



DEFENSE INFORMATION SYSTEMS AGENCY

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ARLINGTON, VIRGINIA 22204-4502

IN REPLY
REFER TO: Battlespace Communications Portfolio (JTE)

4 Aug 10

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of the Callware Technologies Callegra.Unified Communications (UC)TM Server with Software Release 6.14-Joint Interoperability Test Command (JITC) Service Pack 1 Release Update 2 (SP1RU2)

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

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), JITC, as the responsible organization for interoperability test certification.

2. The Callware Technologies Callegra.UCTM Server with Software Release 6.14-JITC SP1RU2 is hereinafter referred to as the System Under Test (SUT). The JITC suffix was attached to the SUT commercial software release 6.14 because it includes Defense Switched Network (DSN) military unique features. The SUT met the interface and functional requirements for automated receiving devices set forth in Reference (c). The SUT is certified for joint use within the DSN with the following interfaces with any voice circuit switch on the Unified Capabilities (UC) Approved Products List (APL) that has the same certified interface: analog and Digital Transmission Link Level 1 (T1) Channel Associated Signaling (CAS) Dual Tone Multifrequency (DTMF) ground start. The SUT is certified for other interfaces with specific switches as specified in Table 1. The SUT offers integrated automated attendant (Auto Attendant) and voice messaging (Voicemail) functionality with the following optional applications: CallegraVOICETM, CallegraFAXTM, CallegraINBOXTM, CallegraWEBTM, CallegraCOMMUNITYTM, and CallegraTTSTM. The SUT also offers the Callegra.UC SDKTM application, which was not tested and is not covered under this certification. All Callware applications run on the Callegra.UCTM Server and are administered using the Microsoft Management Console (MMC) module. CallegraADMINTM for MMC is an integral part of the SUT. The SUT was tested with the switching systems and their respective software releases listed in the Certification Testing Summary (Enclosure 2). The specific SUT applications certified on each available interface are depicted in Table 1. Testing was conducted using test procedures derived from Reference (d). No other configurations, features, or functions, except those cited within this report, are certified by 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 certification is based on interoperability testing, review of the vendor's Letter of Compliance (LoC), and DSAWG accreditation. Interoperability testing was conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, Arizona, from 30 April through 11 May 2007. Review of the vendor's LoC was completed on 1 June 2007. Regression testing to include Digital Transmission Link Level 1 (T1) Primary Rate Interface (PRI) Q Signaling (QSIG) and National Integrated Services Digital Network (ISDN) 2 (NI2) integration for voicemail, auto attendant and telephone notification functionality was conducted from 5 through 8 January 2009. Additional testing on the Avaya S8710 and Communication Server (CS)1000M switches was conducted from 22 through 26 February 2010. The SUT supports the same software, interfaces, and functionality as when it was tested in 2007. The only difference is that the SUT now supports either Microsoft XP or Microsoft Windows Vista operating system platform. A review of the SUT and comparison with the new requirements in References (c) and (e) was conducted on 15 December 2009 to determine the SUT was compliant to all applicable Unified Capabilities Requirements (UCR) requirements without additional interoperability testing. DSAWG granted accreditation on 16 July 2010 based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (f). 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. This interoperability test status is based on the SUT's ability to meet:

a. Automated receiving device requirements specified in References (c) and (e) verified through JITC testing and/or vendor submission of LoC.

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

Table 1. SUT Functional Requirements and Interoperability Status

Interface	Critical	Certified	Functional Requirements	Status	UCR Paragraph
EIA-232 Serial	No ¹	Yes	ANSI/TIA/EIA-232-F (C)	Met	5.2.12.3.5
2-Wire Analog (GR-506-CORE) ² 2-Wire Digital Proprietary ³	No ¹	Yes	FCC Part15/Part 68 (R)	Met	5.2.12.3.5
			DTMF outpulsing (C)	Met	5.2.12.3.5, 5.2.4.4.1, and 5.2.4.4.2
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
			TIA/EIA-470-B (R)	Met	5.2.12.3.5.1
T1 CAS (DTMF) (Wink Start) ⁴	No ¹	Yes	PCM-24 (R)	Met	5.2.6.1
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
T1 CAS (DTMF) (Ground Start) ⁵	No ¹	Yes	PCM-24 (R)	Met	5.2.6.1
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
T1 ISDN PRI NI 1/2 (ANSI T1.619a) ⁶	No	Yes	PCM-24 (R)	Met	5.2.12.3.5.5 and 5.2.6.1
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
T1 ISDN PRI Q-SIG (ISDN ITU-T Q.931) ⁷	No	Yes	PCM-24 (R)	Met	5.2.12.3.5.5 and 5.2.6.1
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
	Yes	Yes	Security (R)	See note 8.	3.2.3, 3.2.5, and 5.4.6.1

