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IN REPLY REFER TO: Joint Interoperability Test Command (JTE) **24 Jan 12**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of L-3 Communications Maritime Communications (MarCom) Integrated Voice Communication System (IVCS) Version 7.5.2 Build 4

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 (f), see Enclosure

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.

2. The L-3 Communications MarCom IVCS Version 7.5.2 Build 4 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) for the following switch types: Private Branch Exchange (PBX) 1 and PBX 2. 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 could affect interoperability, but no later than three years from the date of Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation.

3. The extension of this certification is based upon Desktop Review (DTR) 1. The original certification is based on interoperability testing, DISA adjudication of open test discrepancy reports, review of the vendor's Letters of Compliance (LoC), and DSAWG accreditation. Interoperability testing of the SUT was conducted at JITC's Global Information Grid Network Test Facility at Fort Huachuca, Arizona, from 17 May through 29 June 2010. Regression testing was conducted from 13 through 17 December 2010. DISA adjudication of outstanding test discrepancy reports was completed on 14 August 2010. Review of vendor's LoC was completed on 29 June 2010. DSAWG granted accreditation on 28 February 2011 based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (e). This DTR was requested to upgrade Version 7.5.2 Build 4 to Version 7.5.2 Build 14. Build 14 includes multiple patches that have minimal or no effect on the information assurance (IA) or interoperability (IO) posture of the certified SUT. The patches mainly address performance characteristics of the SUT that are not related to the IA Security Technical Implementation

Guides (STIG) posture of the SUT. JITC determined there is minor risk in approving this DTR without further testing; therefore, JITC approves this DTR.

4. The interoperability test summary of the SUT is indicated in Table 1. The PBX 1 Capability Requirements (CRs) and Feature Requirements (FRs) are listed in Table 2. This interoperability test status is based on the SUT's ability to meet:

a. Defense Switched Network (DSN) services for Network and Applications specified in Reference (f).

b. PBX 1 interface and signaling requirements for trunks/lines specified in Reference (c) verified through JITC testing in accordance with Reference (d) and/or vendor submission of LoC.

c. PBX 1 CRs/FRs specified in Reference (c) verified through JITC testing in accordance with Reference (d) and/or vendor submission of LoC.

d. The overall system interoperability performance derived from test procedures listed in Reference (d).

**Table 1. SUT Interoperability Test Summary**

| **DSN Trunk Interfaces** | | | |
|---|---|---|---|
| **Interface & Signaling** | **Critical** | **Status** | **Remarks** |
| T1 CAS (DTMF, DP) | No | Not Tested | This interface is not supported by the SUT and is not required for a PBX 1. |
| E1 CAS (DTMF, DP) | No (Europe only) | Not Tested | This interface is not supported by the SUT and is not required for a PBX 1. |
| T1 ISDN PRI NI 1/2 (ANSI T1.619a) | Yes | Certified | Met all critical CRs and FRs with the following minor exception: The SUT does not support NFAS.[1] |
| E1 ISDN PRI (ITU-T Q.955.3) | No (Europe only) | Not Tested | This interface is not supported by the SUT and is not required for a PBX 1. |
| **DSN Line Interfaces** | | | |
| **Interface & Signaling** | **Critical** | **Status** | **Remarks** |
| 2-Wire Analog (GR-506-CORE) | Yes | Certified | Met all critical CRs and FRs. |
| ISDN BRI NI 1/2 (ANSI T1.619a) | No | Certified | The SUT met all critical CRs and FRs for the ISDN BRI S/T interface for data and VTC. The SUT does not support ISDN BRI U interface and it is not required for a PBX 1. |
| **DSN Features and Capabilities** | | | |
| **Feature/Capability** | **Critical** | **Status** | **Remarks** |
| Common Features | Yes | Certified | Met all critical CRs and FRs with the following minor exceptions: The SUT does not support Call Forward Variable.[2] |
| Attendant | No | Not Tested | This feature is not supported by the SUT and is not required for a PBX 1. |
| Public Safety | Yes | Certified | The SUT met all critical CRs and FRs for Basic 911. |
| Conferencing | No | Not Tested | This feature is not supported by the SUT and is not required for a PBX 1. |
| Nailed-up Connections | No | Not Tested | This feature is not supported by the SUT and is not required for a PBX 1. |
| DSN Hotline Services | No | Not Tested | This feature is not supported by the SUT and is not required for a PBX 1. |
| MLPP | Yes | Certified | Met all critical CRs and FRs with the following minor exceptions: The SUT does not preserve the highest precedence level of the legs of a 3-way call.[3] |
| Call Processing | Yes | Certified | Met all critical CRs and FRs. |

