DEFENSE INFORMATION SYSTEMS AGENCY
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IN REPLY REFER TO: Joint Interoperability Test Command (JTE) **14 Apr 15**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Joint Interoperability Certification of the Spok HigherGrounds Inc., Calibre Call Recording Release 8.6

References: (a) Department of Defense Instruction 8100.04, "DoD Unified Capabilities (UC)," 9 December 2010
(b) Office of the Department of Defense Chief Information Officer, “Department of Defense Unified Capabilities Requirements 2013, Errata 1,” 1 July 2013
(c) through (d), see Enclosure 1

1. **Certification Authority.** Reference (a) establishes the Joint Interoperability Test Command (JITC) as the Joint Interoperability Certification Authority for UC products.

2. **Conditions of Certification.** The Spok HigherGrounds Inc., Calibre Call Recording Release 8.6; hereinafter referred to as the System Under Test (SUT), meets the critical requirements of the Unified Capabilities Requirements (UCR), Reference (b), and is certified for joint use as Customer Premise Equipment (CPE) for a non-intrusive call recording platform without any conditions without any conditions (see Table 1). The SUT was tested and certified with the CS1000M, release Succession Defense Switched Network (DSN) 5.0, the Avaya CS2100, release Succession Enterprise 09.1, and the Avaya Aura Communication Manager (CM), release 6.3.6 with Patch 03.0.124.0-21862. The certified interfaces for each of these switches are specified in Table 2. JITC analysis determined the SUT is certified for joint use with any digital switching system or Session Controller that is functionally identical to the CS1000M, CS2100, or the Avaya Aura CM and is or was previously on the UC Approved Products List (APL). This certification expires upon changes that affect interoperability, but no later than three years from the date of the UC APL memorandum.

Table 1. Conditions

Condition	Status	Operational Impact	Remarks
Not applicable; the Spok HigherGrounds Inc., Calibre Call Recording Release 8.6 meets all of the Unified Capabilities Requirements (UCR), Reference (b) joint critical interoperability requirements.			

3. **Interoperability Status.** Table 2 provides the SUT interface interoperability status and Table 3 provides the Capability Requirements (CR) and Functional Requirements (FR) status. Table 4 provides a UC APL product summary.

Table 2. SUT Interface Status

Interface	Threshold CR/FR Requirements (See note 1.)	Status	Remarks
Interfaces			
2-Wire Analog Ground Start Lines (C)	1	Met	The SUT met the critical CRs and FRs for this interface.
2-Wire Analog CAMA Trunks (C)	1	Met	The SUT met the critical CRs and FRs for this interface.
Serial EIA-232 (C)	1	Not Tested	The SUT does not support this interface.
Avaya CS1000M 2-Wire Proprietary Digital Line (C)	1 (See note 2.)	Met	The SUT met the critical CRs and FRs for this interface.
Avaya CM 2-Wire Proprietary Digital Line (C)	1 (See note 3.)	Met	The SUT met the critical CRs and FRs for this interface.
Avaya CS2100 Wire Proprietary Digital Line (C)	1 (See note 4.)	Met	The SUT met the critical CRs and FRs for this interface.
IP (C)	1, 2, 3	Not Tested	The SUT IP interface was only for intra-enclave traffic to the Required Ancillary Equipment.

NOTES:
1. The UCR does not identify interface CR/FR applicability. The SUT high-level CR and FR ID numbers depicted in the Threshold CRs/FRs column are cross-referenced with Table 3-2.
2. The UCR does not include requirements for proprietary interfaces. The SUT interface to the M2616, M3904, or the M3905 digital phones was tested using the Avaya CS1000M digital interface as depicted in Figure 2-2.
3. The UCR does not include requirements for proprietary interfaces. The SUT interface to the Avaya 8410, 2420, and 6416 digital phones was tested using Avaya CM 2-Wire proprietary digital interface as depicted in Figure 2-2.
4. The UCR does not include requirements for proprietary interfaces. The SUT interface to the Meridian 5316 and Astra 6320 digital phones was tested using the Avaya CS2100 digital interface as depicted in Figure 2-2.