NOTES:

- The Automated Receiving Device requirements can be met via one of the following interfaces: 2-Wire Analog, 4-Wire Digital, PCM-24, or PCM-30.
- This interface requires a serial SMDI link. The SUT analog interface supports all of the SUT applications which include: Auto Attendant, Voicemail, CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. This interface is certified with any voice circuit switch on the UC APL that has a certified analog interface.
- The digital proprietary interface supports the following SUT applications: Auto Attendant, Voicemail, CallegraVOICE™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. The SUT digital proprietary interface emulates the Avaya Meridian 1 M2616 and the Avaya 8434D.
- This interface requires a serial SMDI link. The SUT T1 CAS wink start interface supports the following SUT applications: Auto Attendant, Voicemail, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. The SUT is certified with this interface only with the Alcatel-Lucent 5ESS and Nokia-Siemens EWSD switching systems listed on the UC APL.
- This interface requires a serial SMDI link. The SUT T1 CAS ground start interface supports all of the SUT applications which include: Auto Attendant, Voicemail, CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. This interface is certified with any voice circuit switch on the UC APL that has a certified T1 CAS ground start interface.
- This interface requires a serial SMDI link. The SUT T1 PRI NI2 interfaces support all of the SUT applications which include: Auto Attendant, Voicemail, CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. The T1 PRI NI2 interface is certified only with the Alcatel-Lucent 5ESS and Nokia-Siemens EWSD switching systems listed on the UC APL.
- The SUT T1 PRI QSIG interface supports all of the SUT applications which include: Auto Attendant, Voicemail, CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. The T1 PRI QSIG interface is certified only with Avaya S8400, S8500, S87XX series, CS1000M, or CS1000E switching systems on the UC APL.
- Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (f).

Table 1. SUT Functional Requirements and Interoperability Status (continued)

LEGEND:			
5ESS	Class 5 Electronic Switching System	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements
ANSI	American National Standards Institute	Mbps	Megabits per second
APL	Approved Products List	MLPP	Multi-Level Precedence and Preemption
C	Conditional	NI 1/2	National ISDN Standard 1 or 2
CAS	Channel Associated Signaling	NI2	National ISDN Standard 2
CS	Communication Server	PCM-24	Pulse Code Modulation - 24 Channels
DISA	Defense Information Systems Agency	PCM-30	Pulse Code Modulation - 30 Channels
DISR	Department of Defense Information Technology Standards Registry	PRI	Primary Rate Interface
DTMF	Dual Tone Multi-Frequency	Q.931	Signaling Standard for ISDN
EIA	Electronic Industries Alliance	QSIG	an ISDN based signaling protocol
EIA-232	Standard for defining the mechanical and electrical characteristics for connecting Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) data communications devices	R	Required
EWSD	Elektronisches Wählsystem Digital	SMDI	Simple Message Desk Interface
FCC	Federal Communications Commission	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	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
ITU-T	International Telecommunication Union - Telecommunication Standardization Sector	TIA	Telecommunications Industry Association
		TIA/EIA-470-B	Performance and Compatibility Requirements for Telephone Sets with Loop Signaling
		UC	Unified Capabilities
		UCR	Unified Capabilities Requirements


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://199.208.204.125> (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, Callware Technologies Callegra.Unified Communications (UC)™ Server with Software Release 6.14-Joint Interoperability Test Command (JITC) Service Pack 1 Release Update 2 (SP1RU2)

6. The JITC point of contact is Mr. Khoa Hoang, DSN 879-4376, commercial (520) 538-4376, FAX DSN 879-4347, or e-mail to khoa.hoang@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0929601.

FOR THE COMMANDER:

2 Enclosures a/s


for RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

Distribution (electronic mail):

Joint Staff J-6

Joint Interoperability Test Command, Liaison, TE3/JT1

Office of Chief of Naval Operations, CNO N6F2

Headquarters U.S. Air Force, Office of Warfighting Integration & CIO, AF/XCIN (A6N)

Department of the Army, Office of the Secretary of the Army, DA-OSA CIO/G-6 ASA (ALT), SAIS-IOQ

U.S. Marine Corps MARCORSSYSCOM, SIAT, MJI Division I

DOT&E, Net-Centric Systems and Naval Warfare

U.S. Coast Guard, CG-64

Defense Intelligence Agency

National Security Agency, DT

Defense Information Systems Agency, TEMC

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) Defense Information Systems Agency (DISA), "Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR), Errata Change 2," 14 December 2006
- (d) Joint Interoperability Test Command, "Generic Switch Test Plan (GST), Change 2," 2 October 2006
- (e) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008," 22 January 2009
- (f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Callware Technologies Inc. (CTI), Callegra.UC Voicemail / Unified Messaging / Unified Communications (UC) Release (Rel.) 6.14 Joint Interoperability Test Command (JITC) Service Pack 1 Release Update 2 (SP1RU2) (Tracking Number 0929601)," 16 July 2010

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. Callware Technologies Callegra.Unified Communications (UC)™ Server with Software Release 6.14-Joint Interoperability Test Command (JITC) Service Pack 1 Release Update 2 (SP1RU2); hereinafter referred to as the System Under Test (SUT).