## Table 1. SUT Interoperability Test Summary (continued)

| DSN Features and Capabilities (continued) | | | |
|---|---|---|---|
| **Feature/Capability** | **Critical** | **Status** | **Remarks** |
| ISDN Services | Yes | Certified | Met all critical CRs and FRs. |
| Synchronization | Yes | Certified | Met all critical CRs and FRs. |
| Reliability | Yes | Certified | Met all critical CRs and FRs. |
| Network Management | No | Not Tested | This feature is not supported by the SUT and is not required for a PBX 1. |
| Security | Yes | Certified | See note 4. |

| Network Gateways | | | | |
|---|---|---|---|---|
| **Gateway** | **Interface & Signaling** | **Critical** | **Status** | **Remarks** |
| PSTN | T1 CAS (DTMF, DP) | No | Not Tested | This interface is not supported by the SUT and is not required for a PBX 1. |
| | E1 CAS (DTMF, DP) | No (Europe only) | Not Tested | This interface is not supported by the SUT and is not required for a PBX 1. |
| | T1 ISDN PRI NI 1/2 (ANSI T1.607) | No | Certified | Met all critical CRs and FRs. |
| | E1 ISDN PRI (ITU-T Q.931) | No (Europe only) | Not Tested | This interface is not supported by the SUT and is not required for a PBX 1. |
| | Ground Start Line | Yes | Not Tested | This interface is not supported by the SUT.[5] |

**NOTES:**

1 The SUT does not support NFAS on their T1 ISDN PRI NI2 interface. This was adjudicated previously by DISA on 17 December 2008 as having a minor operational impact. Furthermore, DISA, in coordination with the Joint Staff, stated their intent to modify the next update of the UCR to change NFAS for a PBX 1 from required to conditional.

2 The SUT does not support Call Forward Variable. This was a new UCR requirement and the vendor has 18 months (until July 2010) to comply.

3 When attempting or placing an MLPP three-way conference where each leg is at a difference precedence level, the SUT does not preserve the highest precedence level of any of the call legs that are connected. However, the SUT classmarks all three members of the three-way conference at the highest precedence. This has a minor operational impact.

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

5 The SUT does not support a ground start line interface. This was adjudicated by DISA on 14 August 2010 because SUT does support loop start and its application is solely deployed on Navy Ships to support ship to shore communications.

**LEGEND:**

| | | | |
|---|---|---|---|
| ANSI | American National Standards Institute | LSSGR | Local Access and Transport Area (LATA) Switching Systems Generic Requirements |
| BRI | Basic Rate Interface | Mbps | Megabits per second |
| CAS | Channel Associated Signaling | MLPP | Multi-Level Precedence and Preemption |
| CFV | Call Forward Variable | NFAS | Non-Facility Associated Signaling |
| CRs | Capability Requirements | NI 1/2 | National ISDN Standard 1 or 2 |
| DISA | Defense Information Systems Agency | NI2 | National ISDN Standard 2 |
| DISR | DoD Information Technology Standards Registry | OSD | Office of the Secretary of Defense |
| DoD | Department of Defense | PBX 1 | Private Branch Exchange 1 |
| DP | Dial Pulse | PRI | Primary Rate Interface |
| DSN | Defense Switched Network | PSTN | Public Switched Telephone Network |
| DSS1 | Digital Subscriber Signaling 1 | Q.931 | Signaling Standard for ISDN |
| DTMF | Dual Tone Multi-Frequency | Q.955.3 | ISDN Signaling standard for E1 MLPP |
| E1 | European Basic Multiplex Rate (2.048 Mbps) | S/T | ISDN BRI 4-wire interface |
| FRs | Feature Requirements | SS7 | Signaling System 7 |
| GR | Generic Requirement | SUT | System Under Test |
| GR-506-CORE | LSSGR: Signaling for Analog Interfaces | T1 | Digital Transmission Link Level 1 (1.544 Mbps) |
| ISDN | Integrated Services Digital Network | T1.607 | ISDN Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1 |
| ITU-T | International Telecommunication Union - Telecommunication Standardization Sector | T1.619a | SS7 and ISDN MLPP Signaling Standard for T1 |
| JITC | Joint Interoperability Test Command | U | ISDN BRI 2-wire interface |
| LoC | Letter of Compliance | UCR | Unified Capabilities Requirements |