LEGEND:

C	Conditional	FR	Functional Requirements
CAMA	Centralized Automatic Message Accounting	ID	Identification
CM	Communication Manager	IP	Internet Protocol
CR	Capability Requirements	SUT	System Under Test
CS	Communication Server	UCR	Unified Capability Requirements
EIA	Electronic Industries Alliance		

Table 3. SUT Capability Requirements and Functional Requirements Status

CR/FR ID	UCR Requirement (High-Level) (See note 1.)	UCR 2013 Reference	Status
1	Customer Premise Equipment Requirements (R)	3.7.2	Met
2	Differentiated Services Code Point Tagging Requirements (R)	Table 7.2-3	Not Tested (See note 2.)
3	Internet Protocol version 6 Requirements (R)	Table 5.2-1	Not Tested (See note 2.)

NOTES:
1. The annotation of 'required' refers to a high-level requirement category. The applicability of each sub-requirement is provided in Enclosure 3.
2. The SUT IP interface was only for intra-enclave traffic to the Required Ancillary Equipment.

LEGEND:

CR	Capability Requirement	R	Required
FR	Functional Requirement	SUT	System Under Test
ID	Identification	UCR	Unified Capabilities Requirements
IP	Internet Protocol		

Table 4. UC APL Product Summary

Product Identification			
Product Name	Spok HigherGround, Inc Calibre		
Software Release	Release 8.6		
UC Product Type(s)	Customer Premise Equipment (CPE)		
Product Description	Call Recording System		
Product Components (See note.)	**Component Name**	**Version**	**Remarks**
Spok HigherGrounds Inc., Calibre Call Recording	Dell Power Edge R720	8.6.0.0 Windows 2012 Server R2	

NOTE: The detailed component and subcomponent list is provided in Enclosure 3.

LEGEND:

APL	Approved Products List	UC	Unified Capabilities
R2	Release 2		

4. **Test Details.** This certification is based on interoperability testing, review of the vendor’s Letters of Compliance (LoC), and DISA Certifying Authority (CA) Recommendation for inclusion on the UC APL. Testing was conducted at JITC’s Global Information Grid Network Test Facility at Fort Huachuca, Arizona, from 9 through 21 March 2015 using test procedures derived from Reference (c). Review of the vendor’s LoC was completed on 5 March 2015. Information Assurance testing was conducted by DISA-led Information Assurance test teams and the results are published in a separate report, Reference (d). Enclosure 2 documents the test results and describes the tested network and system configurations. Enclosure 3 provides a detailed list of the interface, capability, and functional requirements.

5. **Additional Information.** 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. **Point of Contact (POC).** The JITC point of contact is Ms. Sibylle Gonzales, commercial telephone (520) 538-5483, DSN telephone 879-5483, FAX DSN 879-4347; e-mail address sibylle.j.gonzales.civ@mail.mil; mailing address Joint Interoperability Test Command, ATTN: JTE (Ms. Sibylle Gonzales) P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 1424703.

FOR THE COMMANDER:

Bradley A. Clark

3 Enclosures a/s

for RIC HARRISON
Chief
Networks/Communications and UC Portfolio

Distribution (electronic mail):
DoD CIO
Joint Staff J-6, JCS
USD(AT&L)
ISG Secretariat, DISA, JTA
U.S. Strategic Command, J665
US Navy, OPNAV N2/N6FP12
US Army, DA-OSA, CIO/G-6 ASA(ALT), SAIS-IOQ
US Air Force, A3CNN/A6CNN
US Marine Corps, MARCORSYSCOM, SIAT, A&CE Division
US Coast Guard, CG-64
DISA/TEMC
DIA, Office of the Acquisition Executive
NSG Interoperability Assessment Team
DOT&E, Netcentric Systems and Naval Warfare
Medical Health Systems, JMIS IV&V
HQUSAISEC, AMSEL-IE-IS
UCCO

ADDITIONAL REFERENCES

(c) Joint Interoperability Test Command, “Customer Premise Equipment (CPE) Test Procedures for Unified Capabilities Requirements (UCR) 2013 Errata 1," Draft
(d) Joint Interoperability Test Command, “Information Assurance (IA) Assessment Report of Spok HigherGrounds Inc., Calibre Call Recording Release 8.6 (Tracking Number 1424703),” Draft

CERTIFICATION SUMMARY

1. SYSTEM AND REQUIREMENTS IDENTIFICATION. The Spok HigherGrounds Inc., Calibre Call Recording Release 8.6 is hereinafter referred to as the System Under Test (SUT). Table 2-1 depicts the SUT identifying information and requirements source.

