



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 21 Sept 2001

SUBJECT: Joint Interoperability Test Certification of Nortel Networks' MSL-100 Digital Switching System, with Software Release MSL-14 (specified Software Patch Groups)

References: (a) DOD Directive 4630.5, "Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems," 12 Nov 1992

(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 14 (specified Software Patch Groups) was tested by the JITC using the test procedures in Reference (d) (Enclosure 1). The Nortel Networks' Multi-Function Switch (MFS) and End Office Switch (EOS) with Software Release 14 (specified Software Patch Groups) meet the critical interoperability requirements, and are certified for joint use in the Defense Information System Network (DISN). The Nortel Networks' MSL-100 Digital Switching System is capable of supporting a Remote Switching Unit (RSU), however, an RSU was not available for this test and is therefore not covered by this certification. This certification expires upon system changes that affect interoperability, but no later than three years from the date of this memorandum.

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3. This certification is based on interoperability testing conducted 3 November 2000 through 5 June 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-14 for certification. MSL-100 Software Release MSL-14 with the specified Software Patch Groups listed 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 currently researching a method to invoke an overload condition in the laboratory environment.

6. Until such time, this requirement will remain untested by JITC. MSL-100 Software Release MSL-14 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. Therefore, 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). The MSL-100 is capable of meeting 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 Secure 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

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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: | LESLIE F. CLAUDIO |
| 1 Additional References | Chief |
| 2 Certification Testing Summary | Networks, Transmission and Intelligence Division |
| 3 MSL-14 Software Patch Group Identification Numbers | |

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ADDITIONAL REFERENCES

- (c) Defense Information Systems Agency (DISA), Joint Interoperability and Engineering Organization (JIEO), Technical Report 8249, "Defense Information System 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-14 (specified Software Patch Groups).
2. **PROPONENT.** Defense Information Systems Agency (DISA).
3. **PROGRAM MANAGER.** Mr. Howard Osman, NS53, 11440 Isaac Newton Square Reston VA 20190-5006, E-mail: Osmanh@ncr.disa.mil.
4. **TESTERS.** Joint Interoperability Test Command (JITC), Ft. Huachuca, AZ.
5. **SYSTEM UNDER TEST DESCRIPTION.** The Nortel Networks' MSL-100 Digital Switching System is used within the Defense Information System Network (DISN) to provide both End-Office Switch (EOS) and Multi-Function Switch (MFS) functionality. The MSL-100 switching equipment tested is currently deployed in Europe, the Pacific, and is the backbone digital switching system for CONUS.
6. **OPERATIONAL ARCHITECTURE.** The Nortel Networks' MSL-100 Digital Switching System, Software Release MSL-14 with specified Software Patch Groups listed in Enclosure 3, was tested at the JITC's Network Engineering and Integration Laboratory (NEIL) and the Strategic Switching Laboratory (SSL), 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.** The MSL-100 Digital Switching System with Software Release MSL-14 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 its associated Generic Switch Test Plan (GSTP) 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 |
| Multi-Level Precedence and Preemption | II-2.2 | Yes | 2.2.1 5.3.4.3 through 5.3.4.9 |
| Hot Line Services | II-3.2 | Yes | 21.3.10 |

Table 1. GSCR Functional Interface Requirements (continued)

| GSCR Functional Interface Requirements | DSN GSTP Criteria para(s) | Critical | GSCR Requirement para(s) |
|---|----------------------------------|-----------------|---------------------------------|
| System Interface | II-4.2 | Yes | 10.1 through 10.12 |
| 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 5.3.4.7 21.1 |
| Tactical Switch/DSN Interoperability | II-22.2 | No | 10.6 |
| Advanced Defense Switched Network Integrated Management Support System (ADIMSS) | II-23.2 | Yes | 16.1 |
| Common Data Channel (CDC) | II-24.2 | No | See Note 1 |

Table 1. GSCR Functional Interface Requirements (continued)

| GSCR Functional Interface Requirements | DSN GSTP Criteria para(s) | Critical | GSCR Requirement para(s) |
|---|---------------------------|----------|--------------------------|
| Electronic Key Telephone Service (EKTS) | II-25.2 | No | 21.2 |
| Notes: | | | |
| 1. CDC is an optional requirement unique to DISN-E. 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 MSL-100 and the other switches identified in Figures 1 and 2 accurately emulate that of the DSN operational environment.