2. PROPONENT. Program Executive Office for Command, Control, Communication, and Intelligence Shore and Expeditionary Office (PEO C4I).

3. PROGRAM MANAGER. Ms. Shirley Dolengo, PMW 790, 4301 Pacific Coast Highway, Building OT4, Rm 2043, San Diego, California, 92110, e-mail: shirley.Dolengo@navy.mil.

4. TESTER. Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.

5. SYSTEM UNDER TEST DESCRIPTION. The SUT offers an integrated automated attendant (Auto Attendant) and voice messaging (Voicemail) solution that expands to include speech recognition. The SUT also offers additional unified messaging advantages such as fax services, browser-based voice and fax messaging, and e-mail integration including text-to-speech. The SUT was designed with an extensible markup language based N-tier (N denotes any number; i.e., 2, 3, 10, etc.), object-oriented, distributed architecture allowing it to scale from a full-featured four-port voicemail system up to a very large network of unified communication installations. Client applications are supported on the desktop versions of Microsoft Windows that are approved for use within the Department of Defense. The SUT utilizes a graphical interface for system setup and administration.

The SUT offers both an integrated Auto Attendant and Voicemail functionality, and includes the following optional applications: CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraCOMMUNITY™, CallegraWEB™, and CallegraTTS™. The SUT also offers the Callegra.UC SDK™ application, which was not tested and is not covered under this certification. All Callware applications run on the Callegra.UC™ Server and are administered using the included Microsoft Management Console (MMC) module. CallegraADMIN™ for MMC is an integral part of the SUT. The SUT consists of the Callegra Client Workstation, CWDataCenter, CWTelephonyServer, CWDataCenter-CallegraRECOVERY(Principal), CWDataCenter-CallegraRECOVERY(Mirror), and Data Distribution Device. The following are descriptions of the applications covered by this certification:

The Callegra.UC™ Server offers integrated Auto Attendant and Voicemail and expands to include speech recognition. The following features are supported by this application:

- Multiple Private Branch Exchange (PBX) integration methods across multiple PBX manufacturers
- Diagnostic tracing
- Multi-tenanting

- Multi-site networking
- On-line help and documentation
- Fax tone auto-transfer
- Box alias table (inbound routing)
- Dial string translation (outbound routing)

The Auto Attendant can be used as the primary reception, answering all incoming calls, or it can be set up to provide overflow or secondary support for a live receptionist. The following features are supported by this application:

- "0" for operator or another extension
- Multiple call routing options. Audiotext boxes within Callegra systems can offer up to 250 distinct call routing options per box. Audiotext boxes are used mainly for auto attendant trees and can also be used for unlimited announcement applications, general information, and call routing capabilities without messaging capability
- Direct to voice mail transfer
- Directory look-up
- Scheduled greetings
- Holiday greetings
- Message edit and delivery options
- Auto transfers

CallegraADMIN™ for MMC is an integral part of the SUT. All Callware applications run on the Callegra.UC™ Server and are administered using the included MMC module. The following features are offered by this application:

- Local or remote access for Callegra administrators
- Real time dynamic box administration
- Global distribution lists
- System utilities

CallegraVOICE™ brings speech-enabled call routing and auto attendant functionality to the SUT through the use of speech recognition technology. The following features are supported by this application:

- Voice activated call routing
- Speech enabled employee directory
- Speech enabled directory for box owners

CallegraFAX™ module allows incoming faxes to be delivered to the SUT. The following features are supported by this application:

- Message waiting indicator
- Pager notification
- Telephone notification
- Directory look-up
- E-mail notification including Short Message Service (SMS) paging to compatible devices

CallegraWEB™ for Internet Explorer is a browser-based Internet client giving the SUT the ability to access and control voice and fax messages over the Internet. The following features are supported by this application:

- Accessing voice messages via the internet
- Accessing faxes via the internet
- Sending voice messages via the internet
- Sending faxes via the internet

CallegraINBOX™ for Microsoft Outlook provides complete voice and fax integration with Microsoft Outlook. The following features are supported by this application:

- Microsoft Outlook 2000 and XP
- Windows 98, ME, NT4.0, 2000, XP
- Mail server independent
- Callegra options menu
- Passcode protected
- Telephone and multimedia support
- Intuitive visual message control
- Send and forward as e-mail
- Confidential and urgent messaging
- Integrated Callegra address book
- Fax print driver
- Fax viewers
- Xerox TextBridge Optical Character Recognition
- Sent fax log
- Message store controls
- Personal greeting controls
- Remote Internet Protocol (IP) access
- Notification control

CallegraCOMMUNITY™ provides a method of sending voice messages from one Callegra.UC™ system to another in a Callegra Voice Profile for Internet Mail (CVPIM) network environment. CallegraCOMMUNITY™ will allow a network of independent Callegra.UC™ systems to exchange messages in a loosely-coupled environment. This message exchange will be achieved through CVPIM. CVPIM is a method for encoding voicemail messages as data, enabling travel via the Simple Mail Transfer Protocol (SMTP) mail protocol over IP networks.

CallegraTTS™ provides callers with the ability to call into the Callegra.UC voice mail system and listen to their e-mail messages as they are converted from text to speech via the Telephone User Interface (TUI). CallegraTTS™ also plays the distributed Datacenter server names when using CallegraCOMMUNITY™ in a CVPIM IP network and outputs the information over the TUI.

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.

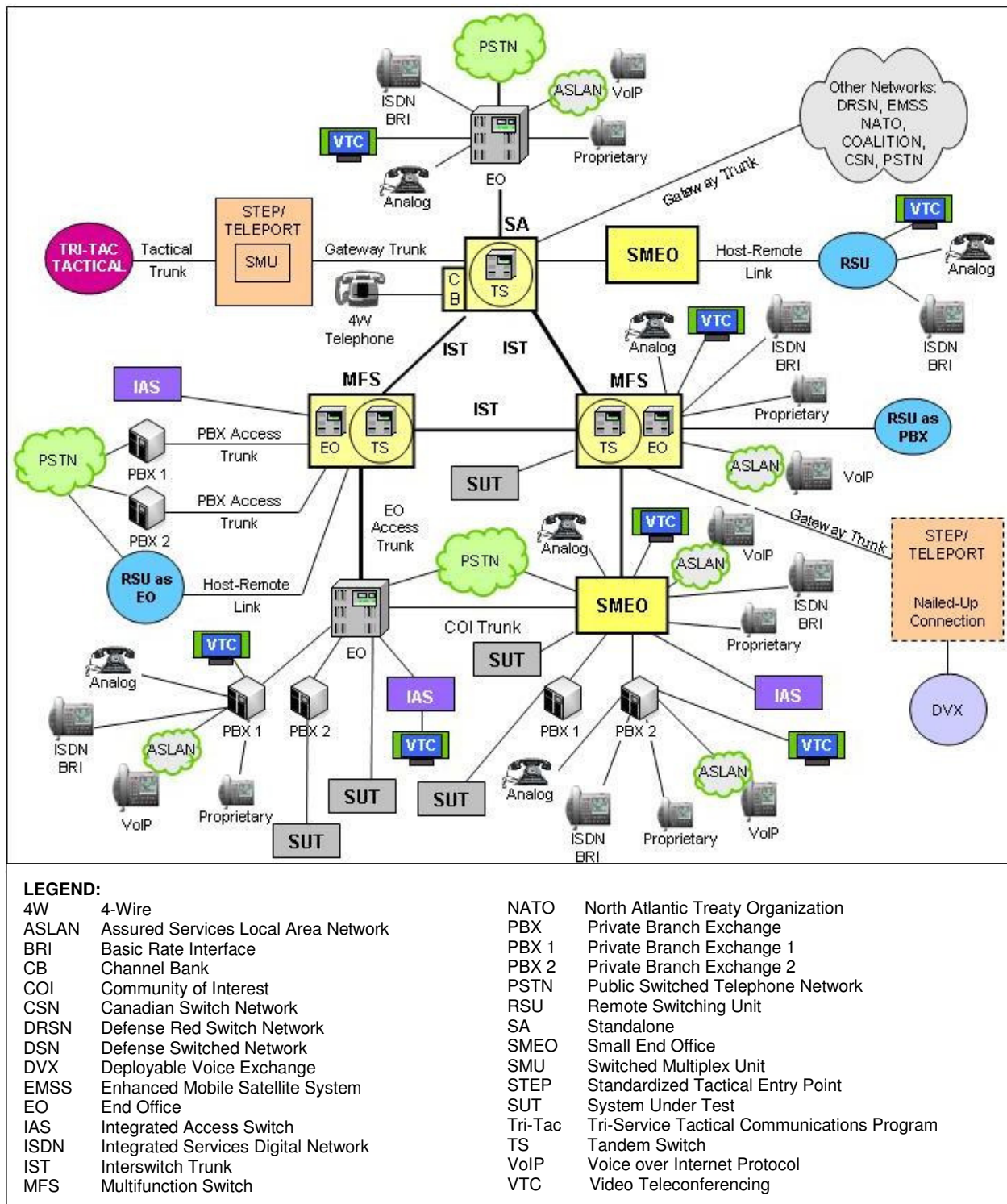


Figure 2-1. DSN Architecture

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 and were verified through JITC testing. The specific SUT applications certified on each interface are depicted in Table 2-1.

