DEFENSE INFORMATION SYSTEMS AGENCY
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IN REPLY REFER TO: Joint Interoperability Test Command (JTE) **31 Jul 14**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Joint Interoperability Certification of the Callware Technologies Callegra.Unified Communications (UC)™ Server with Software Release 6.15-Joint Interoperability Test Command (JITC)

References: (a) DoD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) Department of Defense Instruction 8100.04, "DoD Unified Capabilities (UC)," 9 December 2010
(c) through (h), see Enclosure

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

2. The Callware Technologies Callegra.UC™ Server with Software Release 6.15-JITC is hereinafter referred to as the System Under Test (SUT). The JITC suffix was attached to the SUT commercial software release 6.15 to indicate inclusion of Defense Switched Network (DSN) military unique features. The SUT meets all of its critical interoperability requirements and is therefore certified for joint use within the Defense Information Systems Network (DISN) as a Customer Premise Equipment (CPE) automated receiving device. The SUT is certified for joint use within the DISN with the following Local Session Controllers (LSCs) listed on the Unified Capabilities (UC) Approved Products List (APL) via the Assures Services Session Initiation Protocol (AS-SIP) interface: Cisco Unified Communications Manager (UCM) 8.0(2), Cisco UCM 8.6.1, and Avaya Aura Communications Manager (CM) 6. The SUT met the critical interoperability requirements set forth in Reference (c), using test procedures derived from References (d), (e), and (f). No other configurations, features, or functions, except those cited within this memorandum, are certified by JITC. This certification expires upon changes that could affect interoperability, but no later than three years from the date of the original memorandum (26 August 2013).

3. The extension of this certification is based upon Desktop Review (DTR) 1. The original certification, documented in Reference (g), is based on interoperability testing conducted by U.S. Navy, Space and Naval Warfare Systems Command (SPAWAR), Navy Voice Laboratory, review of the vendor's Letter of Compliance (LoC), and DISA Certifying Authority (CA) Recommendation of the Information Assurance (IA) configuration. Interoperability testing was conducted by SPAWAR, Portsmouth, Virginia, from 27 May through 7 June 2013. Review of the vendor's LoC was completed on 15 May 2013. Information Assurance (IA) testing was conducted by SPAWAR-led IA test teams and published in a separate report, Reference (h). This DTR was requested to include Service Pack 1 (SP) 1. SP 1 consolidates previous Hot Fixes

and has an updated Voice Recognition Engine for use by the Auto-Attendant feature. This DTR was also requested to include certification to the NEC UNIVERGE 3C over the AS-SIP interface. This DTR was also requested to include an AudioCodes Mediant 800 media gateway to include AS-SIP to TDM integration to legacy switches. The integration includes the following legacy interfaces: 2-wire analog, Digital Transmission Link Level 1 (T1) Line-side Loop Start, T1 Line-side Ground Start, and T1 Primary Rate Interface (PRI) Q Signaling (Q Sig). JITC determined this DTR required Verification and Validation (V&V) testing. JITC successfully conducted V&V testing from 17 through 28 February 2014. The SUT was tested with the following switches during this V&V test: Avaya Communication Server (CS) 2100, Avaya CS1000M, and NEC UNIVERGE 3C. JITC analysis determined these interfaces are certified for use with any LSC or legacy MFS, EO, SMEO, PBX 1, PBX 2, or Deployable PBX that is or was previously on the UC APL certified for the same interface. Table 1 depicts the SUT system configuration for this DTR. Table 2 depicts the network architecture components.