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

Table 2. Tested System Configurations

| System Name | Hardware | Software |
|--|--------------------|---|
| MSL-100 | RISC Processor | MSL-14 with Software Patch Groups, DSN00BLE, DSN01BCR, DSN02BTJ, XQM11X14, XQM12X14, XQM13X14 |
| Avaya Definity G3R | RISC Processor | Version 8.2 |
| Siemens EWSD | CP 113C | Version 18 with Patch Set 17++ |
| Tekelec Eagle STP | | Release 23.1 |
| Siemens KN(S)4100 | | APS4V2.3 |
| SMU 96 Tactical Gateway | | Version RD302182 |
| DSS Red Switch | | Version 8.03 |
| FORE ATM switch ASX-1000 and ASX-200BX | SCP-I960 Processor | Versions 6.0.1 and 6.2 |

10. TESTING LIMITATIONS. The Nortel Networks' MSL-100 Digital Switching System is capable of supporting the Nortel Networks' Remote Switching Unit (RSU) called the Remote Switching Center (RSC), however, an RSC was not available for this test and is therefore not covered by this certification.

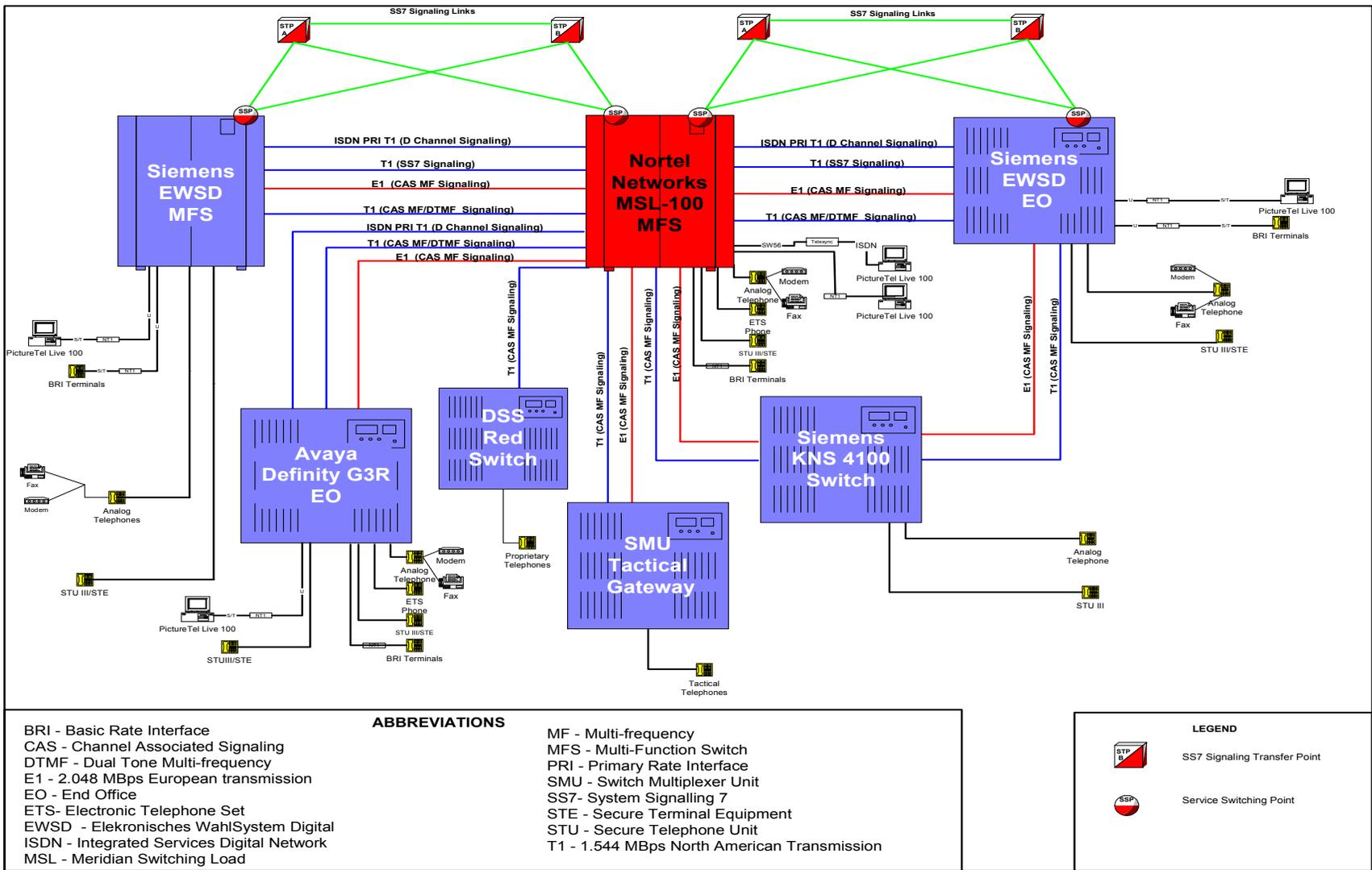


Figure 1. Test Configuration

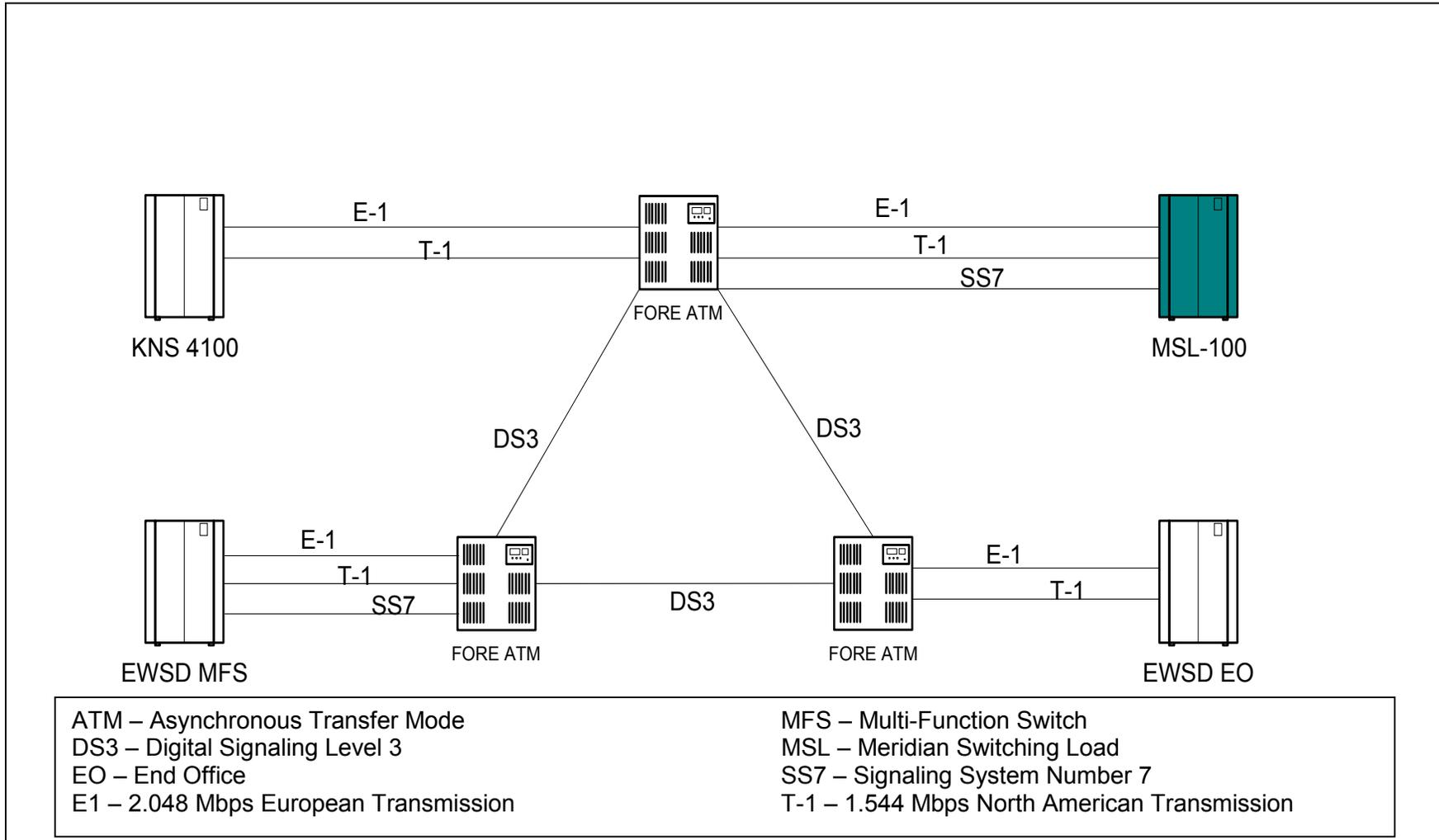


Figure 2. Network Integration Test Configuration

11. TEST RESULTS. Table 3 below synthesizes the MSL-100 Software Release MSL-14 test results. Paragraph 12 provides a detailed discussion of test results and discussion of any test discrepancies for each of the functional interface requirements certified.