Table 2-1. SUT Functional Requirements and Interoperability Status

Interface	Critical	Certified	Functional Requirements	Status	UCR Paragraph
EIA-232 Serial	No ¹	Yes	ANSI/TIA/EIA-232-F (C)	Met	5.2.12.3.5
2-Wire Analog (GR-506-CORE) ² 2-Wire Digital Proprietary ³	No ¹	Yes	FCC Part15/Part 68 (R)	Met	5.2.12.3.5
			DTMF outpulsing (C)	Met	5.2.12.3.5, 5.2.4.4.1, and 5.2.4.4.2
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
			TIA/EIA-470-B (R)	Met	5.2.12.3.5.1
T1 CAS (DTMF) (Wink Start) ⁴	No ¹	Yes	PCM-24 (R)	Met	5.2.6.1
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
T1 CAS (DTMF) (Ground Start) ⁵	No ¹	Yes	PCM-24 (R)	Met	5.2.6.1
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
T1 ISDN PRI NI 1/2 (ANSI T1.619a) ⁶	No	Yes	PCM-24 (R)	Met	5.2.12.3.5.5 and 5.2.6.1
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
T1 ISDN PRI Q-SIG (ISDN ITU-T Q.931) ⁷	No	Yes	PCM-24 (R)	Met	5.2.12.3.5.5 and 5.2.6.1
			DISR compliance as applicable (R)	Met	5.2.12.3.5
			ROUTINE precedence only in accordance with UCR, section 5.2.2 (R)	Met	5.2.12.3.5
	Yes	Yes	Security (R)	See note 8.	3.2.3, 3.2.5, and 5.4.6.1

NOTES:

- 1 The Automated Receiving Device requirements can be met via one of the following interfaces: 2-Wire Analog, 4-Wire Digital, PCM-24, or PCM-30.
- 2 This interface requires a serial SMDI link. The SUT analog interface supports all of the SUT applications which include: Auto Attendant, Voicemail, CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. This interface is certified with any voice circuit switch on the UC APL that has a certified analog interface.
- 3 The digital proprietary interface supports the following SUT applications: Auto Attendant, Voicemail, CallegraVOICE™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. The SUT digital proprietary interface emulates the Avaya Meridian 1 M2616 and the Avaya 8434D.
- 4 This interface requires a serial SMDI link. The SUT T1 CAS wink start interface supports the following SUT applications: Auto Attendant, Voicemail, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. The SUT is certified with this interface only with the Alcatel-Lucent 5ESS and Nokia-Siemens EWSD switching systems listed on the UC APL.
- 5 This interface requires a serial SMDI link. The SUT T1 CAS ground start interface supports all of the SUT applications which include: Auto Attendant, Voicemail, CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. This interface is certified with any voice circuit switch on the UC APL that has a certified T1 CAS ground start interface.

Table 2-1. SUT Functional Requirements and Interoperability Status (continued)