Table 1. SUT Tested System Configuration

Callegra.UC 6.15-JITC SP1 (See note 1.) (SUT)	
Hardware (See note 2.)	**Software/Services**
Callegra.UC Primary Server 1 (CWDataCenter) Data Server	Microsoft Windows Server 2008 R2 Callegra.UC 6.15 SP1 Dialogic Brooktrout 6.4.8 Dialogic 6.1.271 DataCenter Server Dialogic HMP 5 Brooktrout SR140 fax driver ClientServices CallegraWeb TelephonyServices CallegraCommunity-GAB Microsoft Distributed File System (DFS)
Callegra.UC Primary Server 2 (CWDBServer) Database Server	Windows Server 2008 R2 Callegra.UC 6.15 Microsoft SQL Server 2008 R2SP2 SQL Mirroring (principal) CW/Global Directory
Callegra.UC Primary Server 3 (Dialogic Media Server) Media Server	Linux Server – RHEL6 Dialogic HMP 5
Callegra.UC Primary Server 4 (CWTS). This server was not included in the SUT during testing for DTR 1.	Microsoft Windows Server 2008 R2 Callegra.UC 6.15 SP1 Dialogic 6.1.271 TelephonyServices Dialogic HMP 5 Brooktrout SR140 driver
Callegra.UC Primary Server 5 (Dialogic Media Server). This server was not included in the SUT during testing for DTR 1.	Linux Server – RHEL6 Dialogic HMP 5
Callegra.UC CallegraRecovery Server 1 (CWDataCenter2) Data Server	Microsoft Windows Server 2008 R2 Dialogic HMP 5 Brooktrout SR140 fax driver DataCenter ClientServices CallegraWeb TelephonyServices CallegraCommunity-GAB Microsoft Distributed File System (DFS)

Table 1. SUT Tested System Configuration (continued)

Callegra.UC 6.15-JITC SP1 (See note 1.) (SUT)	
Hardware (See note 2.)	**Software/Services**
Callegra.UC CallegraRecovery Server 2 (CWDBServerBack) Database Server	Microsoft Windows Server 2008 R2 Microsoft SQL Server 2008 R2SP2 SQL Mirroring (Mirror) CW/Global Directory
Callegra.UC CallegraRecovery Server 3 (Backup media server) Media Server	Linux Server – RHEL6 Dialogic HMP 5
Management Workstation (site-provided)	Microsoft Windows 7 SP1 VMware vSphere client 5.1 CallegraAdmin for MMC 1.0.0 CallegraINBOX for Microsoft Outlook 6.15.0022
Callegra Client Workstation (site-provided)	Microsoft Windows 7 SP1 Microsoft Outlook 2007/2010 CallegraINBOX for Microsoft Outlook CallegraWeb - IE10 CallegraFAX Print Driver CallegraADMIN remote for MMC
AudioCodes Mediant 800 Gateway (See note 3.)	6.60A.019.004
AudioCodes Mediant 800 Gateway (See note 4.)	6.60A.038.003
ADIT600 Channel Bank (See note 5.)	10.1.2

NOTES:
1. This DTR included SP1, which consolidates previous Hot Fixes and has an updated Voice Recognition Engine for use by the Auto-Attendant Feature.
2. During the original test, the primary and backup servers were VMs running on two physical servers, one for primary and one for backup. During the testing for DTR 1, the SUT servers were on separate server hardware. The SUT is certified for use with the SUT servers on separate server hardware or running as VMs on one server each for primary and backup.
3. This AudioCodes Mediant 800 Gateway was included in the original certification as the fax services gateway. This component was not included in DTR 1.
4. This AudioCodes Mediant 800 Gateway was not included in the original certification. This component was included in DTR 1 to provide analog or T1 access.
5. The ADIT600 Channel Bank is an optional component to the SUT. It is required for conversion of T1 Line-side Loop Start to analog.

LEGEND:

DTR	Desktop Review	SUT	System Under Test
R2	Release 2	T1	Digital Transmission Link Level 1
SP	Service Pack	VM	Virtual Machine

Table 2. Test Infrastructure Hardware/Software Version Identification

System Name	Software Release	Remarks
CS2100 w/ SMDI	Succession Enterprise (SE)09.1	
CS1000M- PRI QSIG	5.0	
NEC UNIVERGE 3C	8.5.2.1	
Cisco 2960 Switch	IOS 15.0(2)SE fc1, 12.2(44)SE5	

LEGEND:
AS Application Server
CS Communication Server

4. The interface, Capability Requirements (CRs), Functional Requirement (FRs), and component status of the SUT are listed in Tables 3 and 4. The threshold CRs/FRs for CPE are established by Section 5.2.1.2 of Reference (c) and were used to evaluate the interoperability of the SUT.