Table 2-1. System and Requirements Identification

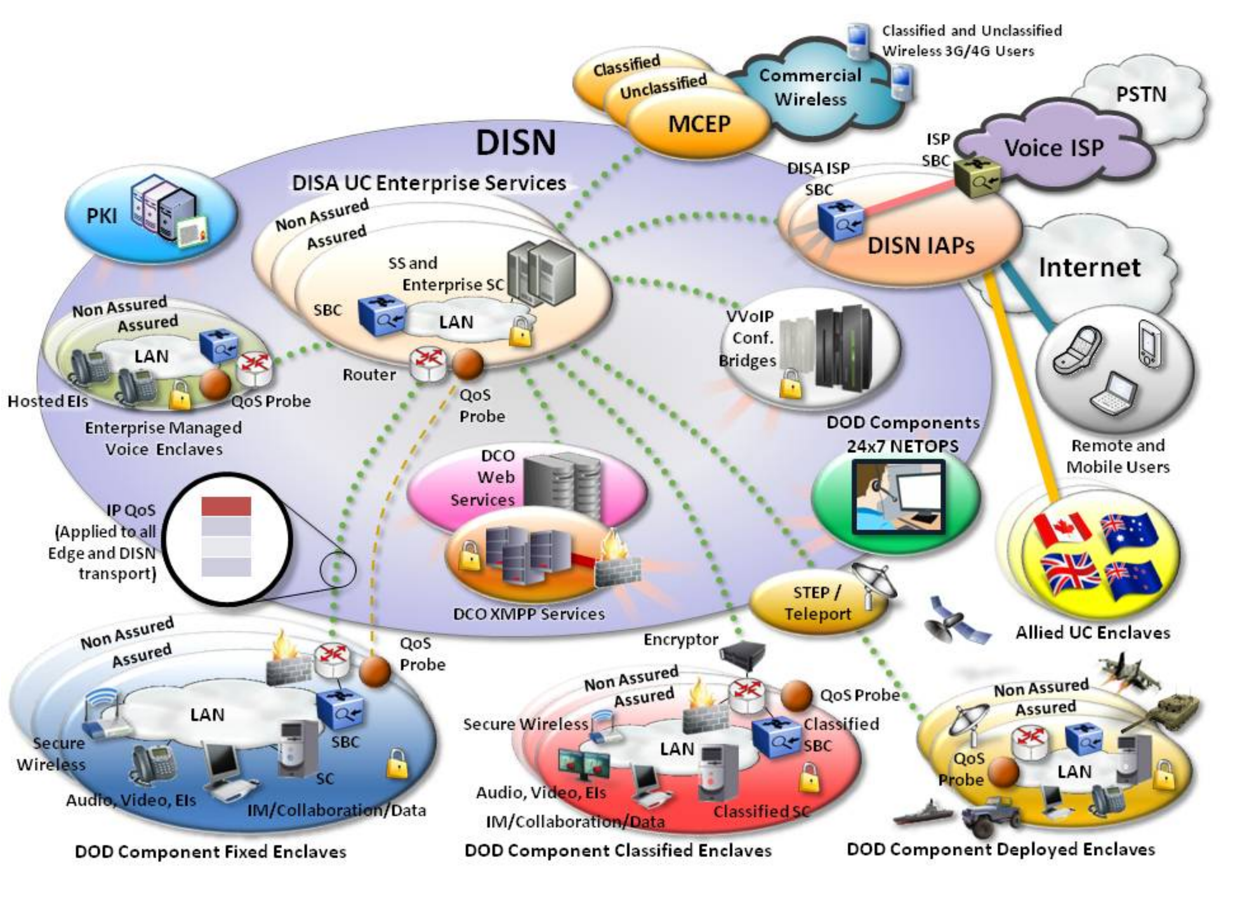
System Identification	
Sponsor	Headquarters United States Army Information Systems Engineering Command (HQUSAISEC)
Sponsor Point of Contact	Mr. Jordan Silk, USAISEC ELIE-ISE-ES, Building 53301, Fort Huachuca, Arizona 85613, e-mail: jordan.r.silk.civ@mail.mil
Vendor Point of Contact	Erdman, Robert bob.erdman@spok.com 8008528935
System Name	Spok HigherGrounds Inc., Calibre Call Recording
Increment and/or Version	8.6
Product Category	Customer Premise Equipment (CPE) Call Recording
System Background	
Previous certifications	None
Tracking	
UCCO ID	1424703
System Tracking Program ID	5044
Requirements Source	
Unified Capabilities Requirements	Unified Capabilities Requirements 2013, Errata 1
Remarks	None
Test Organization(s)	Joint Interoperability Test Command, Fort Huachuca, Arizona
LEGEND: ID Identification UCCO Unified Capabilities Connection Office	