## Table 2. PBX 1 Requirements

| DSN Trunk Interfaces | | | | |
|---|---|---|---|---|
| **Interface** | **Critical** | **Requirements Required or Conditional** | | **References** |
| T1 CAS (MFR1, DTMF, DP)<br>E1 CAS (MFR1, DTMF, DP)<br>T1 ISDN PRI NI 1/2 (ANSI T1.619a)<br>E1 ISDN PRI (ITU-T Q.955.3) | No<br>No (Europe only)<br>Yes<br>No (Europe only) | Trunking | • Direct Inward Dialing (C)<br>• National ISDN 1/2 Primary Access (R: PRI only)<br>• ISDN ANSI MLPP Service Capability (R: PRI only)<br>• ITU-T ISDN Primary Access (C: E1 PRI only)<br>• ITU-T ISDN Primary Access DSS1 MLPP (C: E1 PRI only)<br>• Trunk Group-Remove from Service (C)<br>• Trunk Group-Restore to Service (C)<br>• Normal Wink Start Operations (C: CAS only)<br>• Glare Operation (C: CAS only)<br>• Abnormal Wink Start (C: CAS only)<br>• Glare Resolution (C: CAS only)<br>• Call for Service Timing (R: CAS only)<br>• Guard Timing (R: CAS only)<br>• Satellite Timing (C: CAS only)<br>• Disconnect Control (C: CAS only)<br>• Reselect and Retrial (C: CAS only)<br>• Off-Hook Supervision Transition (C: CAS only)<br>• Dial-Pulse Signals (C: CAS only)<br>• DTMF Signaling (C: CAS only)<br>• Standard Digit Format for Precedence (C: CAS only)<br>• MFR1 2/6 Signaling (C: CAS only)<br>• Alerting Signals and Tones (R)<br>• DSN ISDN User-to-Network Signaling (R: PRI only)<br>• Application (R: PRI only)<br>• Physical Layer (R: PRI only)<br>• Data Link Layer (R: PRI only)<br>• Data Link Connection (R: PRI only)<br>• Peer-to-Peer Procedures of Data-Link Layer (R: PRI only)<br>• Layer 3 DSN User-to-Network Signaling (R: PRI only)<br>• DSN User-to-Network Signaling for Circuit-Switched Bearer Services (R: PRI only)<br>• Sequence of Messages for DSN Circuit Switched Calls (R: PRI only)<br>• Message Functional Definition and Content (R: PRI only)<br>• General Message Format and Information Elements Coding (R: PRI only)<br>• Supplementary Services (C: PRI only)<br>• DSN Transmission Interface (R)<br>• PCM-24 Digital Trunk Interface (R)<br>• Interface Characteristics (R)<br>• Supervisory Channel Associated Signaling (C: CAS only)<br>• Clear Channel Capability (R)<br>• Alarm and Restoral Requirements (R)<br>• PCM-30 Digital Trunk Interface (Europe only) (C)<br>• Supervisory Channel Associated Signaling (C: E1 only)<br>• Alarm and Restoral Requirements (C: E1 only)<br>• Interoperation of PCM-24 and PCM-30 (C)<br>• Analog Trunk Interface (C) | • UCR Section 5.2.1.3.2<br>• UCR Section 5.2.1.3.4.1<br>• UCR Section 5.2.1.3.4.1.1<br>• UCR Section 5.2.1.3.4.2<br>• UCR Section 5.2.1.3.4.2.1<br>• UCR Section 5.2.1.5.5<br>• UCR Section 5.2.1.5.5<br>• UCR Section 5.2.4.3.3.1.1<br>• UCR Section 5.2.4.3.3.1.2<br>• UCR Section 5.2.4.3.3.2.1<br>• UCR Section 5.2.4.3.3.2.2<br>• UCR Section 5.2.4.3.5<br>• UCR Section 5.2.4.3.6<br>• UCR Section 5.2.4.3.7<br>• UCR Section 5.2.4.3.8<br>• UCR Section 5.2.4.3.9<br>• UCR Section 5.2.4.3.10<br>• UCR Section 5.2.4.4.1<br>• UCR Section 5.2.4.4.2<br>• UCR Section 5.2.4.4.2.1<br>• UCR Section 5.2.4.4.3<br>• UCR Section 5.2.4.5.1<br>• UCR Section 5.2.4.7.1<br>• UCR Section 5.2.4.7.1.1<br>• UCR Section 5.2.4.7.1.2<br>• UCR Section 5.2.4.7.1.3<br>• UCR Section 5.2.4.7.1.3.1<br>• UCR Section 5.2.4.7.1.3.2<br>• UCR Section 5.2.4.7.1.4<br>• UCR Section 5.2.4.7.1.4.2<br>• UCR Section 5.2.4.7.1.4.3<br>• UCR Section 5.2.4.7.1.4.4<br>• UCR Section 5.2.4.7.1.4.5<br>• UCR Section 5.2.4.7.1.4.6<br>• UCR Section 5.2.5<br>• UCR Section 5.2.6.1<br>• UCR Section 5.2.6.1.1<br>• UCR Section 5.2.6.1.2<br>• UCR Section 5.2.6.1.3<br>• UCR Section 5.2.6.1.4<br>• UCR Section 5.2.6.2<br>• UCR Section 5.2.6.2.1<br>• UCR Section 5.2.6.2.2<br>• UCR Section 5.2.6.3<br>• UCR Section 5.2.6.4 |