Table 3. SUT Interface Interoperability Status

Interface	Critical	UCR Reference	Threshold CR/FR (See note 1.)	Status
10Base-X	Yes	5.3.2.4.2	1-4	Certified (See note 2.)
100Base-X	Yes	5.3.2.4.2	1-4	Certified (See note 2.)
1000Base-X	No	5.3.2.4.2	1-4	Certified (See note 2.)
2-wire analog	No	(See note 3.)	2, 4, 5	Certified (See note 4.)
T1 Line-side Loop Start	No	(See note 3.)	2, 4, 5	Certified (See note 5.)
T1 Line-side Ground Start	No	(See note 3.)	2, 4, 5	Certified (See note 6.)
T1 PRI Q Signaling (Q Sig)	No	(See note 3.)	2, 4, 5	Certified (See note 7.)

NOTES:
1. The annotation of "required" refers to a high-level requirement category. The applicability of each sub-requirement is provided in Reference (g), Enclosure 3. The system under test does not need to provide conditional requirements. However, if a capability is provided, it must function according to the specified requirements in order to be certified for that capability.
2. This interface was tested and certified during the original certification test and document in Reference (g). This interface was also successfully tested during DTR 1 with the NEC Univerge 3C using the AS-SIP protocol.
3. There are no specific UCR requirements for this interface in the UCR 2008, Change 3. This requirement was derived from the UCR 2008, Change 2, section 5.2.1.2.5.
4. This interface was successfully tested with DTR 1. This interface was tested from the SUT to the Avaya CS2100 with the SMDI interface. This interface is certified for use with any LSC or legacy MFS, EO, SMEO, PBX 1, PBX 2, or Deployable PBX that is or was previously on the UC APL certified with the 2-wire analog interface.
5. This interface was successfully tested with DTR 1. This interface was tested from the SUT to the Avaya CS2100 with the SMDI interface. This interface is certified for use with any LSC or legacy MFS, EO, SMEO, PBX 1, PBX 2, or Deployable PBX that is or was previously on the UC APL certified with the T1 Line-side Loop Start interface.
6. Although this interface was not tested with DTR 1, it is included in the extension for DTR 1 due to maturity of the interface. This interface is certified for use with any LSC or legacy MFS, EO, SMEO, PBX 1, PBX 2, or Deployable PBX that is or was previously on the UC APL certified with the T1 Ground Start interface.
7. This interface was successfully tested with DTR 1. This interface was tested from the SUT to the Avaya CS1000M. This interface is certified for use with any LSC or legacy MFS, EO, SMEO, PBX 1, PBX 2, or Deployable PBX that is or was previously on the UC APL certified with the T1 PRI Q Sig interface.

LEGEND:

AS-SIP	Assured Services Session Initiation Protocol	NI2	National ISDN 2
CR	Capability Requirement	PBX	Private Branch Exchange
DTR	Desktop Review	PRI	Primary Rate Interface
EO	End Office	SMDI	Simple Message Desk Interface
FR	Functional Requirement	SMEO	Small End Office
ISDN	National Integrated Services Digital Network	SUT	System Under Test
LSC	Local Session Controller	T1	Digital Transmission Link Level 1
MFS	Multifunction Switch	UCR	Unified Capabilities Requirements