2. SYSTEM DESCRIPTION. The Spok HigherGrounds Inc., Calibre Call Recording Platform consists of computer hardware that records voice, media files, and data, and a software interface that enables users to work with these various types of recorded information to better manage their public safety organization. By using a PostgreSQL database that enables users to import data from several different sources, Calibre is capable of handling all new media types, allowing for the importing of data from phones, radios, email, Instant Messaging (IM), Automatic Location Identification (ALI) streams, photos, video, and many other media sources.

3. OPERATIONAL ARCHITECTURE. The Unified Capabilities (UC) architecture is a two-level network hierarchy consisting of Defense Information Systems Network (DISN) backbone switches and Service/Agency installation switches. The Department of Defense (DoD) Chief Information Officer (CIO) and Joint Staff policy and subscriber mission requirements determine which type of switch can be used at a particular location. The UC architecture, therefore, consists of several categories of switches. Figure 2-1 depicts the notional operational UC architecture in which the SUT may be used.

4. TEST CONFIGURATION. The test team tested the SUT at Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona in a manner and configuration similar to that of a notional operational environment. Testing of the system's required functions and features was conducted using the test configuration depicted in Figure 2-2. Information Assurance (IA) testing used the same configuration.

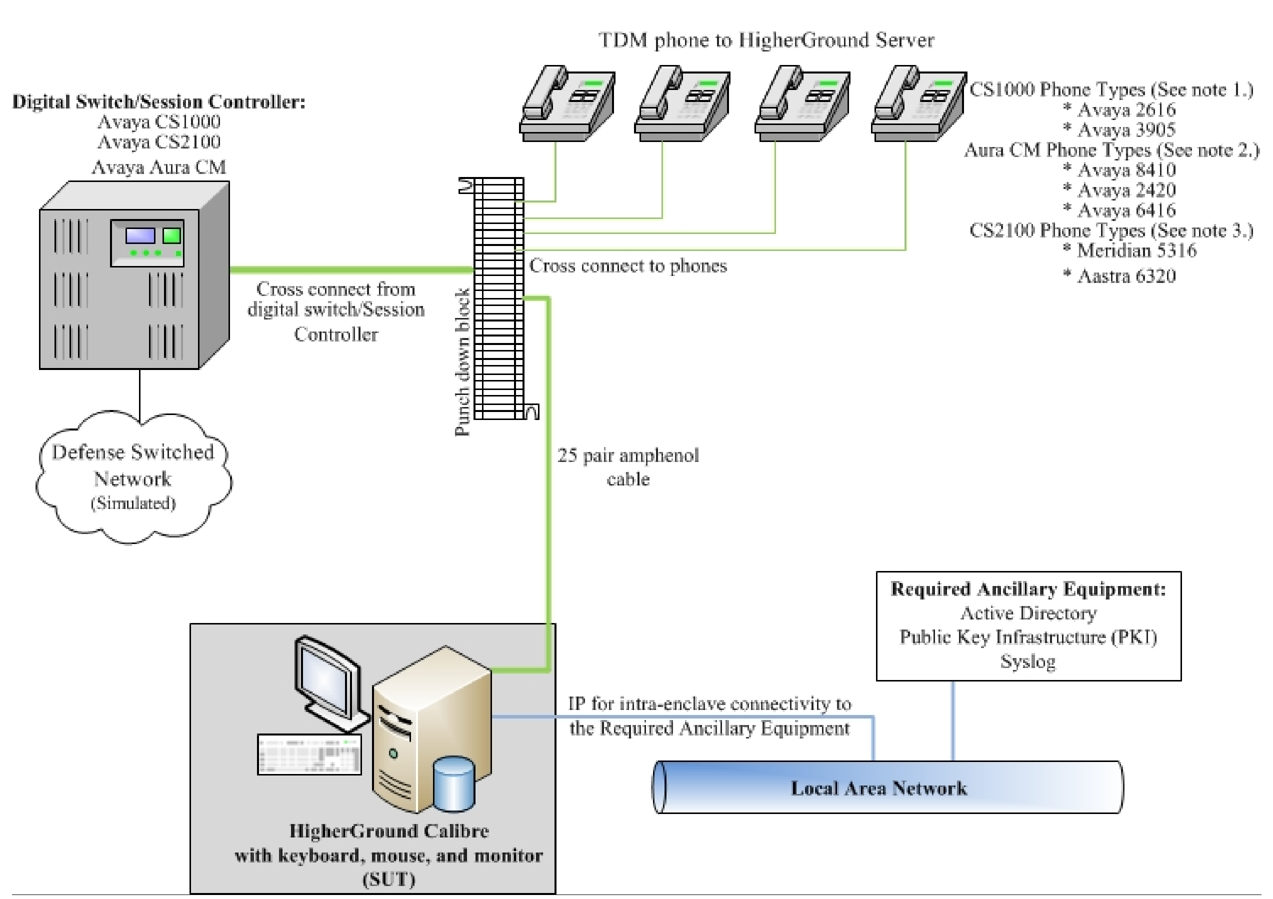
5. METHODOLOGY. Testing was conducted using Customer Premises Equipment (CPE) requirements derived from the Unified Capabilities Requirements (UCR) 2013, Reference (b), and CPE test procedures, Reference (c). Any discrepancy noted in the operational environment will be evaluated for impact on the existing certification. These discrepancies will be adjudicated to the satisfaction of DISA via a vendor Plan of Action and Milestones, which will address all new critical Test Discrepancy Reports within 120 days of identification.



