS1000M Chassis						
<p><b>LEGEND:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">CS - Communications Server</td> <td style="width: 50%;">TDM - Time Division Multiplexer</td> </tr> <tr> <td>DSN - Defense Switched Network</td> <td>SUT - System Under Test</td> </tr> <tr> <td>M - Meridian</td> <td>VoIP - Voice over Internet Protocol</td> </tr> </table> <p><b>NOTE:</b> The SUT was tested with the Nortel DSN CS1000M Cabinet with software release 4.5w and specified Product Enhancement Packages as listed in reference (e). The other certified Digital Switching Systems with software release 4.5w listed in this table use the same software and trunk/line card hardware and the SUT is also certified for use with these switches.</p>		CS - Communications Server	TDM - Time Division Multiplexer	DSN - Defense Switched Network	SUT - System Under Test	M - Meridian	VoIP - Voice over Internet Protocol
CS - Communications Server	TDM - Time Division Multiplexer						
DSN - Defense Switched Network	SUT - System Under Test						
M - Meridian	VoIP - Voice over Internet Protocol						

**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.



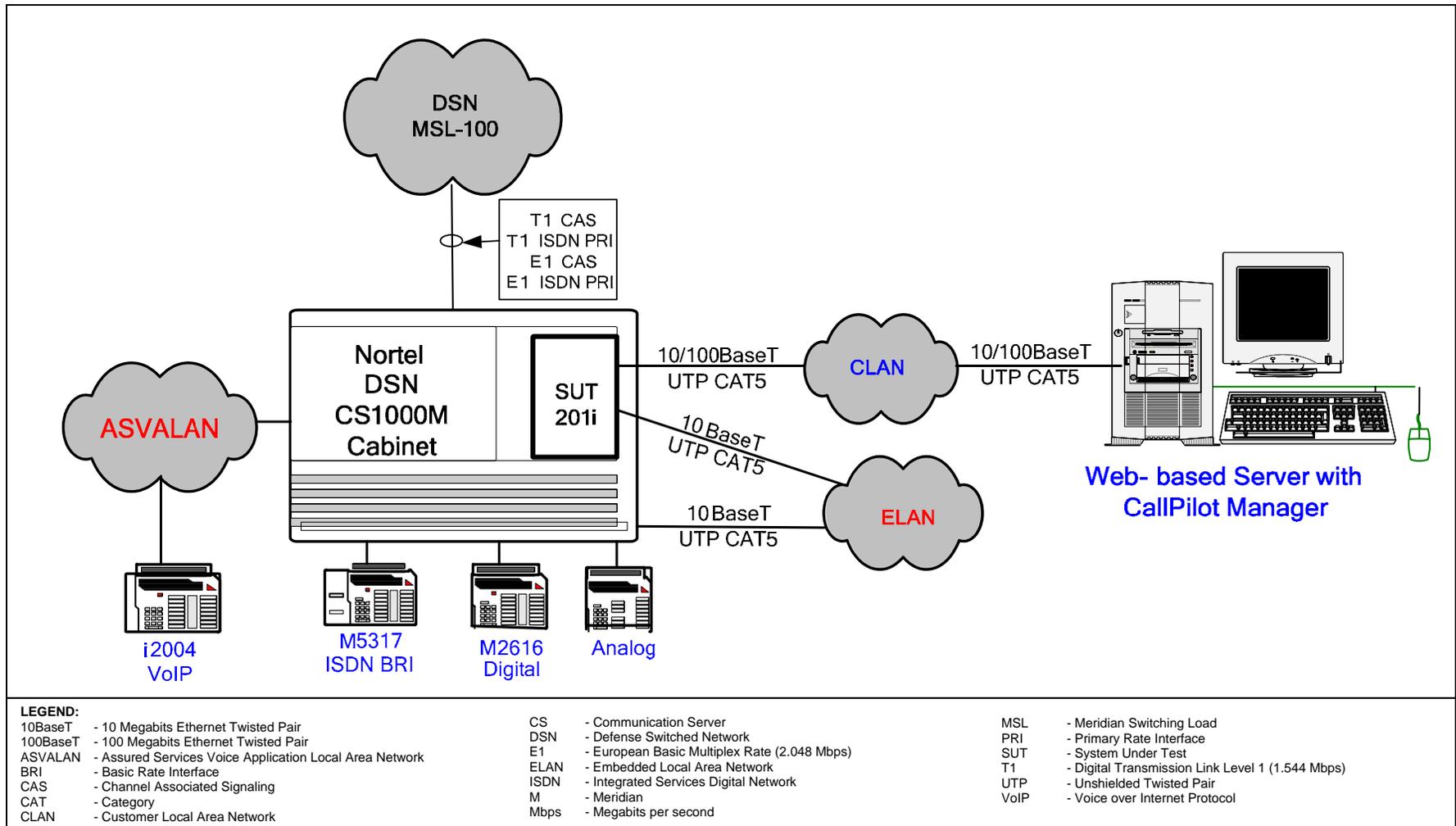
**Figure 2-1. DSN Architecture**

**7. REQUIRED SYSTEM INTERFACES.** Requirements specific to the SUT and interoperability results are listed in table 2-2. These requirements are derived from the GSCR Interface and Functional Requirements verified through JITC testing.

**Table 2-2. SUT Functional Requirements and Interoperability Status**

Interface	Critical	Certified	Functional Requirements	Status	Reference
Voice Messaging System via the 201i card via backplane	Yes	Yes	FCC Part 15/Part 68 (R)	Met	A7.5
			MLPP in accordance with GSCR Paragraph 3.3 (R)	Met	A7.5.5
	Yes	See note.	Security (R)	See note.	A7.6.5
<b>LEGEND:</b> A - GSCR Appendix DISA - Defense Information Systems Agency FCC - Federal Communications Commission GSCR - Generic Switching Center Requirements MLPP - Multi-Level Precedence and Preemption R - Required SUT - System Under Test					
<b>NOTE:</b> Information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report.					

**8. TEST NETWORK DESCRIPTION.** The SUT was tested at 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 configuration depicted in figure 2-2.



**Figure 2-2. SUT Internal 201i Test Configuration**

**9. SYSTEM CONFIGURATIONS.** Table 2-3 provides the system configurations and their respective software used in the test.

**Table 2-3. Tested System Configurations**

System Name	Hardware/Software Release		