**Table 2. PBX 1 Requirements (continued)**

| DSN Trunk Interfaces (continued) | | | | |
|---|---|---|---|---|
| **Interface** | **Critical** | **Requirements Required or Conditional** | | **References** |
| T1 CAS (MFR1, DTMF, DP) | No | Voice | • MOS (R)<br>• Secure calls (R) | • CJCSI 6215.01C<br>• CJCSI 6215.01C |
| E1 CAS (MFR1, DTMF, DP) | No (Europe only) | Facsimile | • Analog: ITU-T T.4 (R) | • DISR |
| T1 ISDN PRI NI 1/2 (ANSI T1.619a) | Yes | Data | • Modem (VBD) (R)<br>• 56 kbps switched data (R: PRI only)<br>• 64 kbps switched data (R: PRI only)<br>• NX56 synchronous BER (R: PRI only)<br>• NX64 synchronous BER (R: PRI only)<br>• Secure data (STE/STU-III) (R) | • CJCSI 6215.01C<br>• UCR Section 5.2.2.9.6<br>• UCR Section 5.2.2.9.6<br>• UCR Section 5.2.2.9.6<br>• UCR Section 5.2.2.9.6<br>• CJCSI 6215.01C |
| E1 ISDN PRI (ITU-T Q.955.3) | No (Europe only) | VTC | • ITU-T H.320 (R: PRI only) | • FTR 1080B-2002 |
| **DSN Line Interfaces** | | | | |
| 2-Wire Analog | Yes | Access | • Directory Number Identification (R)<br>• PBX Line (C)<br>• National ISDN 1/2 Basic Access (C)<br>• Analog Line (R)<br>• Basic Line Test Capabilities (R)<br>• Advanced Line Test Capabilities (C)<br>• Loop Start Line (R: 2-Wire Analog only)<br>• Reverse Battery (R)<br>• Alerting Signals and Tones (R)<br>• S/T Reference Point (ISDN BRI) (C) | • UCR Section 5.2.1.1.1<br>• UCR Section 5.2.1.3.1<br>• UCR Section 5.2.1.3.3<br>• UCR Section 5.2.1.3.5<br>• UCR Section 5.2.1.5.4.1.1<br>• UCR Section 5.2.1.5.4.1.1<br>• UCR Section 5.2.4.2.1<br>• UCR Section 5.2.4.3.1<br>• UCR Section 5.2.4.5.1<br>• UCR Section 5.2.4.7.1.2.1 |
| ISDN BRI NI 1/2 (ANSI T1.619a) | No | | | |
| 2-Wire Proprietary Digital | No | Voice | • MOS (R)<br>• Secure Calls (R) | • CJCSI 6215.01C<br>• CJCSI 6215.01C |
| | | Facsimile | • Analog: ITU-T T.4 (R) | • DISR |
| | | Data | • Modem (VBD) (R: 2-Wire Analog only)<br>• Secure data (STE/SCIP) (R: 2-Wire Analog only) | • CJCSI 6215.01C<br>• CJCSI 6215.01C |
| | | VTC | • ITU-T H.320 (C: BRI only) | • FTR 1080B-2002 |
| **DSN Features & Capabilities** | | | | |
| **Feature/ Capability** | **Critical** | **Requirements Required or Conditional** | | **References** |
| Common Features | Yes | | • Individual Lines (R)<br>• Denied originating service (C)<br>• Code restriction and diversion (C)<br>• Call waiting (R)<br>• Three-way calling (R)<br>• Add-on transfer, conference calling, and call hold (C)<br>• Call Transfer Individual - All calls (R)<br>• Call Transfer - Internal Only (R)<br>• Call Transfer - Individual - Incoming Only/Add-On Consultation Hold - Incoming Call (R)<br>• Call Transfer - Outside (R)<br>• Call Transfer - Add-On to Fully Restricted Station (C)<br>• Call Transfer - Attendant (C)<br>• Call Hold (R)<br>• Conference Calling - Six Way Station Controlled (C)<br>• Call Forwarding Variable (R)<br>• Call Forward Busy Line (R)<br>• Call Forwarding - Don't Answer - All Calls (R)<br>• Selective Call Forwarding (C)<br>• Call pick-up (C)<br>• Address Translation (C)<br>• Assured Dial Tone (R) | • UCR Section 5.2.1.1.1<br>• UCR Section 5.2.1.1.3<br>• UCR Section 5.2.1.1.4<br>• UCR Section 5.2.1.1.5.1<br>• UCR Section 5.2.1.1.6<br>• UCR Section 5.2.1.1.7<br>• UCR Section 5.2.1.1.7.1<br>• UCR Section 5.2.1.1.7.2<br>• UCR Section 5.2.1.1.7.3<br>• UCR Section 5.2.1.1.7.4<br>• UCR Section 5.2.1.1.7.5<br>• UCR Section 5.2.1.1.7.6<br>• UCR Section 5.2.1.1.7.7<br>• UCR Section 5.2.1.1.7.8<br>• UCR Section 5.2.1.1.8.1<br>• UCR Section 5.2.1.1.8.2<br>• UCR Section 5.2.1.1.8.3<br>• UCR Section 5.2.1.1.8.4<br>• UCR Section 5.2.1.1.9.1<br>• UCR Section 5.2.1.7<br>• UCR Section 5.2.1.9 |
| Attendant | No | • Attendant Features (C) | | • UCR Section 5.2.1.2.2 |