LEGEND:

DCO	Defense Connection Online	NETOPS	Network Operations
DISA	Defense Information Systems Agency	PKI	Public Key Infrastructure
DISN	Defense Information Systems Network	PSTN	Public Switched Telephone Network
DoD	Department of Defense	QoS	Quality of Service
EI	End Item	SBC	Session Border Controller
IAP	Integrated Access Point	SC	Session Controller
IM	Instant Messaging	SS	Softswitch
IP	Internet Protocol	STEP	Standardized Tactical Entry Point
ISP	Internet Service Provider	UC	Unified Capabilities
LAN	Local Area Network	VVoIP	Voice and Video over IP
MCEP	Multi-Carrier Entry Point	XMPP	Extensible Messaging and Presence Protocol

Figure 2-1. Notional UC Network Architecture


TDM phone to HigherGround Server
Digital Switch/Session Controller:
Avaya CS1000
Avaya CS2100
Avaya Aura CM
CS1000 Phone Types (See note 1.)
* Avaya 2616
* Avaya 3905
Aura CM Phone Types (See note 2.)
* Avaya 8410
* Avaya 2420
* Avaya 6416
CS2100 Phone Types (See note 3.)
* Meridian 5316
* Aastra 6320
Cross connect to phones
Cross connect from digital switch/Session Controller
Punch down block
Defense Switched Network (Simulated)
25 pair amphenol cable
Required Ancillary Equipment:
Active Directory
Public Key Infrastructure (PKI)
Syslog
IP for intra-enclave connectivity to the Required Ancillary Equipment
Local Area Network
HigherGround Calibre with keyboard, mouse, and monitor (SUT)

NOTES:

1. The SUT interface to the M2616, M3904, or the M3905 digital phones was tested using the Avaya CS1000M digital interface.
2. The SUT interface to the Avaya 8410, 2420, and 6416 digital phones was tested using Avaya CM 2-Wire digital interface.
3. The SUT interface to the Meridian 5316 and Astra 6320 digital phones was tested using the Avaya CS2100 digital interface.