**Table 3. MSL-100 Digital Switching System Software Release
MSL-14 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 | No | 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 | Yes | II-1.2e-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-2.2a-l | 22.1.1-3 |
| 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-6.2.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-14 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 6.6 6.6.3 |
| 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-14 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 Calls | Yes | Yes | II-6.2.c.2 | 21.3.2 |
| D-6.7 | Supplemental Service, User to User Signaling | Yes | No | 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 | Yes | Yes | II-6.2.e | 21.3.11 21.3.11.1-4 |
| 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-14 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-14 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-10.2 | 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-14 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 | Switch 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-14 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 | | | II-24.2a | 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-25.2a | 21.2 |

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

a. D-1 Preset Conference.

(1) All test procedures in this Sub-Test were conducted with the exception of 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. Software Release MSL-14 met all the GSCR requirements, with the following exceptions:

(a) Software Release MSL-14 does not support the unique ISDN BRI Preset Conference Calling Supplemental Service requirements identified in the GSCR paragraph 21-3.11.

(b) Software Release MSL-14 does not support the removal of the preset conference notification tone/announcement by an originator of an inter-switch preset conference call. Only the removal of a preset conference notification

tone/announcement by an originator of an intra-switch preset conference call is supported.

(2) The MSL-100 Software Release MSL-14 does not meet all of the GSCR interoperability requirements for Preset Conferencing, however, exceptions have no operational impact or adverse effects on capabilities essential for mission accomplishment.

b. D-2 Multi-Level Precedence and Preemption (MLPP). All of the test procedures in this Sub-Test were conducted with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for MLPP.

c. D-3 Hotline Services. All of the test procedures in this Sub-Test were conducted with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for Hotline Services.

d. D-4 System Interface. All the test procedures in this Sub-Test were conducted with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for System Interfaces.

e. D-5 CCS/SS7. All test procedures in this Sub-Test were conducted with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for CCS/SS7.

f. D-6 Integrated Services Digital Network (ISDN)

(1) Test Results. All the test procedures for this Sub-Test were conducted. MSL-100 Software Release MSL-14 met all the GSCR requirements, with the following exceptions:

(a) MSL-100 Software Release MSL-14 does not support the following unique ISDN BRI Supplemental Services as specified in the GSCR paragraphs listed below. Nortel Networks will not satisfy these requirements until later software releases. There currently are no switches in the DISN that support ISDN BRI Supplemental Services; therefore, this discrepancy will have no operational impact.

- Multi-Level Precedence and Preemption (ANSI T1. 619a). GSCR Para. 21.3.1
- Conference Calling. GSCR Para. 21.3.2
- 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
- Call Deflection. GSCR Para. 21.3.8
- Preset Conference Calling. GSCR Para. 21.3.11

(b) MSL-100 Software Release MSL-14 does not support Multilevel Precedence and Preemption (MLPP) interaction with telephones assigned the option Multiple Appearance Directory Number (MADN). 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. Software Release MSL-14 does not support the assignment of both Preemptable (PREMTBL) and MADN options simultaneously on the same instrument via Service Order (SERVORD).

(2) The MSL-100 Software Release MSL-14 does not meet all of the GSCR interoperability requirements for ISDN, however, exceptions have no operational impacts with no adverse effects on capabilities essential for mission accomplishment.

g. D-7 Attendant Services. All test procedures in this Sub-Test were conducted with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for Attendant Services.

h. D-8 System Administration, Measurement, and Service Standards. All test procedures in this Sub-Test were conducted with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for System Administration, Measurement, and Service Standards.

i. D-9 Year 2000 Rollover Dates. All test procedures were conducted in this Sub-Test and no discrepancies were noted. The MSL-100 Software Release MSL-14 responded properly to all rollover dates and meets all interoperability requirements for Y2K rollover dates.

j. D-10 Year 2000 Valid Set Dates. All test procedures were conducted in this Sub-Test and no discrepancies were noted. The MSL-100 Software Release MSL-14 responded properly to all valid set dates and meets all interoperability requirements for Y2K valid set dates.