Table 4. SUT CRs and FRs Status

CR/FR ID	Capability/Function	Applicability (See note 1.)	UCR Reference (See note 2.)	Status
1	**Product Interface Requirements**			
	Interfaces to LSC	Required	5.3.2.4.2	Met (See note 3.)
2	**Customer Premise Equipment Requirements**			
	MLPP in accordance with requirements listed in section 5.3.2.3.31.3	Conditional	5.2.1.2(1)	Met (See note 4.)
	FCC Part 15/Part 68 and ACTA	Required	5.2.1.2(2)	Met (See note 4.)
	Auto Answer mode settable to more than the equivalency of 4 ROUTINE rings	Conditional	5.2.12(3)	Met (See note 4.)
	MLPP precedence call alerting	Conditional	5.2.1.2(4)	Not Tested (See note 5.)
	DTMF Outpulsing in accordance with GR-506-CORE (C)	Conditional	5.2.1.2(5)	Met (See note 4.)
	If configuration management and/or fault management are/is provided by the CPE device so that it can be managed by the ADIMSS or other management systems, the management information shall be provided by one or more serial or Ethernet interfaces.	Conditional	5.2.1.2(8)	Met (See note 4.)
	Calls above ROUTINE placed to the SUT shall divert to a designated Directory Number.	Required	5.3.2.2.2.1.2.5	Met (See note 4.)
3	**IPv6 Requirements**			
	If CPE has an IP interface, the CPE must be IPv6 capable. Use guidance in Table 5.3.5-4 for NA/SS	Required	5.3.5	Met (See note 3.)
4	**Information Assurance**			
	Security	Required	5.4	Met (See note 6.)
5	ARDs include different product types. The following are some typical devices included in this family: ACD, Voice messaging system, Automatic announcer, Event notification system, Automated attendant, Morale, welfare, and recreation (MWR) call systems, Call center system. The ARD interfacing to the LSC shall provide at least one of the following interface types:	Required	UCR 2008, Change 2, section 5.2.1.2.5	See individual interfaces below.
	A 2-wire interface as specified in Section 5.2.1.2.1, 2-Wire Analog Instruments and Devices, and/or Section 5.2.1.2.2, 2-Wire Digital Instruments and Devices.	Conditional	UCR 2008, Change 2, section 5.2.1.2.5	Met (See note 7.)
	A 4-wire interface as specified in Section 5.2.1.2.3, 4-Wire Digital Instruments and Devices.	Conditional	UCR 2008, Change 2, section 5.2.1.2.5	Not Tested (See note 8.)
	A PCM-24 channel digital interface with a 1.544 Mbps T1 bit stream configured in either the D3/D4 (Super Frame) framing format or the D5 Extended Super Frame (ESF) framing format. D5 is also referred to as Extended Frame (EF). The same framing format shall be used in both directions of transmission. Voice signals shall be encoded in the 8-bit μ (255 quantized values) pulse code modulation (PCM) encoding law. Supervisory and dial pulse (DP) signals shall utilize the A and B bits of the D3/D4 format or the A, B, C, and D bits of the D5 format for pre-CCS7 configurations. Voice channel address in-band signaling shall be provided on individual channels. The D5 format shall be the preferred and system "goal" digital framing format and shall be provided in accordance with MIL-STD-187-700. The DS1 24 channel standard interface shall be as specified in ANSI T1.102, "Digital Hierarchy – Electrical Interfaces."	Conditional	UCR 2008, Change 2, section 5.2.1.2.5	Met (See notes 9, 10, 11.)
	PCM-30 digital interfaces at a data rate of 2.048 Mbps. The PCM-30 interfaces shall meet the requirements of ITU-T Recommendation G.703 and ITU-T Recommendation G.732. Voice signals in the PCM-30 framing format shall utilize the A-law encoding technique in accordance with ITU-T Recommendation G.772 (REV), "*Protected Monitoring Points on Digital Transmission Systems."*	Conditional	UCR 2008, Change 2, section 5.2.1.2.5	Not Tested (See note 12.)

Table 4. SUT CRs and FRs Status (continued)

NOTES:
1. The annotation of "required" refers to a high-level requirement category. The applicability of each sub-requirement is provided in Reference (g), Enclosure 3.
2. All requirements for the original certification and CPE requirements for DTR 1 testing, Reference (g), were obtained from the UCR 2008, Change 3, Reference (c). The interface requirements for DTR 1 testing were obtained from the UCR 2008, Change 2.
3. The SUT met this requirement during the original test. The SUT also met this requirement during testing for DTR 1, specifically with the NEC Univerge 3C.
4. The SUT met this requirement during the original certification and testing for DTR 1.
5. This feature is conditional for CPE, was not supported by the SUT, was not tested, therefore, is not certified for use.
6. Information assurance testing is accomplished by SPAWAR-led IA test teams and published in a separate report, Reference (h). IA testing for DTR 1 was conducted by DISA-led IA test teams and the results published in a separate report, Reference (h).
7. This interface was successfully tested with DTR 1. This interface was tested from the SUT to the Avaya CS2100 with the SMDI interface. This interface is certified for use with any LSC or legacy MFS, EO, SMEO, PBX 1, PBX 2, or Deployable PBX that is or was previously on the UC APL certified with the 2-wire analog interface.
8. Although the SUT supports this interface, it was not tested and is not covered under this certification.
9. The T1 Line-side Loop Start interface was successfully tested with DTR 1. This interface was tested from the SUT to the Avaya CS2100 with the SMDI interface. This interface is certified for use with any LSC or legacy MFS, EO, SMEO, PBX 1, PBX 2, or Deployable PBX that is or was previously on the UC APL certified with the T1 Line-side Loop Start interface.
10. Although T1 Ground Start interface was not tested with DTR 1, it is included in the extension for DTR 1 due to maturity of the interface. This interface is certified for use with any LSC or legacy MFS, EO, SMEO, PBX 1, PBX 2, or Deployable PBX that is or was previously on the UC APL certified with the T1 Ground Start interface.
11. The T1 PRI Q Sig interface was successfully tested with DTR 1. This interface was tested from the SUT to the Avaya CS1000M. This interface is certified for use with any LSC or legacy MFS, EO, SMEO, PBX 1, PBX 2, or Deployable PBX that is or was previously on the UC APL certified with the T1 PRI Q Sig interface.
12. The SUT does not support this conditional interface.

