



DEFENSE INFORMATION SYSTEMS AGENCY

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IN REPLY
REFER TO: Joint Interoperability Test Command (JTE)

MEMORANDUM FOR DISTRIBUTION

19 Jan 11

Subject: Special Interoperability Test Certification of the Forum Communications Consortium II with Software Release 7.1

References: (a) DoD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01E, "Interoperability and Supportability of Information Technology and National Security Systems," 15 December 2008
(c) through (e), see Enclosure 1

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.
2. The Forum Communications Consortium II with Software Release 7.1 is hereinafter referred to as the System Under Test (SUT). The SUT meets all of its critical interoperability requirements and is certified for joint use within the Defense Information System Network (DISN) as an audio conferencing bridge. The SUT supports up to 16 Digital Transmission Link Level 1 (T1) Primary Rate Interfaces (PRI) for a total of up to 480 ports for conferees. The SUT supports preset and Meet-Me conference types. The SUT is certified for use with any digital switching system on the Unified Capabilities (UC) Approved Products List (APL) that is certified interoperable within the DSN for a T1 PRI interface with American National Standards Institute (ANSI) T1.619a protocol. The SUT meets the critical interoperability requirements set forth in Reference (c), using test procedures derived from Reference (d). No other configurations, features, or functions, except those cited within this report, are certified by the JITC. This certification expires upon changes that affect interoperability, but no later than three years from the date of Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation.
3. This finding is based on interoperability testing conducted by JITC and DSAWG accreditation. Interoperability testing was conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, Arizona, from 8 through 15 October 2010. DSAWG granted accreditation on 19 January 2011 based on the security testing completed by DISA-led Information Assurance test teams and published in a separate report, Reference (e). The Certification Testing Summary (Enclosure 2) documents the test results and describes the test configuration.

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

Table 1. SUT Functional Requirements and Interoperability Status

| Interface | Critical | Certified | Functional Requirements | Met | UCR Paragraph |
|------------------------|------------------|-------------|---|-----|---------------|
| T1 ISDN PRI (B8ZS/ESF) | Yes ¹ | Yes | Preset Conferencing (R) | Yes | 5.2.1.6.1 |
| | | | Conference Notification Recorded Announcement (R) | Yes | 5.2.1.6.1.1 |
| | | | Automatic Retrial and Alternate Address (R) | Yes | 5.2.1.6.1.2 |
| | | | Bridge Release (R) | Yes | 5.2.1.6.1.3 |
| | | | Lost Connection to Conferee or Originator (R) | Yes | 5.2.1.6.1.4 |
| | | | Secondary Conferencing (R) | Yes | 5.2.1.6.1.5 |
| | | | Meet-Me Conferencing (C) | Yes | 5.2.1.6.2 |
| | | | Address Translation (R) | Yes | 5.2.1.7 |
| | Yes | See note 2. | Conference Precedence Level (R) | Yes | 5.2.2.8.7.1 |
| | Yes | See note 2. | Security (R) | Yes | 4.3.1.2 |

NOTES:

- The UCR does not specify a minimum required interface for an external conference bridge. The SUT meets the critical interoperability Functional Requirements via a T1 ISDN PRI interface with ANSI T1.619a protocol. Since T1 ISDN PRI is the only interface supported by this conference bridge, it is a critical interface.
- Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).

LEGEND:

| | | | |
|------|---------------------------------------|---------|--|
| ANSI | American National Standards Institute | PRI | Primary Rate Interface |
| B8ZS | Bipolar Eight Zero Substitution | R | Required |
| C | Conditional | SUT | System Under Test |
| DISA | Defense Information Systems Agency | T1 | Digital Transmission Link Level 1 (1.544 Mbps) |
| ESF | Extended Superframe | T1.619a | SS7 and ISDN MLPP Signaling Standard for T1 |
| ISDN | Integrated Services Digital Network | UCR | Unified Capabilities Requirements |
| Mbps | Megabits per second | | |

5. No detailed test report was developed in accordance with the Program Manager’s request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.226> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitc.fhu.disa.mil/tssi>. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: ucco@disa.mil.

JITC Memo, JTE, Extension of the Special Interoperability Test Certification of the Forum Communications Consortium II with Software Release 7.1

6. The JITC point of contact is Ms. Anita Mananquil, DSN 879-5164, commercial (520) 538-5164, FAX DSN 879-4347, or e-mail to anita.mananquil@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The original tracking number for the SUT is 1014001.