k. D-11 Year 2000 Invalid Set Dates. All test procedures were conducted in this Sub-Test and no discrepancies were noted. The MSL-100 Software Release MSL-14 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. All test procedures were conducted in this Sub-Test and no discrepancies were noted. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for Screening, Zone Restriction, and DSN Access Restrictions.

m. D-13 Community of Interest (COI). All tests were conducted in this Sub-Test and no discrepancies were noted. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for Community of Interest.

n. **D-14 Automatic Message Accounting (AMA).** All the test procedures in this Sub-Test were conducted with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for AMA.

o. **D-15 Call Treatments.** All test procedures were conducted in this Sub-Test with no noted discrepancies. The MSL-100 Software Release MSL-14 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 MSL-100 Software Release MSL-14 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 operationally fielded 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 and SS7 Auto Call Gap. All Manual Control test procedures were conducted in this Sub-Test and no discrepancies were noted. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for Manual Controls. SS7 Auto Call Gap will be tested as part of the SS7 Signaling Transfer point (STP) testing.

s. **D-19 DSN Announcements.** All test procedures were conducted for this Sub-Test with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for DSN Announcements.

t. **D-20 Nailed-Up Connections.** All test procedures were conducted in this Sub-Test with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for Nailed-Up Connections.

u. **D-21 Network Integration.** All test procedures were conducted in this Sub-Test 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 MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for Network Integration.

v. **D-22 Tactical Switch/DSN Interoperability.** All test procedures were conducted for this Sub-Test with no noted discrepancies. The MSL-100 Software Release MSL-14 meets all GSCR interoperability requirements for Tactical Switch/DSN Interoperability.

w. **D-23 Advanced Defense Switched Network Integrated Management Support System (ADIMSS).** All test procedures were conducted for this Sub-Test with no noted discrepancies. The interface tested between the MSL-100 and ADIMSS was comprised of 4 asynchronous serial connections. Additionally, the Ethernet Interface

Unit (EIU) was tested and was verified to pass required Network Management data elements to ADIMSS. The MSL-100 is capable of interconnecting to ADIMSS via X.25 but this capability was not tested.

x. D-24 Common Data Channel (CDC). There are no GSCR requirements for CDC, but 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 MSL-100 with Software Release 14 could correctly interface with the KNS-4100 to pass CDC links.

y. D-25 Electronic Key Telephone Service (EKTS). The following GSCR EKTS requirements (Section 21, Table 21-3) are listed below with results tested on the MSL-100 with Software Release 14:

(a) Multiple DNs per Terminal (SR-3476 paragraph 2.1.3.1.1). The MSL-100 with Software Release MSL-14 meets all the requirements for multiple DNs per Terminal of an EKTS group.

(b) Analog Member of an EKTS Group (SR-3476 paragraph 2.1.3.1.2). The MSL-100 with Software Release MSL-14 meets all the requirements for assignment of an analog member to an EKTS group.

(c) Multiple DN Appearances per Call Appearance Call Handling (SR-3476 paragraph 2.1.3.1.3). The MSL-100 with Software Release MSL-14 meets all the requirements for multiple DN appearances per call appearance call handling of an EKTS group.

(d) Hold and Retrieve (SR-3476 paragraph 2.1.3.1.4). The MSL-100 with Software Release MSL-14 meets all the requirements for hold and retrieve of an EKTS group.

(e) Bridging and DN-Bridging (SR-3476 paragraph 2.1.3.1.5). The MSL-100 with Software Release MSL-14 meets all the requirements for bridging and DN-bridging of an EKTS group.

(f) Intercom Calling (SR-3476 paragraph 2.1.3.1.6). The MSL-100 with Software Release MSL-14 meets all the requirements for intercom calling of an EKTS group.

(g) Membership in a Multi-line Hunt Group. (SR-3476 paragraph 2.1.3.1.7). The MSL-100 with Software Release MSL-14 does not support the assignment of an EKTS member to a multi-line hunt group.

(h) Abbreviated and Delayed Ringing (SR-3476 paragraph 2.1.3.1.8). The MSL-100 with Software Release MSL-14 meets all the requirements for abbreviated and delayed ringing of an EKTS group.

(i) Automatic and/or Manual Bridged Call Exclusion (SR-3476 paragraph 2.1.3.1.9). The MSL-100 with Software Release MSL-14 meets all the requirements for automatic and/or manual bridged call exclusion of an EKTS group.

