DEFENSE INFORMATION SYSTEMS AGENCY
JOINT INTEROPERABILITY TEST COMMAND
FORT HUACHUCA, ARIZONA 85613-7020

IN REPLY REFER TO: Networks, Transmission and Intelligence Division (JTE)

MEMORANDUM FOR DISTRIBUTION *Signed April 15, 2002*

SUBJECT: Joint Interoperability Test Certification of Nortel Networks MSL-100 Digital Switching System Software Release MSL-15 with specified Software Patch Groups

Reference: (a) DOD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 11 January 2002

(b) CJCSI 6212.01B, "Interoperability and Supportability of National Security Systems and Information Technology Systems," 8 May 2000

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 enclosure 1.

2. The Nortel Networks Digital Switching System Software Release 15 with specified Software Patch Groups was tested by the JITC using the test procedures described in reference (d). The Nortel Networks Multi-Function Switch (MFS) and End Office Switch (EOS) with Software Release 15 (specified Software Patch Groups) meet the critical interoperability requirements, and are certified for joint use in the Defense Information System Network (DISN). The Remote Switching Unit (RSU) was also tested, but did not meet critical interoperability requirements and is not certified. Voice over Internet Protocol (VoIP) was not tested and is not covered by this certification. This certification expires upon systems changes that affect interoperability, but no later than three years from the date of this memorandum.

JITC Memo, Networks, Transmission and Intelligence Division (JTE), Joint Interoperability Test Certification of Nortel Networks MSL-100 Digital Switching System Software Release MSL-15 with specified Software Patch Groups

3. This certification is based on interoperability testing conducted 19 June 2001 through 7 November 2001 at the JITC, Fort Huachuca, Arizona. Additionally, this certification includes a review of letters of compliance submitted by Nortel Networks. The Certification Testing Summary (enclosure 2) provides more details about the test.

4. Enclosure 3 lists the specified Software Patch Group Identification Numbers (IDs) applied to the MSL-100 Software Release MSL-15 (hereafter referred to as the system under test (SUT)) for certification. The SUT was tested in accordance with the requirements set forth in reference (c).

5. The Internal Overload Control (IOC) requirement was not tested, but is currently operational in Nortel Networks MSL-100 switches in the Defense Switched Network (DSN) and commercial networks. IOC has been fielded for several years. Based on current performance, there has been no negative operational impact associated with this requirement. Nortel Networks is researching a method to invoke an overload condition in the laboratory environment. Until such time, this requirement will remain untested by JITC.

6. The SUT does not support Multilevel Precedence and Preemption (MLPP) interaction with telephones assigned the Multiple Appearance Directory Number (MADN) option. This option applies to Electronic Key Telephone Service (EKTS) Integrated Services Digital Network Basic Rate Interface (ISDN BRI) telephones, proprietary "P Phones," and analog telephones. EKTS is a non-critical requirement so the SUT can be certified even tough the MADN functionality of the MSL-100 is not certified for use in the DSN.

7. Network Management (NM) capabilities of the MSL-100 platform were tested in accordance with the new DISA NS53 requirements as set forth in references (f) and (g). Nortel Networks MSL-100 meets the NM requirements through the use of either serial or Ethernet connections.

8. JITC disseminates certification-testing information to the Department of Defense (DOD) community via the Joint Interoperability Tool (JIT), which resides on the Secret Internet Protocol Router Network (SIPRNET) at http://199.208.204.125/ or at http://198.17.54.202/ (mirror site), and on the Unclassified but Sensitive Internet Protocol

Router Network (NIPRNET) at http://jit.fhu.disa.mil/. A copy of this certification memorandum and the Certification Testing Summary will be available on the JIT. Instructions for obtaining access to JIT information are contained in the above homepages.

9. The JITC point of contact is Mr. John Gese, DSN 879-5164 commercial (520) 538-5164, FAX DSN 879-4347 or E-mail to gesej@fhu.disa.mil.

FOR THE COMMANDER:

3 Enclosures:
1 Additional References
2 Certification Testing Summary
3 MSL-15 Software Patch Group Identification Numbers

LESLIE F. CLAUDIO
Chief
Networks, Transmission and Intelligence Division

Distribution:
Joint Staff J6I, Joint Chief of Staff, Room-1E833, Pentagon, Washington, DC 20318-6000
Joint Interoperability Test Command, Indian Head Division, NSWC, ATTN: JTCA-IPTP, Building 900, 101 Strauss Avenue, Indian Head, MD 20640-5035
Defense Information Systems Agency, Joint Interoperability Engineering Organization, ATTN: Code JECO, 5600 Columbia Pike, Suite 240, Falls Church, VA 22041
Chief Naval Operations/N6, Department of the Navy/N62/CTCS, 2000 Navy Pentagon, Washington, DC 20350
Deputy Chief of Staff for Communications and Information, AF/SCT, 1250 Air Force Pentagon, Washington, DC 20330-1250
Department of the Army, Office of the Secretary of the Army, Office Symbol SAIS-IAA, 107 Army Pentagon DISC4, Washington, DC 20310
United States Marine Corps, MARCORSYSCMD, C4I Directorate, Suite 315, 2033 Barnett, Quantico, VA 22134-5010
Defense Intelligence Agency/DS-MB1, Building 6000, Bolling AFB, Washington, DC 20340-3342
Office of Secretary of Defense, Director of Operational Test and Evaluation, Room-3D1067, 1700 Defense Pentagon, Washington, DC 20301-1700

JITC Memo, Networks, Transmission and Intelligence Division (JTE), Joint Interoperability Test Certification of Nortel Networks MSL-100 Digital Switching System Software Release MSL-15 with specified Software Patch Groups

Office of Secretary of Defense, Director of Operational Test and Evaluation, Room-3A1073, 1700 Defense Pentagon, Washington, DC 20301-1700
Office of Assistant Secretary of Defense, C3I/I3 Directorate, Crystal Mall 3, 7th Floor, 1931 Jefferson Davis Highway, Arlington, VA 22202
Deputy Director for I/O Testing, Office of Under Secretary of Defense, AT&L Interoperability, Room 3C261, Pentagon, Washington, DC 20301
United States Joint Forces Command, J6I, C4 Plans and Policy, 1562 Mitscher Ave, Norfolk, VA 23551-2488
United States Coast Guard, COMDT/G-SCE (C4), 2100 2nd Street SW, Washington, DC 20593
JS-J38, JCS, Pentagon, Washington, DC 20318

ADDITIONAL REFERENCES

(c) 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

(d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP)," 17 June 1999

(e) "Nortel Networks MSL-100 Global Customer Support Joint Testing Procedures," release(s) 01, 02, 23 October 1998

(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

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. Nortel Networks MSL-100 Digital Switching System, with Software Release MSL-15 (specified Software Patch Groups).