FOR THE COMMANDER:

2 Enclosures a/s


for BRADLEY A. CLARK
Acting Chief
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Distribution (electronic mail):

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ADDITIONAL REFERENCES

- (c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008," 22 January 2009
- (d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
- (e) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Forum Communications Consortium II Release (Rel.) 7.1 (Tracking Number 1014001)," 19 January 2011

CERTIFICATION TESTING SUMMARY

- 1. SYSTEM TITLE.** The Forum Communications Consortium II with Software Release 7.1 is hereinafter referred to as the System Under Test (SUT).
- 2. PROPONENT.** Headquarters Air Force Space Command (HQ AFSPC).
- 3. PROGRAM MANAGER.** Mr. Joseph Gibbons, A6CT, 150 Vandenberg St, Suite 1105, Peterson Air Force Base, Colorado, 80914-1160, e-mail: joseph.gibbons@peterson.af.mil.
- 4. TESTER.** Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.
- 5. SYSTEM UNDER TEST DESCRIPTION.** The SUT is an audio conferencing bridging system that supports up to 16 Digital Transmission Link Level 1 Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) with a maximum of 480 ports for use by conferees. The SUT supports preset and Meet-Me conference types. The SUT consists of a Consortium II Server with cards and software.
- 6. OPERATIONAL ARCHITECTURE.** The Unified Capabilities Requirements (UCR) Defense Switched Network (DSN) architecture in Figure 2-1 depicts the relationship of the SUT to the DSN switches.

7. REQUIRED SYSTEM INTERFACES. Requirements specific to the SUT and interoperability results are listed in Table 2-1. These requirements are derived from the UCR. Interface and Functional Requirements (FRs) and were verified through JITC testing.

Table 2-1. SUT Functional Requirements and Interoperability Status

| Interface | Critical | Certified | Functional Requirements | Met | UCR Paragraph |
|---|---------------------------------------|-------------|---|--|---------------|
| T1 ISDN PRI (B8ZS/ESF) | Yes ¹ | Yes | Preset Conferencing (R) | Yes | 5.2.1.6.1 |
| | | | Conference Notification Recorded Announcement (R) | Yes | 5.2.1.6.1.1 |
| | | | Automatic Retrial and Alternate Address (R) | Yes | 5.2.1.6.1.2 |
| | | | Bridge Release (R) | Yes | 5.2.1.6.1.3 |
| | | | Lost Connection to Conferee or Originator (R) | Yes | 5.2.1.6.1.4 |
| | | | Secondary Conferencing (R) | Yes | 5.2.1.6.1.5 |
| | | | Meet-Me Conferencing (C) | Yes | 5.2.1.6.2 |
| | | | Address Translation (R) | Yes | 5.2.1.7 |
| | | | Conference Precedence Level (R) | Yes | 5.2.2.8.7.1 |
| | Yes | See note 2. | Security (R) | Yes | 4.3.1.2 |
| NOTES: | | | | | |
| 1 The UCR does not specify a minimum required interface for an external conference bridge. The SUT meets the critical interoperability Functional Requirements via a T1 ISDN PRI interface with ANSI T1.619a protocol. Since T1 ISDN PRI is the only interface supported by this conference bridge, it is a critical interface. | | | | | |
| 2 Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e). | | | | | |
| LEGEND: | | | | | |
| ANSI | American National Standards Institute | | PRI | Primary Rate Interface | |
| B8ZS | Bipolar Eight Zero Substitution | | R | Required | |
| C | Conditional | | SUT | System Under Test | |
| DISA | Defense Information Systems Agency | | T1 | Digital Transmission Link Level 1 (1.544 Mbps) | |
| ESF | Extended Superframe | | T1.619a | SS7 and ISDN MLPP Signaling Standard for T1 | |
| ISDN | Integrated Services Digital Network | | UCR | Unified Capabilities Requirements | |
| Mbps | Megabits per second | | | | |

8. TEST NETWORK DESCRIPTION. The SUT was tested at JITC's Global Information Grid Network Test Facility in a manner and configuration similar to that of the DSN operational environment. Testing the system's required functions and features was conducted using the test configuration depicted in Figure 2-2.