(j) Multi-Level Precedence and Preemption (MLPP) interaction with an EKTS Group. The MSL-100 with Software Release MSL-14 does not support MLPP interaction with telephones assigned the option Multiple Appearance Directory Number (MADN). 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. Software Release MSL-14 does not support MLPP interaction with these instruments because the assignment of both Preemptable (PREMTBL) and MADN options simultaneously on the same instrument via Service Order (SERVORD) is not permitted.

z. 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 letter from Nortel Networks. Nortel Networks' Software Release MSL-14 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 (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-14, 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. A summary for each Functional Interface required by the GSCR is given 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 |
| Hot Line Services | Yes | Passed |
| System Interface | Yes | Passed |

Table 4. Functional Interface Certification Status Summary (continued)

| GSCR Functional Interface Requirements | Critical | Status |
|---|-----------------|---------------|
| 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 |
| 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-14
SOFTWARE PATCH GROUP IDENTIFICATION NUMBERS**

| CM (Front End) Patches | | | | | | | | |
|--|----------|-----------------|----------|----------|-----------------|----------|----------|----------|
| ALP01BBZ | BEC52BCR | DSN00BLE | FLY58BCR | JMO84BHZ | LPP71BTJ | RVI53BBZ | SEA27BBZ | SUN14BHZ |
| ALP02BBZ | BEC56BNR | DSN01BCR | FLY60BCR | JOR63BCR | LUK18BCR | RVI54BTJ | SEA29BBZ | SUN16BCR |
| BBC41BCR | BEC61BCR | DSN02BTJ | FLY62BTJ | JOR68BNR | LUK19BCR | RVI57BHZ | SEA30BBZ | SUN18BNR |
| BBC42BCR | BRY32BBZ | DZM22BTJ | GEL18BCR | JOR70BCR | LUK21BCR | RVI59BTJ | SEA34BBZ | SWT19BBZ |
| BBC44BCR | BRY38BBZ | ECU06BTJ | GEL22BCR | JOR71BTJ | MRK00BNR | RVI60BBZ | SEA35BBZ | SWT20BBZ |
| BBC45BHZ | BUZ60BBZ | ECU09BNR | GEL23BTJ | JOR75BCR | MXT29BHZ | RVI61BTJ | SEA39BBZ | SWT21BBZ |
| BBC47BHZ | CJH00BHZ | ECU12BCR | GEL25BCR | JRL10BHZ | PJL01BBZ | RVI62BTJ | SKT30BLE | SWT24BBZ |
| BBC48BCR | CKM01BBZ | ECU13BTJ | GEL26BHZ | JXM03BHZ | PJL03BBZ | RVI63BBZ | SSG20BTJ | TBF88BHZ |
| BBC49BNR | CKM02BBZ | ECU19BHZ | GEL27BCR | JXM04BHZ | PJL06BBZ | RVI64BTJ | SSG57BTJ | TWD06BBZ |
| BBC50BCR | CKM03BHZ | ECU22BHZ | GEL30BNR | JXM05BHZ | PJL12BHZ | RVI68BTJ | SSG58BTJ | VVP20BTJ |
| BBC51BCR | CLF21BTJ | ECU24BCR | IVN02BTJ | JXM08BHZ | PPM56BTJ | RVI71BTJ | SSG61BTJ | VVP25BTJ |
| BBC52BCR | CLF22BCR | ECU25BTJ | IVN03BCR | JZR05BTJ | PPM58BHZ | RVI72BTJ | SSG63BTJ | VVP27BHZ |