**Table 2. PBX 1 Requirements (continued)**

| DSN Features & Capabilities | | | |
|---|---|---|---|
| **Feature/ Capability** | **Critical** | **Requirements Required or Conditional** | **References** |
| Public Safety | Yes | • Emergency Service (911) Caller (R)<br>• Emergency Service (911) Public Safety Answering Service (C)<br>• Enhanced Emergency Service (E911) (C)<br>• Trace of terminating calls (C)<br>• Outgoing call trace (C) | • UCR Section 5.2.1.4.1.1<br>• UCR Section 5.2.1.4.1.2<br>• UCR Section 5.2.1.4.1.3<br>• UCR Section 5.2.1.4.2<br>• UCR Section 5.2.1.4.3 |
| Conferencing | No | • Preset Conferencing (C)<br>• Meet-Me Conferencing (C)<br>• Progressive Conferencing (C) | • UCR Section 5.2.1.6.1<br>• UCR Section 5.2.1.6.2<br>• UCR Section 5.2.1.6.3 |
| Nailed-up Connections | No | • Nailed-Up Connections (C) | • UCR Section 5.2.1.8 |
| DSN Hotline Services | No | • DSN Analog Hotline Service (C) | • UCR Section 5.2.1.12 |
| MLPP | Yes | • MLPP Overview (R)<br>• Preemption in the Network (R)<br>• Network Facility with Lower Precedence Calls (R)<br>• Network Facility with Equal or Higher Precedence Calls (R)<br>• Precedence Call Diversion (R)<br>• Channel Associated Signaling (C)<br>• Primary Rate Interface (R)<br>• Analog Line MLPP (R)<br>• ISDN MLPP Basic Rate Interface (C)<br>• ISDN Primary Rate Interface (R)<br>• Precedence Call Waiting (R)<br>• Call Forwarding (R)<br>• Call Transfer (R)<br>• Call Hold (R)<br>• Three-Way Calling (R)<br>• Call Pickup (C)<br>• Conferencing (C)<br>• Multiline Hunt Group (C)<br>• Community of Interest (C)<br>• MLPP Interaction with EKTS features (C) | • UCR Section 5.2.2.1.1<br>• UCR Section 5.2.2.2<br>• UCR Section 5.2.2.2.1<br>• UCR Section 5.2.2.2.2<br>• UCR Section 5.2.2.3<br>• UCR Section 5.2.2.4.1<br>• UCR Section 5.2.2.4.2<br>• UCR Section 5.2.2.5<br>• UCR Section 5.2.2.6<br>• UCR Section 5.2.2.7<br>• UCR Section 5.2.2.8.1<br>• UCR Section 5.2.2.8.2<br>• UCR Section 5.2.2.8.3<br>• UCR Section 5.2.2.8.4<br>• UCR Section 5.2.2.8.5<br>• UCR Section 5.2.2.8.6<br>• UCR Section 5.2.2.8.7.1<br>• UCR Section 5.2.2.8.8<br>• UCR Section 5.2.2.8.9<br>• UCR Section 5.2.2.10.1 |