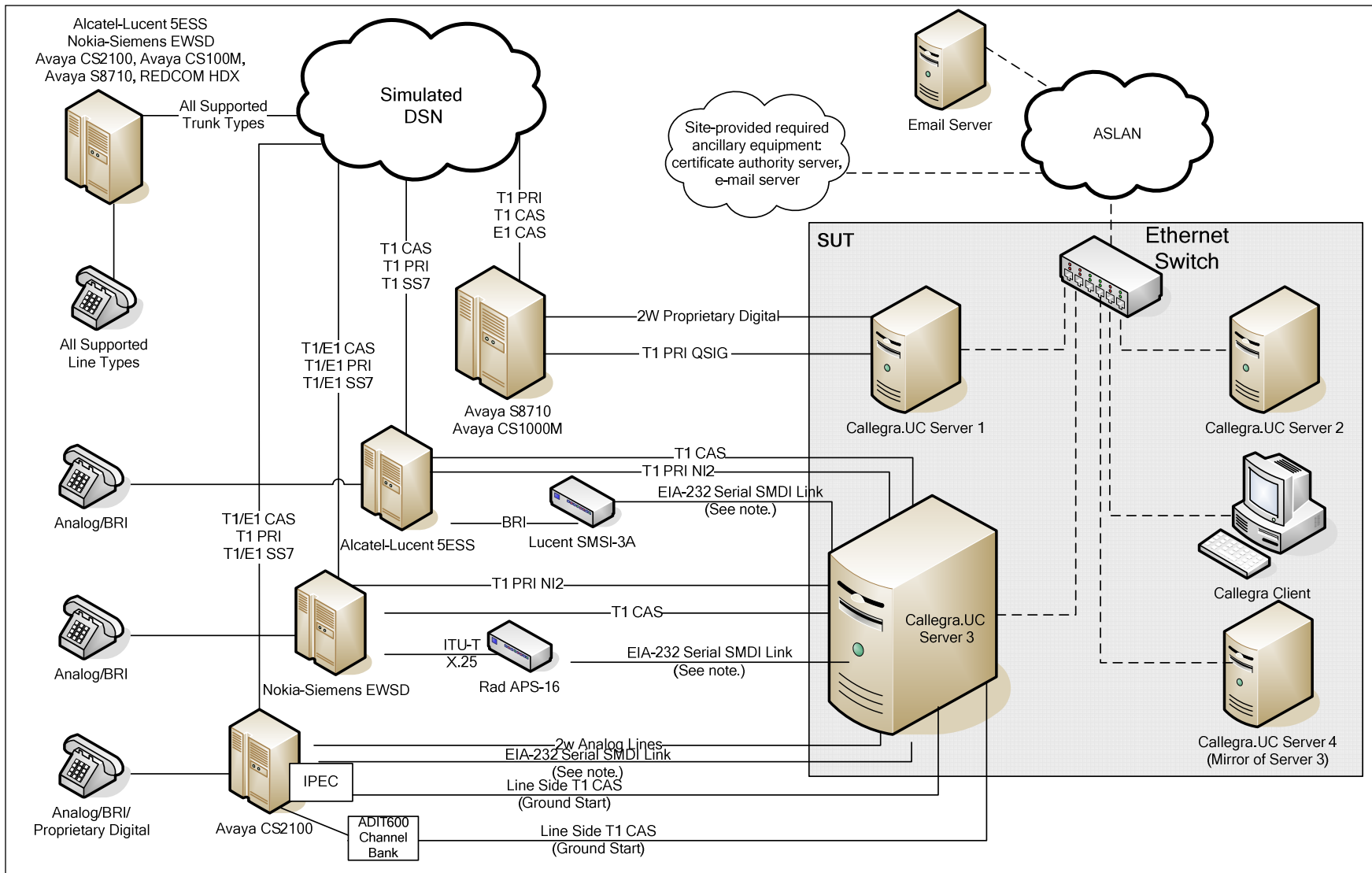
NOTES (continued):

- 6 This interface requires a serial SMDI link. The SUT T1 PRI NI2 interfaces support all of the SUT applications which include: Auto Attendant, Voicemail, CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. The T1 PRI NI2 interface is certified only with the Alcatel-Lucent 5ESS and Nokia-Siemens EWSD switching systems listed on the UC APL.
- 7 The SUT T1 PRI QSIG interface supports all of the SUT applications which include: Auto Attendant, Voicemail, CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. The T1 PRI QSIG interface is certified only with Avaya S8400, S8500, S87XX series, CS1000M, or CS1000E switching systems on the UC APL.
- 8 Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (f).

LEGEND:

5ESS	Class 5 Electronic Switching System	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements
ANSI	American National Standards Institute	Mbps	Megabits per second
APL	Approved Products List	MLPP	Multi-Level Precedence and Preemption
C	Conditional	NI 1/2	National ISDN Standard 1 or 2
CAS	Channel Associated Signaling	NI2	National ISDN Standard 2
CS	Communication Server	PCM-24	Pulse Code Modulation - 24 Channels
DISA	Defense Information Systems Agency	PCM-30	Pulse Code Modulation - 30 Channels
DISR	Department of Defense Information Technology Standards Registry	PRI	Primary Rate Interface
DTMF	Dual Tone Multi-Frequency	Q.931	Signaling Standard for ISDN
EIA	Electronic Industries Alliance	QSIG	an ISDN based signaling protocol
EIA-232	Standard for defining the mechanical and electrical characteristics for connecting Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) data communications devices	R	Required
EWSD	Elektronisches Wählsystem Digital	SMDI	Simple Message Desk Interface
FCC	Federal Communications Commission	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	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
ITU-T	International Telecommunication Union - Telecommunication Standardization Sector	TIA	Telecommunications Industry Association
		TIA/EIA-470-B	Performance and Compatibility Requirements for Telephone Sets with Loop Signaling
		UC	Unified Capabilities
		UCR	Unified Capabilities Requirements

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 configurations depicted in Figure 2-2.