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

3. PROGRAM MANAGER. Mr. Howard Osman, NS53, Room 5W23, 5275 Leesburg Pike, Falls Church, VA 22041, E-mail: Osmanh@ncr.disa.mil.

4. TESTERS. Joint Interoperability Test Command (JITC), Fort Huachuca, AZ.

5. SYSTEM UNDER TEST DESCRIPTION. The Nortel Networks MSL-100 Digital Switching System is used within the Defense Information Systems Network (DISN) to provide both End Office Switch (EOS) and Multi-Function Switch (MFS) functionality. Nortel Networks MSL-100 switching equipment is currently deployed in Europe, the Pacific, and is the backbone digital switching system for Continental United States (CONUS).

6. OPERATIONAL ARCHITECTURE. The Nortel Networks MSL-100 Digital Switching System, Software Release MSL-15 with specified Software Patch Groups listed in enclosure 3, was tested at the JITC's Network Engineering and Integration Laboratory (NEIL) and Strategic Switching Laboratory (SSL). Testing was conducted in a manner and configuration similar to that of the Defense Switched Network (DSN) operational environment. This test was completed using two configurations. Testing of the system's required functions and features was conducted using the test configuration depicted in figure 1. The configuration depicted in figure 2 is representative of the DSN operational environment and was used to complete the network integration sub-test.

7. REQUIRED SYSTEM INTERFACES. Nortel Networks MSL-100 Digital Switching System with Software Release MSL-15, hereafter referred to as the system under test (SUT), must interface with current DSN equipment as defined by the Generic Switching Center Requirements (GSCR). Functional interface requirements that must be met for interoperability certification are listed in table 1 along with the Generic Switch Test Plan (GSTP) criteria paragraph.

Table 1. GSCR Functional Interface Requirements

GSCR Functional Interface Requirements	DSN GSTP Criteria para(s)	Critical	GSCR Requirement para(s)
Preset Conference	II-1.2	Yes	2.2.3, 21.3
Multi-Level Precedence and Preemption	II-2.2	Yes	2.2.1 5.3.4.3 through 5.3.4.9

Table 1. GSCR Functional Interface Requirements (continued)

GSCR Functional Interface Requirements	DSN GSTP Criteria para(s)	Critical	GSCR Requirement para(s)
Hotline Services	II-3.2	Yes	21.3.10
System Interface	II-4.2	Yes	10.1 through 10.12
Common Channel Signaling/Signaling System Number 7 (CCS/SS7)	II-5.2	No	6.5 2.2.5
Integrated Services Digital Network	II-6.2	No	6.6, 21.1 21.2, 21.3
Attendant Services	II-7.2	Yes	2.1.3
System Admin, Measurements, and Service Standards	II-8.2	No	9.1 through 9.5
Y2K Rollover Dates	II-9.2	Yes	NA
Y2K Valid Set Dates	II-10.2	Yes	NA
Y2K Invalid Set Dates	II-11.2	Yes	NA
Screening, Zone Restriction, and DSN Access Restriction	II-12.2	Yes	5.3.4
Community of Interest	II-13.2	No	2.2.2
Automatic Message Accounting	II-14.2	Yes	8.1
Call Treatments	II-15.2	Yes	5.2
Essential Service Protection	II-16.2	No	5.3.9
Internal Overload Control	II-17.2	No	5.3.8
Automatic Call Gap	II-18.2	Yes	16.5.3 16.6.3
DSN Announcements	II-19.2	Yes	5.6
Nailed-Up Connections	II-20.2	No	2.2.4
Network Integration	II-21.2	No	2.2.1, 2.2.5, 6.5.2, 6.5.10-11, 6.6, 10.5.5 5.3.4.7
Tactical Switch/DSN Interoperability	II-22.2	No	10.6
Advanced Defense Switched Network Integrated Management Support System (ADIMSS)	II-23.2	Yes	2.1.10, 16.1

Table 1. GSCR Functional Interface Requirements (continued)

GSCR Functional Interface Requirements	DSN GSTP Criteria para(s)	Critical	GSCR Requirement para(s)
Common Data Channel (CDC)	II-24.2	No	See Note
Electronic Key Telephone Service (EKTS)	II-25.2	No	21.2
Notes: CDC is an optional requirement unique to DISN-Europe. Switches that have a requirement to interface to the DSN European KNS-4100 switches must be capable of passing CDC links transparently.			