**Table 2. PBX 1 Requirements (continued)**

| DSN Features & Capabilities (continued) | | | |
|---|---|---|---|
| **Feature/ Capability** | **Critical** | **Requirements Required or Conditional** | **References** |
| Call Processing | Yes | • Call Treatments (R)<br>• Primary and Alternate Routing (C)<br>• E&M Lead Signaling States (C)<br>• 4-Wire Analog User Access Lines (C)<br>• 2-Wire User Access Lines (R)<br>• Termination of Analog Lines (R)<br>• DSN User Dialing (R)<br>• Interswitch and Intraswitch Dialing (R)<br>• Seven-Digit Dialing (R)<br>• Ten-Digit Dialing (R)<br>• Access Code (R)<br>• Access Digit (R)<br>• Precedence Digit (R)<br>• Service Digit (R)<br>• Route Code (R)<br>• Area Code (R)<br>• Switch Code (R)<br>• Line Number (R)<br>• Calling Name Delivery (C)<br>• Calling Number Delivery (R)<br>• Emergency Service 911 Conflict Resolution (R)<br>• DSN Switch Outpulsing Digit Formats (C)<br>• Standard Directory Number (R)<br>• Standard Test Numbers (C)<br>• Base Services – Abbreviated Numbers (C)<br>• Digit Reception Requirements (R)<br>• Screening (C) | • UCR Section 5.2.3.1<br>• UCR Section 5.2.3.2<br>• UCR Section 5.2.3.3.1<br>• UCR Section 5.2.3.3.2<br>• UCR Section 5.2.3.3.3<br>• UCR Section 5.2.3.3.4<br>• UCR Section 5.2.3.5.1.1<br>• UCR Section 5.2.3.5.1.1<br>• UCR Section 5.3.3.5.2.1<br>• UCR Section 5.2.3.5.2.2<br>• UCR Section 5.2.3.5.1.3<br>• UCR Section 5.2.3.5.1.3.1<br>• UCR Section 5.2.3.5.1.3.2<br>• UCR Section 5.2.3.5.1.3.3<br>• UCR Section 5.2.3.5.1..4<br>• UCR Section 5.2.3.5.1.5<br>• UCR Section 5.2.3.5.1.6<br>• UCR Section 5.2.3.5.1.7<br>• UCR Section 5.2.3.5.1.8.1<br>• UCR Section 5.2.3.5.1.8.2<br>• UCR Section 5.2.3.5.1.9<br>• UCR Section 5.2.3.5.2<br>• UCR Section 5.2.3.5.3<br>• UCR Section 5.2.3.5.4<br>• UCR Section 5.2.3.5.5<br>• UCR Section 5.2.3.5.6<br>• UCR Section 5.2.3.5.8 |
| ISDN Services | Yes | • BRI Access, Call Control and Signaling (C)<br>• Uniform Interface Configuration for BRIs (C)<br>• EKTS (C)<br>• PRI Access, Call Control and Signaling (R)<br>• PRI Features (R)<br>• Packet Data Features and Capabilities (C) | • UCR Section 5.2.9.2, Table 5.2.9-1<br>• UCR Section 5.2.9.2, Table 5.2.9-2<br>• UCR Section 5.2.9.3, Table 5.2.9-3<br>• UCR Section 5.2.9.2, Table 5.2.9-4<br>• UCR Section 5.2.9.2, Table 5.2.9-5<br>• UCR Section 5.2.9.2, Table 5.2.9-6 |