LEGEND:	
2w	2-wire
APS	Asynchronous Packet Switching
ASLAN	Assured Services Local Area Network
5ESS	Class 5 Electronic Switching System
BRI	Basic Rate Interface
CAS	Channel Associated Signaling
CS	Communication Server
DCE	Data Circuit-terminating Equipment
DSN	Defense Switched Network
DTE	Data Terminal Equipment
E1	European Basic Multiplex Rate (2.048 Mbps)
EIA	Electronic Industries Alliance
EIA-232	Standard for defining the mechanical and electrical characteristics for connecting DTE and DCE data communications devices
EWSD	Elektronisches Wählsystem Digital
HDX	High Density Exchange
IPEC	Intelligent Peripheral Equipment Cabinet
ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
Mbps	Megabits per second
NI2	National ISDN Standard 2
PRI	Primary Rate Interface
QSIG	an ISDN based signaling protocol
SMDI	Simple Message Desk Interface
SMSI	Simple Message Service Interface
SS7	Signaling System 7
SUT	System Under Test
T1	Digital Transmission Link Level 1 (1.544 Mbps)
UC	Unified Communications
VoIP	Voice over Internet Protocol
X.25	Interface between DTE and DCE for terminals operating in the packet mode and connected to public data networks by dedicated circuit

Figure 2-2. Callware Callegra.UC Test Configuration (continued)

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 analog interface is certified with any voice circuit switch listed on the Unified Capabilities (UC) Approved Products List (APL) that has a certified analog interface. The SUT is certified for other interfaces as specified in Table 2-1.

Table 2-2. Tested System Configurations

System Name	Software Release	
Avaya S8710	Communication Manager (CM) 4.0 (R014x.00.2.731.7)	
Nokia-Siemens EWSD	19d with Patch Set 46	
Avaya CS2100	Succession Enterprise (SE)09.1	
Alcatel-Lucent 5ESS	5E16.2, Broadcast Warning Message 09-0002	
Avaya CS1000M	5.0	
REDCOM HDX	3.0A R3P0	
SUT	Hardware	Software/Firmware
Callware Technologies Callegra UC Servers with Release 6.14 J1TC SP1RU2	Callegra Client Workstation	
	2.4 Gigahertz Pentium 4, 1 Gigabyte RAM	Windows XP or Windows Vista
		MSMQ
		Microsoft .NET 2.0
		Internet Explorer 7.0
		Microsoft Media Player 9
		Microsoft Outlook XP/2003
		CallegraINBOX for Microsoft Outlook
		CallegraWEB
		CallegraFAX Print Driver
	CallegraADMIN for Remote MMC	
	CWDataCenter	
	Intel/Dialogic D120JCT D480JCT-T1 Brooktrout TR1034 Fax Board	Windows 2003 Server Standard Edition
		SQL Server 2005 version 9
		MSMQ, MSXML version 3.0, and MDAC
		Microsoft .NET 2.0
		IIS version 6
		Internet Explorer 7.0
		Intel/Dialogic System Release 6.0
		Brooktrout Fax Board Driver
		DataCenter Services
		Client Services
		TelephonyServices
	CallegraCOMMUNITY-GAB	
	Nuance 8.5	
	RealSpeak 4.0	
	CWTelephonyServer	
	D240JCT-T1	Windows 2003 Server Standard Edition
		MSMQ, MSXML version 3.0
		Microsoft .NET 2.0
		IIS version 6
		Internet Explorer 7.0
		Intel/Dialogic System Release 6.0
TelephonyServices		

Table 2-2. Tested System Configurations (continued)