| BBC53BHZ | CNL16BTJ | ECU34BCR | IVN05BHZ | KBD05BHZ | PPM59BTJ | RVI73BBZ | SSG64BTJ | VVP29BTJ |
| BEC21BCR | CNL19BTJ | EOL50BBZ | IVN06BTJ | KGS05BCR | PPM60BBZ | RVI76BTJ | SSG67BTJ | ZUK22BBZ |
| BEC36BCR | CRK67BBZ | EOL52BBZ | IVN10BTJ | KGS07BCR | PXV01BHZ | RVI78BTJ | SSG69BTJ | ZUK22IBZ |
| BEC41BCR | CRR44BNR | EOL53BBZ | IVN11BTJ | KGS08BCR | QTD07BBZ | RVI79BTJ | SSG72BTJ | ZUK24BBZ |
| BEC43BNR | CUT14BCR | EOL56BBZ | JDT02BLE | KGS09BCR | RCF68BHZ | SBA47BCR | SUK06BCR | ZUK31BBZ |
| BEC44BCR | DMG27BCR | EOL57BBZ | JDT05BLE | KIF04BHZ | RDG84BCR | SBA50BCR | SUN05BBZ | |
| BEC45BNR | DOT20BTJ | EOL59BBZ | JEK79BTJ | KIF08BHZ | RDG88BCR | SBA81BCR | SUN07BHZ | |
| BEC46BCR | DOT26BBZ | EOL65BBZ | JFK21BHZ | KRI19BNR | RDG89BNR | SBF02BHZ | SUN10BCR | |
| BEC47BCR | DOT27BBZ | EOL66BBZ | JFK29BNR | KRI21BHZ | RLH07BTJ | SCE20BBZ | SUN11BBZ | |
| BEC49BNR | DOT28BBZ | EOL67BBZ | JFK30BNR | KRI22BBZ | RLH14BCR | SEA25BBZ | SUN12BHZ | |
| BEC51BCR | DOT30BBZ | FAH31BNR | JFK41BNR | LJM63BHZ | RLH15BCR | SEA26BBZ | SUN13BNR | |
| ISN (MS and ENET) Patches | | | | | | | | |
| BRY25IBZ | BRY38IHZ | DOT25IHZ | EOL49IBZ | EOL57IHZ | PPM60IBZ | SEA20IHZ | SEA39IBZ | ZUK22IHZ |
| BRY25IHZ | CCY29IHZ | DOT26IBZ | EOL49IHZ | EOL59IBZ | PPM60IHZ | SEA25IBZ | SEA39IHZ | ZUK31IBZ |
| BRY29IBZ | DOT15IBZ | DOT26IHZ | EOL53IBZ | EOL59IHZ | QTD07IBZ | SEA25IHZ | SSG20IHZ | ZUK31IHZ |
| BRY29IHZ | DOT15IHZ | DOT27IBZ | EOL53IHZ | PDM27IBZ | QTD07IHZ | SEA30IBZ | SSG60IHZ | |
| BRY32IBZ | DOT17IBZ | DOT27IHZ | EOL56IBZ | PDM27IHZ | SEA18IBZ | SEA30IHZ | SSG62IHZ | |
| BRY32IHZ | DOT17IHZ | DOT30IBZ | EOL56IHZ | PJL06IBZ | SEA18IHZ | SEA34IBZ | ZUK13IBZ | |
| BRY38IBZ | DOT25IBZ | DOT30IHZ | EOL57IBZ | PJL06IHZ | SEA20IBZ | SEA34IHZ | ZUK13IHZ | |
| XPM Patches | | | | | | | | |
| XAM05X14 | XCB00X14 | XFB29X14 | XJF36X14 | XKH47X14 | XPO07X14 | XRR99X14 | XRR99X14 | XZB11X14 |
| XBC51X14 | XCB05X14 | XFB32X14 | XKA25X14 | XKR14X5A | XPO09X14 | XSI71X14 | XSI71X14 | XZB12X14 |
| XBC53X14 | XEW12X14 | XFB33X14 | XKA26X14 | XLB90X14 | XQM08X14 | XSI72X14 | XSI72X14 | XZB12X14 |
| XBC54X14 | XEW14X14 | XFB34X14 | XKA28X14 | XMV08X14 | XQM11X14 | XSI76X14 | XSI76X14 | XZB13X14 |
| XBC55X14 | XEW22X14 | XFE01X14 | XKA28X14 | XMV18X14 | XQM12X14 | XXJ22X14 | XXJ22X14 | XZB15X14 |
| XBC57X14 | XEW24X14 | XFE02X14 | XKH42X14 | XMV25X14 | XQM13X14 | XXJ23X14 | XXJ23X14 | |
| XBC59X14 | XFB26X14 | XFG00X14 | XKH43X14 | XOG70X14 | XQM90X14 | XXJ26X14 | XXJ26X14 | |
| XBC74X14 | XFB27X14 | XHN31X14 | XKH46X14 | XPG18X14 | XRP99X14 | XXJ27X14 | XXJ27X14 | |
| Comments: Patch IDs that are bold, denote the patches applied by Nortel Networks to fix test discrepancies identified during certification testing of MSL-100 Software Release MSL-14 | | | | | | | | |