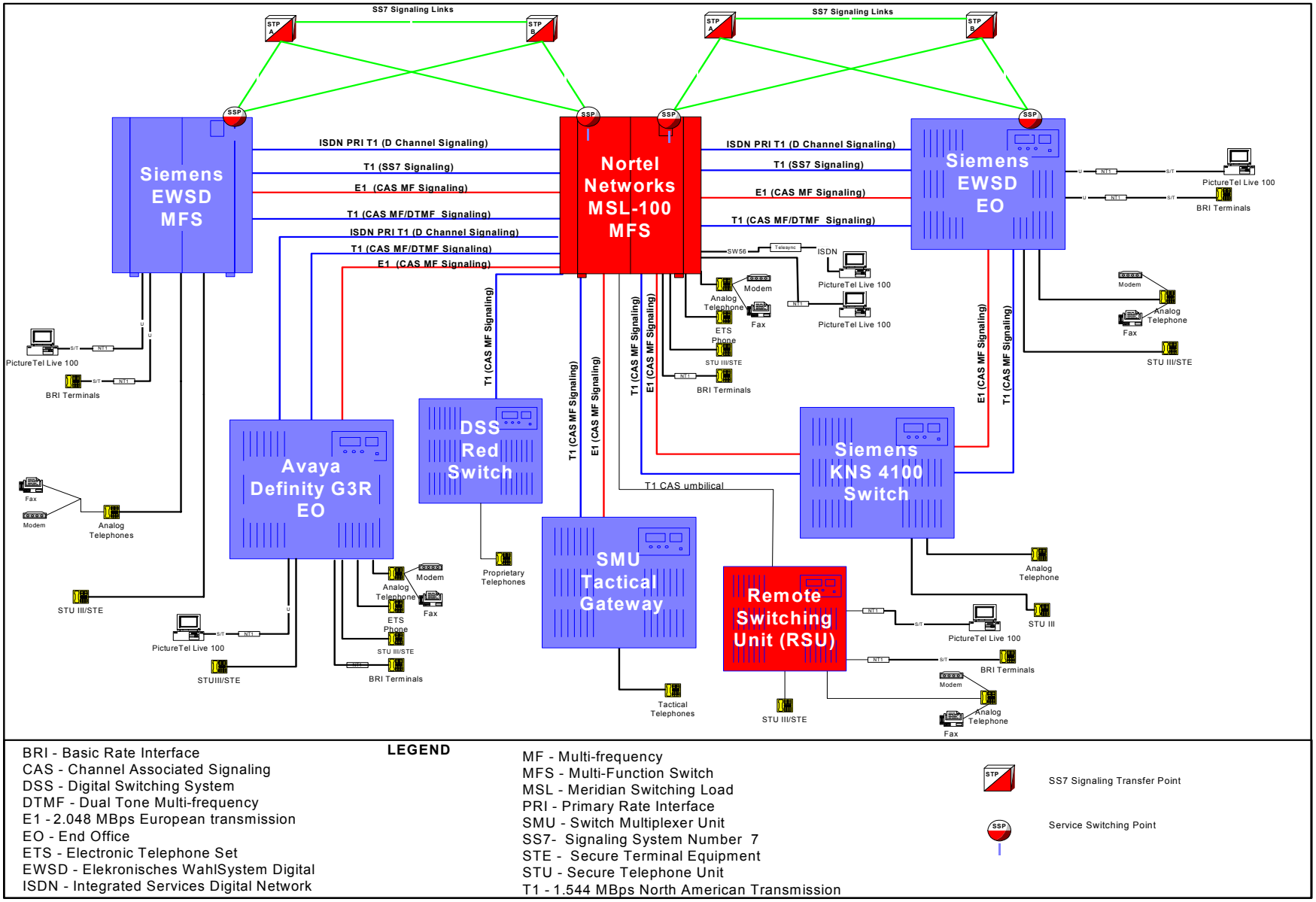
8. TEST NETWORK DESCRIPTION. Interfaces tested between the SUT and the other switches identified in figures 1 and 2 accurately emulate that of the DSN operational environment.

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

Table 2. Tested System Configurations

System Name	Hardware	Software
MSL-100	RISC Processor	MSL-15 with Software Patch Groups, DSN00BLF, DSN01BCL, DSN02BTZ, XQM66X5A, XQM67X5S, XRR99X5A, XTA90X5S
Avaya Definity G3R	RISC Processor	Version 8.2
Siemens EWSD	CP 113C	Version 18 with Patch Set 17++
Tekelec Eagle STP	Eagle Data Packet Switch	Release 23.1
Siemens KN(S)4100	SAB 8086 Processor	APS4V2.3
SMU 96 Tactical Gateway	Litton Processor	Version RD302185
DSS Red Switch	Force Board Processor	Version 8.03
MARCONI ATM switch ASX-1000 and ASX-200BX	SCP-I960 Processor	Versions 6.0.1 and 6.2

10. TESTING LIMITATIONS. None



LEGEND

BRI - Basic Rate Interface
CAS - Channel Associated Signaling
DSS - Digital Switching System
DTMF - Dual Tone Multi-frequency
E1 - 2.048 MBps European transmission
EO - End Office
ETS - Electronic Telephone Set
EWSD - Elekronisches WahlSystem Digital
ISDN - Integrated Services Digital Network
MF - Multi-frequency
MFS - Multi-Function Switch
MSL - Meridian Switching Load
PRI - Primary Rate Interface
SMU - Switch Multiplexer Unit
SS7- Signaling System Number 7
STE - Secure Terminal Equipment
STU - Secure Telephone Unit
T1 - 1.544 MBps North American Transmission