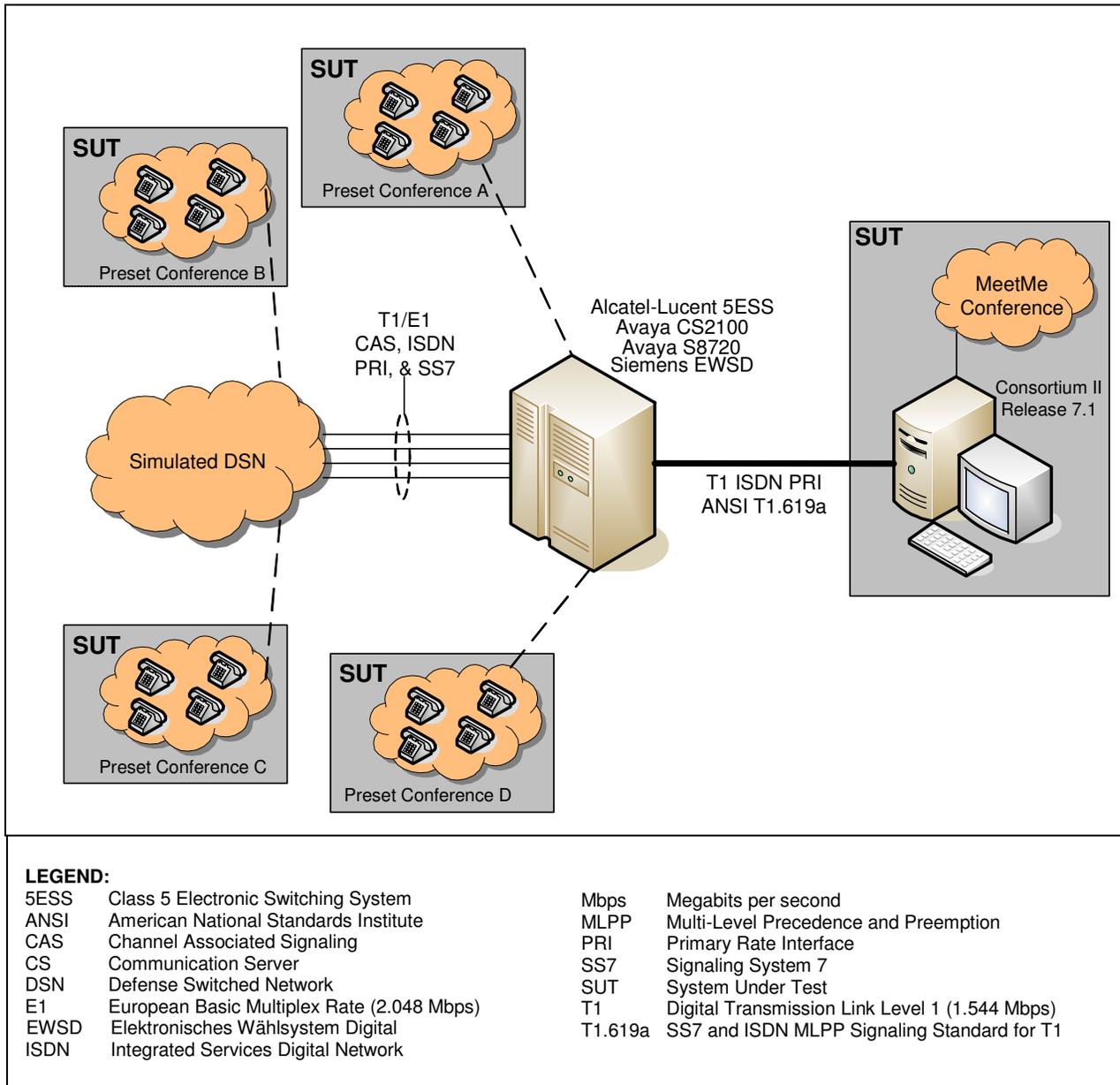


Figure 2-2. SUT Test Configuration

9. SYSTEM CONFIGURATIONS. Table 2-2 provides the system configurations, hardware, and software components tested with the SUT. The SUT was tested in an operationally realistic environment to determine interoperability with a complement of DSN switches noted in Table 2-2. Table 2-2 lists the DSN switches which depict the tested configuration and is not intended to identify the only switches that are certified with the SUT. The SUT is certified with switching systems listed on the Unified Capabilities (UC) Approved Products List (APL) that are certified interoperable within the DSN for a T1 ISDN Primary Rate Interface (PRI) interface with American National Standards Institute (ANSI) T1.619a protocol.