SUT	Hardware		Software/Firmware
Callware Technologies Callegra.UC Servers with Release 6.14 JITC SP1RU2	CWDataCenter-CallegraRECOVERY (Principal)		
	2.80 Gigahertz Pentium 4 Dual Core, 1 Gigabyte RAM	Windows 2003 Server Standard Edition	
		MSMQ, MSXML version 3.0, and MDAC	
		SQL Server 2005 version 9	
		Microsoft .NET 2.0	
		IIS version 6	
		Internet Explorer 7.0	
		DataCenter Services	
		TelephonyServices	
		ClientServices	
		CallegraCOMMUNITY-GAB	
		Nuance 8.5	
	Backup Exec 12.5		
	RealSpeak 4.0		
	Brooktrout Fax Board Driver		
	Brooktrout TR1034 T-1 Fax Board	Fax Driver: Brooktrout ver 4.8.0.0	
	Dialogic Analog Card (D/120 JCT) Dialogic Card (D/480JCT-2T1)	SW 6.0 / FW rev 2	
CWDataCenter-CallegraRECOVERY (Mirror)			
Dell Deminsion 2.4 Gigahertz Pentium 4, 1 Gigabyte RAM (Site-provided)	Windows 2003 Server Standard Edition		
	MSMQ, MSXML version 3.0, and MDAC		
	SQL Server 2005 version 9		
	Microsoft .NET 2.0		
	IIS version 6		
	Internet Explorer 7.0		
	DataCenter Services		
	TelephonyServices		
	ClientServices		
	CallegraCOMMUNITY-GAB		
	Nuance 8.5		
Backup Exec 12.5			
RealSpeak 4.0			
Data Distribution Device	N/A		
Peripheral Components	Component	Hardware	Firmware
	Packet Switch	RAD APS	Not Applicable
	Converter	Lucent SMSI-3A	Not Applicable
	Peripheral Module	Nortel IPEC	Not Applicable
	Channel Bank	ADIT600	Version 2.0
	Telephones	Panasonic KX-TS15-W	Not Applicable
		REDCOM VOTPS	Not Applicable
		Siemens Optiset	Not Applicable
		Lucent 8510	Not Applicable
		Avaya M5317T	5.0 1999
		Avaya P-Phone Digital Display	Not Applicable
Tone Commander: 6210U, 6210T, 6220U, 6220T, 6220T TSG, 8610U, 8610T, 8620U, and 8620T		01.07.22	
Tone Commander: 8810U and 8810T	02.07.22		

Table 2-2. Tested System Configurations (continued)

LEGEND:			
5ESS	Class 5 Electronic Switching System	P-Phone	Proprietary Phone
APS	Asynchronous Packet Switching	RAM	Random Access Memory
BRI	Basic Rate Interface	SMSI	Simple Message Service Interface
CS	Communication Server	SP1RU2	Service Pack 1 Release Update 2
EWSD	Elektronisches Wählsystem Digital	SQL	Structured Query Language
HDX	High Density Exchange	SUT	System Under Test
IIS	Internet Information Services	T	Part designator for S/T interface (S/T is ISDN BRI 4-Wire interface)
IPEC	Intelligent Peripheral Equipment Column	U	Part designator for U interface (U is ISDN BRI 2-Wire Interface)
ISDN	Integrated Services Digital Network	UC	Unified Communications
JITC	Joint Interoperability Test Command	VOTPS	Voice Only Teleset Plus S (S is for the ISDN BRI 4-wire interface)
MDAC	Microsoft Data Component	XP	Experience
MMC	Microsoft Management Console		
MSMQ	Microsoft Message Queuing		
MSXML	Microsoft Extensible Markup Language		

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion

(1) The Callegra.UC™ Server, Auto Attendant, and CallegraVOICE™, CallegraFAX™, CallegraWEB™, and CallegraINBOX™ SUT applications were tested by placing multiple ROUTINE precedence calls via the test configurations as shown in Figure 2-2. In accordance with the UCR, switching systems are required to route only ROUTINE calls to automated receiving devices such as the SUT. After calls were completed to the SUT, simulated automated directory assistance, voice activated call routing, automatic transfer, and scheduled greetings were extended and completed to verify interoperability between various switching systems shown in Figure 2-2. E-mails were sent to the SUT to test the text-to-speech functionality of the SUT and insure this function had no negative impact on interoperability. No anomalies were noted during testing of the text-to-speech function. The CallegraINBOX™, CallegraFAX™, and CallegraWEB™ applications' basic functionality was tested to insure that they had no negative impact on interoperability. All tests were successful and when completed, properly disconnected the analog, digital, or VoIP circuits. In addition, completed calls to the SUT were preempted within the simulated DSN as shown in Figure 2-2 to ensure that the proper preemption action occurred as required by the UCR. All preempted calls received the proper preemption notification tone, were released, and returned to an idle state ready for the subsequent caller.

b. Test Summary. The SUT met the critical interoperability requirements for an automated receiving device for the interfaces shown in Table 2-1 as set forth in Reference (c) and is certified for joint use within the DSN. The SUT offers both integrated Auto Attendant and Voicemail and included the following optional applications: CallegraVOICE™, CallegraFAX™, CallegraINBOX™, CallegraWEB™, CallegraCOMMUNITY™, and CallegraTTS™. The SUT was tested with the switching systems and their respective software releases listed in Table 2-2. JITC analysis

determined a minor risk with including all certified DSN switching systems listed on the UC APL that support the same SUT interfaces. The specific SUT applications certified on each interface are depicted in Table 2-1.

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.