STP - SS7 Signaling Transfer Point
SSP - Service Switching Point

Figure 1. Test Configuration

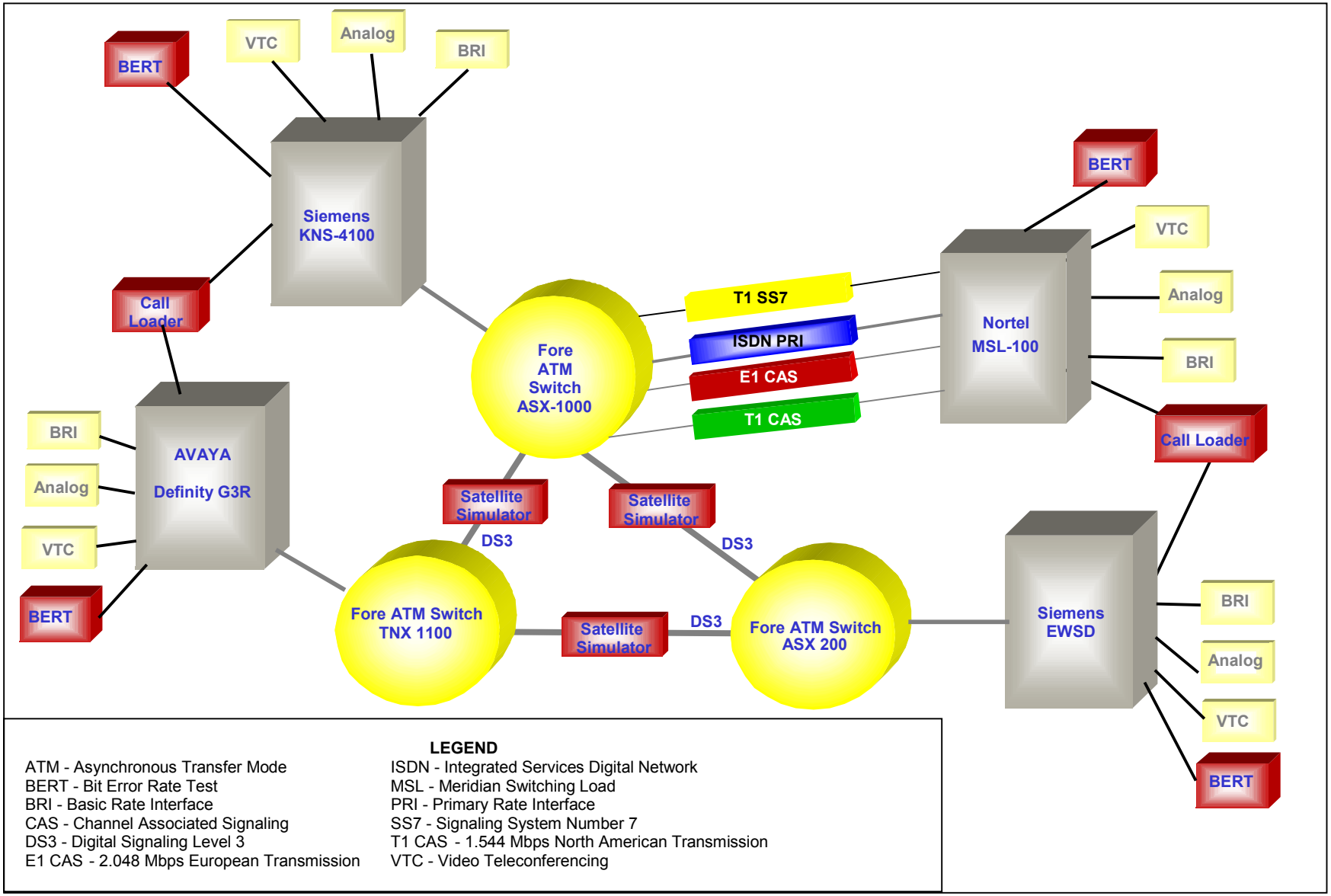


Figure 2. Network Integration Test Configuration

11. TEST RESULTS. Table 3 synopsizes the SUT test results. Paragraph 12 provides a detailed discussion of test results and discussion of any test discrepancies for each of the functional interface requirements. The identified test discrepancies shown below denote only those test discrepancies that remained open after testing was completed and after software patches were applied.

Table 3. MSL-100 Digital Switching System Software Release MSL-15 Test Results

Sub-Test D-1 Preset Conference					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-1.1	Switch Capacity	Yes	No	II-1.2.a	2.2.3
D-1.2	Originations and Recordings	Yes	Yes	II-1.2.b-d	2.2.3 2.2.3.1
D-1.3	MLPP Interaction, Auto Redial, Alternate Address, Bridge Release, Secondary Conference, Preset Conference, and ISDN Interoperability	Yes	No	II-1.2.e-i	2.2.3.2 2.2.3.3 2.2.3.4 2.2.3.5 2.2.3.6
D-1.4	ISDN Features	Yes	Yes	II-1.2k	21.3.11.1 21.3.11.2 21.3.11.3
Sub-Test D-2 Multi-Level Precedence and Preemption (MLPP)					
D-2.1	Network Preemption	Yes	No	II-2.2.a-l	2.1.1-3
D-2.2	Call Waiting	Yes	No	II-2.2.k.1	5.3.4.7.1
D-2.3	Call Hold	Yes	No	II-2.2.k.2	5.3.4.7.2
D-2.4	Call Forward Busy Station	Yes	No	II-2.2.k.3	5.3.4.7.3
D-2.5	Call Forward No Reply	Yes	No	II-2.2.k.4	5.3.4.7.4
D-2.6	Call Transfer	Yes	No	II-2.2.k.5	5.3.4.7.5
D-2.7	Conference Calling	Yes	No	II-2.2.k.6	5.3.4.7.6
D-2.8	Precedence Calls to a Remote Office	Yes	No	II-2.2.k.9	5.3.4.7.9
D-2.9	Circular Line Hunting	Yes	No	II-2.2.k.11	5.3.4.7.7
Sub-Test D-3 Hotline Services					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-3.1	Hot Line Services	Yes	No	II-3.2.a-f	21.3.10

Table 3. MSL-100 Digital Switching System Software Release MSL-15 Test Results (continued)

Sub-Test D-4 System Interface					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-4.1	PCM-24 T1	Yes	No	II-4.2.a.1	10.2.1
D-4.2	PCM-30 E1	Yes	No	II-4.2.a.2	10.2.1
D-4.3	ISDN BRI	Yes	No	II-4.2.a.3	10.2.2
D-4.4	ISDN PRI	Yes	No	II-4.2.a.4	10.5.5
Sub-Test D-5 CCS/SS7					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-5.1	Signaling Link Characteristics	Yes	No	II-5.2.b-e	6.5.2
D-5.2	Signaling Network Mgmt. Performance Measurements	Yes	No	II-5.2.f-l	6.5.4
D-5.3	MTP/ISUP Analysis-Analog	Yes	No	II-5.2.m	2.2.5 6.5.10.1.c 6.5.11
D-5.4	MTP/ISUP Analysis-ISDN Users	Yes	No	II-5.2.m	Same as D-5.3
D-5.5	MTP/ISUP Analysis-Call to Busy Station	Yes	No	II-5.2.m	Same as D-5.3
D-5.6	SS7/MF Interworking	Yes	No	II-5.2.a	6.5.10
D-5.7	SS7/MLPP Interworking	Yes	No	II-5.2.a	6.5.11
D-5.8	SCCP Capabilities	Yes	No	II-5.2.g-h	6.5.5
Sub-Test D-6 Integrated Services Digital Network (ISDN)					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-6.1	BRI/SS7 Interworking	Yes	No	II-6.2.a	21.1
D-6.2	PRI/SS7 Interworking	Yes	No	II-6.2.a	21.2
D-6.3	BRI/SS7 Interworking	Yes	No	II-6.2.b	21.2
D-6.4	PRI/SS7 Interworking	Yes	No	II-6.2.b	21.2

Table 3. MSL-100 Digital Switching System Software Release MSL-15 Test Results (continued)