| Synchronization | Yes | • Line timing mode (R)<br>• Internal Stratum 4 (R)<br>• Synchronization Performance Monitoring Criteria (C)<br>• DS1 Traffic Interfaces (C)<br>• DS0 Traffic Interconnects (C) | • UCR Section 5.2.10.1.1.2<br>• UCR Section 5.2.10.1.1.2.2<br>• UCR Section 5.2.10.2<br>• UCR Section 5.2.10.3<br>• UCR Section 5.2.10.4 |
| Reliability | Yes | • System Availability (R)<br>• Backup Power (R)<br>• Power Components (R)<br>• UPS Requirements (R)<br>• UPS PBX 1 Load Capacity (R)<br>• Backup Power (Environmental) (R)<br>• Alarms (R) | • UCR Section 5.2.11.2<br>• UCR Section 5.2.11.3<br>• UCR Section 5.2.11.3.1<br>• UCR Section 5.2.11.3.2<br>• UCR Section 5.2.11.3.2.1<br>• UCR Section 5.2.11.3.3<br>• UCR Section 5.2.11.3.4 |
| Network Management | No | • Interfaces (C)<br>• Measurements and data generation (C)<br>• Fault management (C)<br>• Configuration management (C)<br>• Accounting management (C)<br>• Performance management (C)<br>• Network Management controls (C)<br>• Remote access (C) | • UCR section 5.2.8.1<br>• UCR section 5.2.8.2<br>• UCR section 5.2.8.3<br>• UCR section 5.2.8.4<br>• UCR section 5.2.8.5<br>• UCR section 5.2.8.6<br>• UCR section 5.2.8.7<br>• UCR section 5.2.8.8 |
| Security | Yes | • GR-815, STIGs, and DoDI 8510.bb (DIACAP) (R) | • UCR Sections 3.2.3, 3.2.5, and 5.4.6.1 |

**Table 2. PBX 1 Requirements (continued)**

| Network Gateways | | | | |
|---|---|---|---|---|
| **Gateway** | **Critical** | **Requirements Required or Conditional** | | **References** |
| PSTN (See note.) | No | Trunking | • Positive Identification Control (C)<br>• On-Netting (C)<br>• Off-Netting (C)<br>• Ground Start Line (R)<br>• Immediate Start (C)<br>• Delay Dial (C) | • CJCSI 6215.01C<br>• CJCSI 6215.01C<br>• CJCSI 6215.01C<br>• UCR Section 5.2.4.2.2<br>• UCR Section 5.2.4.3.2<br>• UCR Section 5.2.4.3.4 |