Table 2-2. Tested System Configurations

| System Name | Hardware/Software Release | | |
|---|--|--|-----|
| Avaya S8720 | Communication Manager (CM) 4.0 (R014x.00.2.731.7: Super Patch 14419) | | |
| Avaya CS2100 | Succession Enterprise (SE) 09.1 | | |
| Siemens EWSD | Version 19d with Patch Set 46 | | |
| Alcatel-Lucent 5ESS | 5E16.2, Broadcast Warning Message (BWM) 09-0002 | | |
| Forum Communications Consortium II with Software Release 7.1 (SUT) | Hardware | | |
| | Conference Server | Pentium 4 3.0GHz processor | |
| | | Dual 80GB SATA Drives | |
| | | Quad T1/E1 telephony card model CG6060/3200/2L-4TE | |
| | | Quad T1/E1 telephony card model CG6060/1100/2L-2TE | |
| | Peripheral Components | LCD Monitor | N/A |
| | | USB Keyboard | N/A |
| USB Mouse | | N/A | |
| Software Microsoft Windows Server 2003, IIS 6.0, Firefox 3.x, or Internet Explorer 8, Sun Java JRE, Consortium Server Software release 7.1 | | | |
| LEGEND: 5ESS Class 5 Electronic Switching System CS Communication Server E1 European Basic Multiplex Rate (2.048 Mbps) EWSD Elektronisches Wählsystem Digital GB Gigabyte GHz Gigahertz IIS Internet Information Services LCD Liquid Crystal Display JRE Java Runtime Environment Mbps Megabits per second N/A Not Applicable SATA Serial Advanced Technology Attachment SUT System Under Test T1 Digital Transmission Link Level (1.544 Mbps) USB Universal Serial Bus | | | |

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion. The UCR 2008, section 5.2.1.6, requirements are written for switches, and states that conferencing may be implemented via an internal or external conference bridge. The SUT is an external conference bridge and was tested with the switches listed in Table 2-2 using the requirements in the subparagraphs below.

(1) Preset Conferencing. The SUT met the following requirements for preset conference as described in UCR 2008, section 5.2.1.6.1.

(a) Ten separate conference bridges with each bridge having the capacity for one originator and twenty conferees.

(b) The capability to function as the "Primary," "Secondary," or "Alternate" bridge that will interconnect to other bridges that support up to a maximum of 191 conferees using all 10 bridges off the same switch for the same conference.

(c) Preset Conference (abbreviated pool of subscribers/bridges) assignment of abbreviated numbers not greater than 20 switch address numbers per bridge. Such an address number could be a combination of subscriber lines and other conference bridge access.

(d) Preset conference network(s) that require more than 20 conferees uses the cascading bridge method of expanding the number of conferees beyond 20.

(e) Each preset conference bridge is capable of Multi-Level Precedence and Preemption (MLPP) access control and is fully interoperable with the serving switch to permit full MLPP access and control.

(f) When a conferee's telephone is not answered, an automatic disconnect takes place within an adjustable interval of 15 to 60 seconds after a bridge leg is first connected to the conferee line.

(g) Originators of the preset conference have the capability of adding up to 5 non-programmed conferees (within the 21 conferees capability) to the conference by sequentially keying each add-on address and connecting the conferee to the bridge.

(2) Conference Notification Recorded Announcement. When the conference equipment receives the first off-hook supervisory signal from an answering conferee, conference notification recording shall be applied, and shall continue as an audible announcement to answering conferees and to the originator until all conferees answer. The conference notification recording shall automatically be removed 2 seconds after the last conferee answers, indicating, by such removal, that the conferees have all answered and that the conference is ready to begin. The SUT met the following FRs for Origination and Recording as described in UCR 2008, section 5.2.1.6.1.1.

(a) Each bridge generates a notification recording that is audible only to those conferees on that bridge.

(b) When all conferees on a bridge have answered, the conference notification recording is removed automatically from the bridge two seconds after the last conferee answers.

(c) When the conference notification recording is removed automatically from a bridge, the notification recording from the adjacent bridge, if continuing, then becomes audible to the originator and to the conferees on the remaining bridge(s).

(d) When a conferee disconnects, a conference disconnect tone is sent to the originator and other conferees in the conference.

(3) Automatic Retrial and Alternate Address. The SUT met the following FRs for Automatic Retrial and Alternate Address as described in UCR, section 5.2.1.6.1.2.

(a) Off-hook supervision is returned to the originator from each bridge when all conferees have answered or when the originator has forced the conference prior to all conferees answering.

(b) If answer supervision is not returned from any conferee location within an adjustable interval of 15 to 60 seconds, one automatic retrial is made to the primary conferee address.

(c) Conferees are provided with alternate addresses that the SUT tries when the call fails to complete to the primary address.