Nortel MSL-100	SE08 with specified software patches		
Nortel DSN CS1000M Cabinet	Software Releases 4.5w with specified Product Enhancement Packages	<b>Instrument</b>	<b>Firmware</b>
		M5317 ISDN BRI	Version 5.0 1999
		M2616 2-Wire Digital Proprietary	N/A
		Analog	N/A
		i2001 IP	0604D96
		i2002 IP	0604D96
SUT		<b>Sub Components</b>	<b>Software/Firmware</b>
		201i Voice Messaging card	Software Release 4.0 Build 04.04.04
		Web Server	WIN2003 Server SP1 IIS
<b>LEGEND:</b> BRI - Basic Rate Interface CS - Communications Server DSN - Defense Switched Network IIS - Internet Information Services IP - Internet Protocol ISDN - Integrated Services Digital Network M - Meridian MSL - Meridian Switching Load N/A - Not Applicable SE - Succession Enterprise SP1 - Service Pack 1 SUT - System Under Test WIN - Windows			

**10. TEST LIMITATIONS.** None.

**11. TEST RESULTS**

**a. Discussion. Voice mail interaction with Multi-Level Precedence and Preemption (MLPP).** The Nortel DSN CS1000M Cabinet voice mail system using the SUT in the configuration depicted in figure 2-2 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 following instruments: Meridian (M)2616, (Digital Proprietary), i2004, i2002, i2001 (Internet Protocol [IP] sets), analog, and the M5317 Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) set. Intra-switch and inter-switch calls were placed to subscribers on the Succession DSN CS1000M Cabinet-assigned voice mail at different precedence levels 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 or 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.

**b. Lesson Learned.** The M5317 ISDN BRI set requires two lines to be configured and its class of service to be set to HTA (Hunting Allowed) and FND (Call Forward No Answer Denied) in order to work successfully with the SUT.

**c. Test Summary.** The SUT meets the critical interoperability requirements for a customer premise equipment automated receiving device in accordance with appendix 7 of the GSCR, and is certified for joint use within the DSN specifically with the switches and associated software listed in table 2-1.

**12. TESTS 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 <https://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>.