LEGEND:

ACD	Automatic Call Distribution	IPv6	Internet Protocol version 6
ACTA	Administrative Council for Terminal Attachments	LoC	Letter of Compliance
ADIMSS	Advanced Defense Switched Network (DSN) Integrated Management Support System	LSC	Local Session Controller
		LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements
APL	Approved Products List	MFS	Multifunction Switch
ARD	Automated Receiving Device	MLPP	Multi-Level Precedence and Preemption
CPE	Customer Premise Equipment	NA/SS	Network Appliances and Simple Servers
CR	Capability Requirement	PBX	Private Branch Exchange
DISA	Defense Information Systems Agency	PCM	Pulse Code Modulation
DTMF	Dual Tone Multi-Frequency	PRI	Primary Rate Interface
DTR	Desktop Review	SMDI	Simple Message Desk Interface
EO	End Office	SMEO	Small End Office
FCC	Federal Communications Commission	SPAWAR	Space and Naval Warfare Command
FR	Functional Requirement	SUT	System Under Test
GR	Generic Requirement	T1	Digital Transmission Link Level 1
GR-506	LSSGR: Signaling for Analog Interfaces	UC	Unified Capabilities
IA	Information Assurance	UCR	Unified Capabilities Requirements
ID	Identification		
IP	Internet Protocol		

5. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Sensitive but Unclassified IP Data (formerly known as NIPRNet) e-mail. Interoperability status information is available via the JITC System Tracking Program (STP). STP is accessible by .mil/.gov users 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 https://jit.fhu.disa.mil/. 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 from the Unified Capabilities Certification Office (UCCO), e-mail: disa.meade.ns.list.unified-capabilities-certification-office@mail.mil. All

associated information is available on the DISA UCCO website located at http://www.disa.mil/Services/Network-Services/UCCO.

6. The testing point of contact is Kevin Thompson, DSN 578-6664, commercial (757) 541-6664, or email to kevin.thompson3@navy.mil. The JITC point of contact is Ms. Anita Brown, commercial telephone (520) 538-5164, DSN telephone 879-5164, FAX DSN 879-4347; e-mail address anita.l.brown53.civ@mail.mil; mailing address Joint Interoperability Test Command, ATTN: JTE (Ms. Anita Brown) P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The UCCO tracking number for the SUT is 1226901.

FOR THE COMMANDER:

Enclosure a/s

for RIC HARRISON
Chief
Networks/Communications and UC Portfolio

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Callware Technologies Inc.

ADDITIONAL REFERENCES

(c) Office of the Assistant Secretary of Defense, “Department of Defense Unified Capabilities Requirements 2008, Change 3,” September 2011
(d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
(e) Joint Interoperability Test Command, "Customer Premise Equipment Automatic Call Distribution (ACD) Test Procedures for Unified Capabilities Requirements (UCR) 2013," Draft
(f) Joint Interoperability Test Command, "Customer Premise Equipment Voice Mail (VM) Test Procedures for Unified Capabilities Requirements (UCR) 2013," Draft
(g) Joint Interoperability Test Command, Memo, JTE, “Joint Interoperability Certification of the Callware Technologies Callegra.Unified Communications (UC)™ Server with Software Release 6.15-Joint Interoperability Test Command (JITC),” 26 August 2013
(h) Space and Naval Warfare Systems Center Atlantic, “Information Assurance (IA) Assessment of Callware Technologies Inc. Callegra.UC 6.15 JITC, Tracking Number 1226901,” 22 August 2013