**NOTE:** Voice, facsimile, data, and VTC service requirements for PSTN are identical to DSN with the exception of MLPP.

**LEGEND:**

| | | | | | |
|---|---|---|---|---|---|
| ANSI | American National Standards Institute | FTR | Federal Telecommunications Recommendation | PBX 1 | Private Branch Exchange 1 |
| BER | Bit Error Ratio | FTR 1080B-2002 | Video Teleconferencing Services | PCM | Pulse Code Modulation |
| BRI | Basic Rate Interface | G.711 | PCM of voice frequencies | PCM-24 | Pulse Code Modulation - 24 Channels |
| C | Conditional | GR | Generic Requirement | PCM-30 | Pulse Code Modulation - 30 Channels |
| CAS | Channel Associated Signaling | GR-815 | Generic Requirements For Network Element/Network System (NE/NS) Security | PRI | Primary Rate Interface |
| CJCSI | Chairman of the Joint Chiefs of Staff Instruction | H.320 | Standard for Narrowband VTC | PSTN | Public Switched Telephone Network |
| CODEC | Coder/Decoder | IEEE | Institute of Electrical and Electronics Engineers | Q.955.3 | ISDN Signaling Standard for E1 MLPP |
| DIACAP | DoD Information Assurance Certification and Accreditation Process | ISDN | Integrated Services Digital Network | R | Required |
| DISA | Defense Information Systems Agency | IT | Information Technology | S/T | ISDN BRI four-wire interface |
| DISR | DoD IT Standards Registry | ITU-T | International Telecommunication Union - Telecommunication Standardization Sector | SCIP | Secure Communication Interoperability Protocol |
| DoD | Department of Defense | kbps | kilobits per second | SS7 | Signaling System 7 |
| DoDI | DoD Instruction | Mbps | Megabits per second | STE | Secure Terminal Equipment |
| DP | Dial Pulse | MFR1 | Multi-Frequency Recommendation 1 | STIGs | Security Technical Implementation Guides |
| DS0 | Digital Signal Level 0 (64 kbps) | MLPP | Multi-Level Precedence and Preemption | T.4 | Standardization of Group 3 facsimile terminals for document transmission |
| DS1 | Digital Signal Level 1 (1.544 Mbps) (2.048 Mbps European) | MOS | Mean Opinion Score | T1 | Digital Transmission Link Level 1 (1.544 Mbps) |
| DSN | Defense Switched Network | NI 1/2 | National ISDN Standard 1 or 2 | T1.619a | SS7 and ISDN MLPP Signaling Standard for T1 |
| DSS1 | Digital Subscriber Signaling 1 | NX56 | Data format restricted to multiples of 56 kbps | UCR | Unified Capabilities Requirements |
| DTMF | Dual Tone Multi-Frequency | NX64 | Data format restricted to multiples of 64 kbps | UPS | Uninterruptible Power Supply |
| E&M | Ear and Mouth | PBX | Private Branch Exchange | VBD | Variable bit data |
| E1 | European Basic Multiplex Rate (2.048 Mbps) | | | VTC | Video Teleconferencing |
| EKTS | Electronic Key Telephone System | | | | |

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). 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.

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 tracking number for the SUT is 1027101.

FOR THE COMMANDER:

Enclosure a/s

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Office of Assistant Secretary of Defense (NII)/DOD CIO
U.S. Joint Forces Command, Net-Centric Integration, Communication, and Capabilities Division, J68
Defense Information Systems Agency, GS23

## 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 L-3 Communications Maritime Communication (MarCom) Integrated Voice Communication System (IVCS) Version 7.5.2 Build 4 (Tracking Number 1027101)," 28 February 2010
(f) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01C, "Policy for Department of Defense Voice Services with Real Time Services (RTS)," 9 November 2007