Sub-Test D-6 Integrated Services Digital Network (ISDN) (continued)					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-6.5	MLPP and Interaction with other Services	Yes	Yes	II-6.2.c.1	21.3 21.3.1
D-6.6	Supplemental Services Conference Calling	Yes	Yes	II-6.2.c.2	21.3.2
D-6.7	Supplemental Service, User to User Signaling	Yes	Yes	II-6.2.c.3	21.3.3
D-6.8	Supplemental Service, Call Hold	Yes	Yes	II-6.2.c.4	21.3.4
D-6.9	Supplemental Service, Call Waiting	Yes	Yes	II-6.2.c.5	21.3.5
D-6.10	Supplemental Service, Normal Call Transfer	Yes	Yes	II-6.2.c.6	21.3.6
D-6.11	Supplemental Service, Explicit Call Transfer	Yes	Yes	II-6.2.c.7	21.3.7
D-6.12	Supplemental Service, ISDN Call Deflection	Yes	Yes	II-6.2.c.8	21.3.8
D-6.13	Supplemental Service, Community of Interest	Yes	No	II-6.2.c.9	21.3.9
D-6.14	Supplemental Service, Hotline	Yes	No	II-6.2.d	21.3.10
D-6.15	Supplemental Service, Preset Conference Calling	Yes	Yes	II-6.2.e	21.3.11
D-6.16	DSN ISDN User to Network Signaling	Yes	No	II-6.2.f	21.3.11.8
D-6.17	Messaging	Yes	No	II-6.2.g	21.3.11.9

Table 3. MSL-100 Digital Switching System Software Release MSL-15 Test Results (continued)

Sub-Test D-7 Attendant Services					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-7.1	Call Display	Yes	No	II-7.2.a	2.1.3.2
D-7.2	Class of Service Override	Yes	No	II-7.2.b	2.1.3.3
D-7.3	Busy Override and Busy Verification	Yes	No	II-7.2.c	2.1.3.4
D-7.4	Interposition Calling	Yes	No	II-7.2.d	2.1.3.5
D-7.5	Interposition Transfer	Yes	No	II-7.2.e	2.1.3.6
D-7.6	Call Extension	Yes	No	II-7.2.f	2.1.3.7
D-7.7	Call Hold	Yes	No	II-7.2.g	2.1.3.8
D-7.8	Two Party Hold	Yes	No	II-7.2.h	2.1.3.9
D-7.9	Unattended Console	Yes	No	II-7.2.i	2.1.3.10
D-7.10	Audible Call Indicators	Yes	No	II-7.2.j	2.1.3.11
D-7.11	Automatic Recall of Attendant	Yes	No	II-7.2.k	2.1.3.12
Sub-Test D-8 System Administration, Measurements, and Service Standards					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-8.1	Traffic Measurements	Yes	No	II-8.2.a	9.2.2.1
D-8.2	Database Management	Yes	No	II-8.2.b	9.5
Sub-Test D-9 Y2K Rollover Dates					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-9.1	Date Transition Test	Yes	No	II-9.2	None
Sub-Test D-10 Y2K Valid Set Dates					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-10.1	Valid Set Dates	Yes	No	II-10.2	None

Table 3. MSL-100 Digital Switching System Software Release MSL-15 Test Results (continued)

Sub-Test D-11 Y2K Invalid Set Dates					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-11.1	Invalid Set Dates	Yes	No	II-11.2	None
Sub-Test D-12 Screening, Zone Restriction, and DSN Access Restriction					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-12.1	Zone Restriction Capacity	Yes	No	II-12.2.b	5.3.4.2
D-12.2	DSN Access Restriction	Yes	No	II-12.2.c	5.3.4.3
D-12.3	Screening	Yes	No	II-12.2.a	5.3.4
D-12.4	Zone Restriction	Yes	No	II-12.2.b	5.3.4.2
Sub-Test D-13 Community of Interest (COI)					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-13.1	Switch Capacity	Yes	No	II-13.2.a	2.2.2.1
D-13.2	COI General Treatment	Yes	No	II-13.2.b	2.2.2.1
D-13.3	COI Precedence Treatment	Yes	No	II-13.2.c	2.2.2.2
Sub-Test D-14 Automatic Message Accounting (AMA)					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-14.1	AMA Call Detail Record	Yes	No	II-14.2	8.1
Sub-Test D-15 Call Treatments					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-15.1	Originating Busy Treatment	Yes	No	II-15.2.a	5.2.1.1
D-15.2	Busy/Idle Status Treatment	Yes	No	II-15.2.b	5.2.2.1
Sub-Test D-16 Essential Service Protection (ESP)					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-16.1	ESP	Yes	No	II-16.2.a	5.3.9

Table 3. MSL-100 Digital Switching System Software Release MSL-15 Test Results (continued)

Sub-Test D-17 Internal Overload Control (IOC)					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-17.1	IOC	No	No	II-17.2.a-f	5.3.8
Sub-Test D-18 Automatic Call Gap (ACG)					
Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-18.1	Automatic Call Gap	Yes	No	II-18.2.a-c	16.5.3.2
D-18.2	Manual Call Gap	Yes	No	II-18.2.a-c	16.6.3.1
D-18.3	CanF,CanT, and SKIP	Yes	No	II-18.2.a-c	16.6.3.2
Sub-Test D-19 DSN Announcements					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-19.1	DSN Announcement Capacity	Yes	No	II-19.2.a	5.6
D-19.2	DSN Announcement	Yes	No	II-19.2.b-c	5.6
Sub-Test D-20 Nailed Up Connections					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-20.1	Nailed Up Connections	Yes	No	II-20.2	2.2.4
Sub-Test D-21 Network Integration					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-21.1	MLPP	Yes	No	II-21.2	2.2.1 5.3.4.7
D-21.2	System Interface	Yes	No	II-21.2	2.2.1 10.5.5
D-21.3	CCS/SS7	Yes	No	II-21.2	6.5.2 2.2.5 6.5.10-11 6.6

Table 3. MSL-100 Digital Switching System Software Release MSL-15 Test Results (continued)

Sub-Test D-22 Tactical Switch/DSN Interoperability					
DSN GSTP Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-22.1	DSN Switch to Tactical Elements	Yes	No	II-22.2	None
Sub-Test D-23 Advanced Defense Switched Network Integrated Management Support System (ADIMSS)					
Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-23.1	Performance Management	Yes	No	II-23.2.a	2.1.10
Sub-Test D-24 Common Data Channel (CDC)					
Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-24.1	CDC	Yes	No	II-24.2.a	Optional
Sub-Test D-25 Electronic Key Telephone Service (EKTS)					
Test Title		**Tested**	**Test Discrepancies**	**DSN GSTP Criteria para(s)**	**GSCR Requirement para(s)**
D-25.1	EKTS	Yes	Yes	II-25.2.a	21.2

12. DISCUSSION. The following subparagraphs explain in further detail the test results and assesses interoperability compliance to the GSCR requirements.

a. D-1 Preset Conference.