(d) When a call to a primary address fails to complete within two trials, the call is directed to an alternate address, if provided, and two call attempts are made to the alternate address.

(4) Bridge Release. The SUT met the following FRs for Bridge Release as described in UCR, section 5.2.1.6.1.3.

(a) The primary bridge is released when on-hook supervision is received on the originating port of the primary bridge or on all of the other conference bridge ports.

(b) If on-hook supervision is received on the originating port of secondary or tertiary bridges, all subsequent connections and equipment are released.

(c) A conference bridge is released after all attempts at call completion are made and no answers are received on all ports.

(d) A release of conference bridges is such that it is impossible for the bridges to become locked together.

(5) Lost Connection to Conferee or Originator. The SUT met the following FRs for Lost Connection to Conferee or Originator as described in UCR, section 5.2.1.6.1.4.

(a) If the originator is lost or preempted, the bridge is held up long enough for preempt tone to be given to all conferees.

(b) If a connection to a conferee is lost, due to disconnection or preemption, a distinctive disconnect signal, defined as a conference disconnect tone, is provided to the conference originator and all conferees.

(6) Secondary Conferencing. The UCR requirement states that a switch shall provide the capability of secondary conferencing, which is the ability to interconnect conference bridges located at separate DSN switches. The SUT, as an external bridge connected to the switch, met the following FRs for Secondary Conferencing as described in UCR, section 5.2.1.6.1.5.

(a) When a conference is activated and two or more of the addressees require a secondary bridge, the address is processed in the normal manner and directed toward the office serving the secondary equipment.

(b) The conference equipment is designed so that it may be used alternatively for primary or secondary conferences.

(c) Identical operational features, such as application and removal of the conference notification recorded announcement, are provided for both primary and secondary conferences.

(7) Meet-Me Conferencing. The UCR requirement states that a switch shall meet the Meet-Me conference requirements with an internal or external conference bridge. The SUT, as an external bridge connected to the switch, met the following FRs for Meet-Me Conferencing as described in UCR, paragraph 5.2.1.6.2.

(a) Each Meet-Me conference bridge shall be fully capable of MLPP access and control as described in paragraph 5.2.2.1.4.

(b) When a precedence call above ROUTINE is placed to a Meet-Me conference bridge that is activated with no remaining idle resources, the switch shall conduct a preemptive search to determine the lowest active resource on the bridge, and that resource shall receive a precedence notification tone and be preempted. All remaining conferees on the bridge shall receive a conference disconnect tone.

(8) Address Translations. The SUT met the following FRs for Address Translations as described in UCR, paragraph 5.2.1.7. Translation of the seven-digit conference address is met as follows:

(a) The switch shall have the capability to translate three digits of the switch code.

(b) The first two digits of the four-digit line number are utilized to identify the switching center at which the conferencing equipment is located.

(c) The four-digit line number is translated to indicate the particular preset conference arrangement.

(9) Conference Precedence Level. The SUT met the following FRs for Conference Precedence Level as described in UCR, paragraph 5.2.2.8.7.1.

(a) When a preset conference is initiated, an idle bridge in the desired conference group is seized and the conference connections attempted.

(b) When all conference bridges are busy, ROUTINE conference call attempts are connected to a "Line Busy" tone and the call attempts at precedence levels above ROUTINE reexamine all conference bridges on a preemptive basis.

(c) When a conference bridge is busy at the lowest level of precedence stored for all units, it shall be preempted for a higher precedence conference call.

(d) When a conference bridge is preempted, a two-second burst of preempt tone is provided to the conferees on the existing conference. The existing connections to the bridge are dropped and the bridge automatically sends an on-hook signal to the associated switch ports to permit the new connections to be established.

(e) When the requested precedence level is equal to or lower than that of any existing conference, the connection is denied and the caller is provided a Blocked Precedence Announcement.

(10) Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).

b. Test Summary. The SUT met the critical interoperability requirements for preset and meet-me conferencing and is certified for use in the Defense Information System Network (DISN). The SUT is certified for use with any digital switching system on the UC APL that is certified interoperable within the DSN for a T1 ISDN PRI interface with ANSI T1.619a protocol.

12. TEST AND ANALYSIS REPORT. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at <https://stp.fhu.disa.mil>. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at <http://jit.fhu.disa.mil> (NIPRNet), or <http://199.208.204.125> (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at <http://jitic.fhu.disa.mil/tssi>. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and

deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: ucco@disa.mil.