(1) The test procedures in this sub-test were conducted with the exception of Integrated Services Digital Network Basic Rate Interface (ISDN BRI) Preset Conference Calling Supplemental Service requirement. This requirement will not be satisfied until a later software release. This discrepancy will have no operational impact, because there are currently no switches in the DISN that support ISDN BRI Supplemental Services. The SUT met all the GSCR interoperability requirements for Preset Conference, with the following exceptions:

(a) The SUT does not support the unique ISDN BRI Preset Conference Calling Supplemental Service requirements identified in GSCR paragraph 21-3.11.

(b) The SUT supports the removal of the preset conference notification tone by an originator of an inter-switch preset conference call by pressing the # or A key, but the removal of the preset conference notification announcement is

not supported. Removal of a preset conference notification tone and announcement by an originator of an intra-switch preset conference call is also supported.

(2) The SUT does not meet all of the GSCR interoperability requirements for Preset Conference, however, exceptions have no operational impact or adverse effects on capabilities essential for mission accomplishment.

b. D-2 Multi-Level Precedence and Preemption (MLPP). The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for MLPP.

c. D-3 Hotline Services. The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for Hotline Services.

d. D-4 System Interface. The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for System Interface.

e. D-5 CCS/SS7. The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for CCS/SS7.

f. D-6 Integrated Services Digital Network (ISDN). The test procedures for this sub-test were conducted. The SUT meets all the GSCR interoperability requirements, with the following exceptions:

(1) The SUT does not support the following unique ISDN BRI Supplemental Services as specified in the GSCR paragraphs listed below. Nortel Networks MSL-100 will not satisfy these requirements until later software releases. There are currently no switches in the DISN that support ISDN BRI Supplemental Services; therefore, this discrepancy will have no operational impact.

- Conference Calling. GSCR Para. 21.3.2
- User to User Signaling. GSCR Para. 21.3.3
- Call Hold. GSCR Para. 21.3.4
- Call Waiting. GSCR Para. 21.3.5
- Normal Call Transfer. GSCR Para. 21.3.6
- Explicit Call Transfer. GSCR Para. 21.3.7
- ISDN Call Deflection. GSCR Para. 21.3.8
- Preset Conference Calling. GSCR Para. 21.3.11

(2) The SUT does not support MLPP interaction with telephones assigned the Multiple Appearance Directory Number (MADN) option. This option applies to Electronic Key Telephone Service (EKTS) Integrated Services Digital Network Basic Rate Interface (ISDN BRI) telephones, proprietary "P Phones," and

analog telephones. The SUT does not support MLPP interaction with these instruments because the assignment of both Preemptable (PREMTBL) and MADN options simultaneously on the same instrument is not permitted. Therefore, the MADN functionality of the MSL-100 is not certified for use in the DSN.

g. D-7 Attendant Services. The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for Attendant Services.

h. D-8 System Administration, Measurements, and Service Standards. The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for System Administration, Measurements, and Service Standards.

i. D-9 Year 2000 (Y2K) Rollover Dates. The test procedures were conducted in this sub-test and no discrepancies were noted. The SUT responded properly to all rollover dates and meets all interoperability requirements for Y2K Rollover Dates.

j. D-10 Y2K Valid Set Dates. The test procedures were conducted in this sub-test and no discrepancies were noted. The SUT responded properly to all valid set dates and meets all interoperability requirements for Y2K Valid Set Dates.

k. D-11 Y2K Invalid Set Dates. The test procedures were conducted in this sub-test and no discrepancies were noted. The SUT responded properly to all invalid set dates and meets all interoperability requirements for Y2K Invalid Set Dates.

l. D-12 Screening, Zone Restriction, and DSN Access Restriction. The test procedures were conducted in this sub-test and no discrepancies were noted. The SUT meets all GSCR interoperability requirements for Screening, Zone Restriction, and DSN Access Restriction.

m. D-13 Community of Interest (COI). The test procedures were conducted in this sub-test and no discrepancies were noted. The SUT meets all GSCR interoperability requirements for COI.

n. D-14 Automatic Message Accounting (AMA). The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for AMA.

o. D-15 Call Treatments. The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for Call Treatments.

p. D-16 Essential Service Protection (ESP). All test procedures were conducted in this sub-test and no discrepancies were noted. The SUT meets all GSCR interoperability requirements for Essential Service Protection.

q. D-17 Internal Overload Control (IOC). This requirement was not tested. Conditions could not be implemented to invoke IOC in the test laboratory, however, this function is currently operational in both the DISN and commercial networks. To date, this feature has no known reported discrepancies.

r. D-18 Automatic Call Gap (ACG). D-18 ACG comprises Manual Controls (i.e. CANF, CANT, SKIP) and SS7 Auto Call Gap. The manual control test procedures were conducted in this sub-test and no discrepancies were noted. The SUT meets all GSCR interoperability requirements for Manual Controls. SS7 Automatic Call Gap will be tested as part of the SS7 Signaling Transfer Point (STP) testing.

s. D-19 DSN Announcements. The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for DSN Announcements.

t. D-20 Nailed-Up Connections. The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for Nailed-Up Connections.

u. D-21 Network Integration. All applicable test procedures in this sub-test were conducted and no discrepancies were noted. Sub-tests D-2, D-4, and D-5 were re-tested over the network shown in figure 2. The SUT meets all GSCR interoperability requirements for Network Integration.

v. D-22 Tactical Switch/DSN Interoperability. The test procedures in this sub-test were conducted with no noted discrepancies. The SUT meets all GSCR interoperability requirements for Tactical Switch/DSN Interoperability.

w. D-23 Advanced Defense Switched Network Integrated Management Support System (ADIMSS). The test procedures for this sub-test were conducted with no noted discrepancies. The interface tested between the MSL-100 and ADIMSS was comprised of four asynchronous serial connections. Additionally, the Ethernet Interface Unit (EIU) was tested and was verified to pass required Network Management data elements to ADIMSS. The X.25 interface capability was not tested, however the SUT meets the requirements described in reference (f).

x. D-24 Common Data Channel (CDC). CDC has been implemented on the KNS-4100 switching systems deployed in Europe. Switches that have a requirement to interface to the DSN European KNS-4100 switches must be capable of passing CDC links transparently. It was verified that the SUT could correctly interface with the KNS-4100 to pass CDC links.

y. D-25 Electronic Key Telephone Service (EKTS). The test procedures for this sub-test were conducted for EKTS in accordance with the GSCR paragraph 21.2, table 21-3 with following results:

(1) Multiple Directory Numbers (DNs) per terminal. The SUT meets all the requirements for multiple DNs per Terminal of an EKTS group.

(2) Analog Member of an EKTS Group. The SUT meets all the requirements for assignment of an analog member to an EKTS group.

(3) Multiple DN Appearances per Call Appearance Call Handling. The SUT meets all the requirements for multiple DN appearances per call appearance call handling of an EKTS group.

(4) Hold and Retrieve. The SUT meets all the requirements for hold and retrieve of an EKTS group.

(5) Bridging and DN-Bridging. The SUT meets all the requirements for bridging and DN-bridging of an EKTS group.

(6) Intercom Calling. The SUT meets all the requirements for intercom calling of an EKTS group.

(7) Membership in a Multi-line Hunt Group. The SUT does not support the assignment of an EKTS member to a multi-line hunt group.

(8) Abbreviated and Delayed Ringing. The SUT meets all the requirements for abbreviated and delayed ringing of an EKTS group.

(9) Automatic and/or Manual Bridged Call Exclusion. The SUT meets all the requirements for automatic and/or manual bridged call exclusion of an EKTS group.

(10) MLPP interaction with an EKTS Group. The SUT does not support MLPP interaction with telephones assigned the MADN option. This option applies to EKTS ISDN BRI telephones, proprietary "P Phones," and analog telephones. The SUT does not support MLPP interaction with these instruments because the assignment of both Preemptable (PREMTBL) and MADN options simultaneously is not permitted.

z. Remote Switching Unit (RSU). The Nortel Networks MSL-100 RSU was tested in standalone and non-standalone modes. The RSU, when connected to the MSL-100 Host, is treated just like an End Office Switch. Therefore, the same test procedures conducted on the MSL-100 Host were conducted on the RSU. The RSU did not meet the critical interoperability certification requirements and is, therefore, not certified for joint use in the Defense Information Systems Network (DISN).

aa. Letter of certification/compliance of "L" and "V" items listed in Table E-1 of Appendix E of the GSTP. The certification/compliance of "L" and "V" items listed in appendix E of the GSTP were satisfied by a letter from Nortel Networks. Nortel Networks MSL-100 with Software Release MSL-15 meets all the certification/compliance category "L" and "V" in Table E-1 of appendix E of the GSTP, with minor exceptions. Exceptions were reviewed and assessed by the Defense Information Systems Agency, Information Transport Engineering Support Organization D6 (DISA, ITESO D6), and determined to have no adverse operational impact.

13. SUMMARY. The Nortel Networks MSL-100 Digital Switching System with Software Release MSL-15, and Software Patch Groups listed in enclosure 3 is certified for use in the DISN, in accordance with the requirements set forth in reference (c). Minor discrepancies identified during testing and the GSCR requirements not tested will have no adverse effects on capabilities essential for mission accomplishment. The status for each functional interface required by the GSCR is provided in table 4.

Table 4. Functional Interface Certification Status Summary

GSCR Functional Interface Requirements	Critical	Status
Preset Conference	Yes	Passed
Multi-Level Precedence and Preemption	Yes	Passed
Hotline Services	Yes	Passed
System Interface	Yes	Passed
CCS/SS7	No	Passed
Integrated Services Digital Network	No	Passed
Attendant Services	Yes	Passed
System Admin, Measurements and Service Standards	No	Passed
Y2K Rollover Dates	Yes	Passed
Y2K Valid Set Dates	Yes	Passed
Y2K Invalid Set Dates	Yes	Passed
Screening, Zone Restriction, and DSN Access Restriction	Yes	Passed
Community of Interest	No	Passed
Automatic Message Accounting	Yes	Passed

Table 4. Functional Interface Certification Status Summary (continued)

GSCR Functional Interface Requirements	Critical	Status
Call Treatments	Yes	Passed
Essential Service Protection	No	Passed
Internal Overload Control	No	Not Tested
Automatic Call Gap	Yes	Passed
DSN Announcements	Yes	Passed
Nailed Up Connections	No	Passed
Network Integration	No	Passed
Tactical Switch/DSN Interoperability	No	Passed
Advanced Defense Switched Network Integrated Management Support System (ADIMSS)	Yes	Passed
Common Data Channel (CDC)	No	Passed
Electronic Key Telephone Service (EKTS)	No	Failed

NORTEL NETWORKS MSL-100 SOFTWARE RELEASE MSL-15
SOFTWARE PATCH GROUP IDENTIFICATION NUMBERS

CM (Front End) Patches								
ACH01BQB	BOL86BTZ	DMG48BCL	ECU34BCL	GEL46BCL	JOR89BHL	QDJ18BCL	SEA39BQB	SWT31BTZ
AEM01BCL	BOL88BHL	DMG49BCL	GEL48BHL	GEL47BCL	JOR90BCL	QDJ19BCL	SEA45BQB	SWT32BQB
BBC60BHL	BOL89BCL	DMG50BHL	ECU36BHL	GEL49BCL	KAA02BQB	QDJ20BCL	SEA49BQB	SWT33BHL
BEC50BCL	BOL90BCL	DMG51BNL	EKW03BQB	GEL50BCL	KCD45BHL	QDJ21BCL	SHN31BCL	SWT40BTZ
BEC55BHL	BOL91BHL	DMG52BHL	EKW04BQB	GEL53BCL	KCD47BCL	QDJ23BCL	SKT31BLF	TLW01BTZ
BEC56BNL	BOL92BCL	DMG53BCL	EKW05BQB	ITN32BTZ	KCD55BHL	QDJ25BCL	SSG04BTZ	TLW02BTZ
BEC58BCL	BOL93BHL	DMG54BNL	EMI01BHL	IVN10BTZ	KCD56BCL	QDJ26BCL	SSG20BTZ	TLW03BTZ
BEC59BCL	BOL94BHL	DMG55BNL	EMI05BCL	IVN11BTZ	KIF08BHL	QDJ30BCL	SSG64BTZ	TLW06BTZ
BEC60BCL	BOL95BNL	DMG58BNL	EOL64BQB	IVN13BTZ	KIJ14BHL	RCX92BLF	SSG66BTZ	TLW07BTZ
BEC61BCL	BOL96BTZ	DMG62BNL	EOL66BQB	IVN14BTZ	KRI24BHL	RDG88BCL	SSG69BTZ	TNT19BQB
BEC65BCL	BOL98BCL	DMG63BCL	EOL67BQB	IVN15BTZ	KRI26BHL	RDG89BNL	SSG71BTZ	TNT20BCL
BEC66BHL	BUM67BCL	DOM46BCL	EOL71BQB	IVN16BTZ	KRU63BCL	RMS17BQB	SSG83BTZ	TNT21BQB
BEC67BTZ	BUZ61BHL	DOT36BQB	EOL72BQB	IVN18BTZ	KRU71BQB	RVI32BTZ	SSG88BTZ	TXS00BCL
BEC68BCL	BUZ62BHL	DOT41BQB	EOL75BQB	IVN20BTZ	LLH04BHL	RVI68BTZ	SST21BQB	TXS01BNL
BEC69BHL	BWB04BTZ	DOT42BQB	EOL79BQB	JFK33BNL	MFS53BHL	RVI69BTZ	SUJ03BCL	VBH13BCL
BEC70BHL	CFX27BTZ	DOT47BQB	EOL82BQB	JFK34BCL	MRK00BNL	RVI71BTZ	SUN25BNL	VBH35BCL
BEC71BCL	CLE01BHL	DOT52BQB	FLY49BNL	JFK35BHL	PJL14BNL	RVI76BTZ	SUN26BNL	VNS58BCL
BEC72BHL	CNL16BTZ	DOT55BQB	GEL30BNL	JFK36BCL	PJL16BHL	RVI78BTZ	SUN30BCL	VNS61BHL
BEC73BCL	CNL19BTZ	DOT58BQB	GEL31BCL	JFK38BNL	PJL18BHL	RVI79BTZ	SUN31BHL	VNS63BCL
BEC75BCL	CNL20BTZ	DOT61BQB	GEL32BHL	JFK39BNL	PJL19BQB	RVI80BTZ	SUN32BNL	VOA24BHL
BEC76BCL	CUT14BCL	DOT63BQB	GEL33BCL	JFK40BHL	PJL20BHL	RVI82BTZ	SUN36BHL	ZUK31BQB
BEC78BCL	DFG03BCL	**DSN00BLF**	GEL34BCL	JFK42BNL	PPM59BTZ	RVI83BNL	SUN42BCL	ZUK34BQB
BEC81BHL	DFM22BHL	**DSN01BCL**	GEL35BHL	JFK45BCL	PPM61BHL	RVI84BTZ	SWT22BTZ	ZUK36BQB
BEC82BCL	DHA03BHL	**DSN02BTZ**	GEL36BCL	JFK46BNL	PXV01BHL	RVI86BTZ	SWT23BHL	ZUK38BQB
BEC83BHL	DHA09BHL	DXH02BHL	GEL38BCL	JMR11BHL	QDJ06BNL	SAW21BCL	SWT25BQB	SWT31BTZ
BEC84BCL	DJV48BCL	DXH04BHL	GEL40BCL	JOR69BHL	QDJ08BCL	SBA50BCL	SWT26BQB	
BEC85BNL	DJV57BCL	EBN01BNL	GEL42BCL	JOR72BTZ	QDJ09BCL	SBF05BQB	SWT27BQB	
BEC86BHL	DJV85BCL	ECU27BHL	GEL43BTZ	JOR76BTZ	QDJ12BHL	SCE20BQB	SWT28BQB	
BMH24BTZ	DJV95BCL	ECU30BCL	GEL44BCL	JOR84BCL	QDJ14BCL	SCM18BCL	SWT29BTZ	
BOL85BCL	DMG46BCL	ECU33BTZ	GEL45BCL	JOR86BCL	QDJ16BCL	SCO39BHL	SWT30BQB	
ISN (MS and ENET) Patches								
BMA18IQB	DOT41IQB	DOT58IQB	EKW03IHL	EOL64IHL	EOL75IHL	ITN32ITZ	SEA45IHL	ZUK31IQB
BMA18IHL	DOT47IHL	DOT61IHL	EKW03IQB	EOL64IQB	EOL75IQB	LPP69ITZ	SEA45IQB	ZUK36IHL
BMA18IQB	DOT47IQB	DOT61IQB	EKW04IHL	EOL71IHL	EOL79IHL	SBF10IHL	SEA49IHL	ZUK36IQB
DOT36IHL	DOT55IHL	DOT63IQB	EKW04IQB	EOL71IQB	EOL79IQB	SBF10IQB	SEA49IQB	ZUK38IHL
DOT36IQB	DOT55IQB	EKW00IHL	EKW05IHL	EOL72IHL	EOL82IHL	SEA39IHL	SSG20IHL	ZUK38IQB
DOT41IHL	DOT58IHL	EKW00IQB	EKW05IQB	EOL72IQB	EOL82IQB	SEA39IQB	ZUK31IHL	ZUK31IQB
XPM Patches								
XBA10X5A	XBC75X14	XEE22X5A	XFG00X5A	XFO51X5A	XKH49X5A	XKR26X5A	XOG41X14	XOG92X5A
XBA99X5A	XBC76X5A	XFE03X5A	XFG01X5A	XFO52X5A	XKR02X5A	XLB97X5A	XOG71X5S	XOG98X5A
XBC53X14	XBC79X5S	XFE06X5A	XFG02X5A	XHN47X5A	XKR10X5A	XMR91X5A	XOG72X5A	XPG22X14
XBC59X14	XBC88X14	XFE08X5A	XFO15X5A	XHN50X5A	XKR14X5A	XMV08X14	XOG75X14	XQM11X14
XBC69X5S	XCB08X5A	XFE12X5A	XFO16X5A	XHN52X5A	XKR15X5A	XMV18X14	XOG76X5S	XQM13X14
XBC74X5A	XCB13X14	XFE16X5A	XFO20X5A	XIG04X5A	XKR19X5A	XMV25X14	XOG80X5A	**XQM66X5A**

NORTEL NETWORKS MSL-100 SOFTWARE RELEASE MSL-15
SOFTWARE PATCH GROUP IDENTIFICATION NUMBERS

XPM Patches (continued)							
XQM67X5S	XRP99X14	XSI76X14	**XTA90X5S**	XVN24X5S	XYY00X14	XYY19X5A	
XQM90X5S	**XRR99X5A**	XSI79X5A	XVN16X5S	XXJ23X14	XYY16X5S		

Comments:

Patch IDs that are bold, denote the patches applied by Nortel Networks to fix test discrepancies identified during interoperability certification testing of MSL-100 Software Release MSL-15