LEGEND:

CM	Communication Manager	IP	Internet Protocol
CS	Communication Server	SUT	System Under Test

Figure 2-2. SUT Test Configuration

6. INTEROPERABILITY REQUIREMENTS, RESULTS, AND ANALYSIS. The interface, Capability Requirements (CR), and Functional Requirements (FR) for UC Customer Premise Equipment (CPE) are established by UCR 2013, section 3.7.2.

a. Requirements

(1) If a CPE device supports Multilevel Precedence and Preemption (MLPP), then that device shall do so in accordance with the requirements listed in Section 2.25.2, MLPP, and shall not affect the Defense Switch Network (DSN) interface features and functions associated with line supervision and control. The SUT does not support this conditional requirement.

(2) All DSN CPE, at a minimum, must meet the requirements of Part 15 and Part 68 of the Federal Communications Commission (FCC) Rules and Regulations, and the Administrative

Council for Terminal Attachments. The SUT met this requirement with the vendor's Letters of Compliance (LoC).

(3) If a CPE device supports autoanswer, then that device shall have an “autoanswer” mode feature allowing the autoanswer mode to be set to a “time” more than the equivalency of four ROUTINE precedence ring intervals, in accordance with Section 2.25.2, MLPP, before “answer” supervision is provided. The SUT does not support this conditional requirement.

(4) If a CPE device is required to support precedence calls above ROUTINE precedence, then that device shall respond properly to an incoming alerting (ringing) precedence call cadence, as described in Section 2.9.1.2.1, UC Ringing Tones, Cadences, and Information Signals. The SUT does not support this conditional requirement.

(5) If a CPE device can “out dial” Dual Tone Multi Frequency (DTMF) and/or dial pulse (DP) digits (automatic and/or manual), then that device shall comply with the requirements as specified in Telcordia Technologies GR-506-CORE, LSSGR: Signaling for Analog Interfaces, Issue 1, June 1996, paragraph 10. That device shall also be capable of outpulsing and interpretation of DTMF digits on outgoing and two-way trunks as specified in Telcordia Technologies GR-506-CORE, LSSGR: Signaling for Analog Interfaces, Issue 1, June 1996, paragraph 15, and Table 3.7-1. The SUT does not support this conditional requirement.

(6) If a CPE device contains a modem or facsimile machine, then that modem or facsimile machine shall be compatible with International Telecommunications Union (ITU) and Telcordia standards, as applicable. The SUT does not support this conditional requirement.

(7) If a CPE device contains a facsimile device, then that facsimile device, at a minimum, shall meet the requirements in accordance with applicable DoD Information Technology (IT) Standards Registry (DISR) standards. The SUT does not support this conditional requirement.

(8) If Configuration Management and/or Fault Management is provided by the CPE device so that it can be managed by the Advanced DSN Integrated Management Support System (ADIMSS) or other management systems, then the management information for that CPE device shall be provided by one or more of the following serial or Ethernet interfaces:

(a) Serial interfaces shall be in accordance with one of the following standards:

1. ITU-T Recommendation V.35

2. TIA-232-F

3. EIA-449-1

4. TIA-530-A

(b) Ethernet interfaces shall be in accordance with Institute of Electrical and Electronics Engineers (IEEE) 802.3-2002.

The SUT does not support this conditional requirement.

(9) If a CPE device supports 911 and E911 emergency services, then, at a minimum, the 911 and the E911 (tandem) emergency services shall have the capability to "hold" (prevent) the originating subscriber or caller from releasing the call, via the "switch supervision interaction for line and trunk control by the called party" feature, in accordance with Telcordia Technologies GR-529-CORE. Additionally, the FCC regulations regarding 911 and E911 must be considered. The SUT does not support this conditional requirement.

b. Differentiated Services Code Point (DSCP) Requirements. Products that support IP interfaces shall support the DSCP plan, as shown in Table 7.2-3. Differentiated Services (DS) assignments shall be software configurable for the full range of six-bit values (0-63 Base10). Request For Comments (RFC) 2474 defines the DS field. In IP version 4 (IPv4), it defines the layout of the Type of Service (TOS) octet. In IP version 6 (IPv6), it defines the layout in the Traffic Class octet. The SUT IP interface was only for intra-enclave traffic to the Required Ancillary Equipment. Therefore, this requirement does not apply.

c. IPv6 Requirements. UCR 2013, section 5, Table 5.2-1 states that if a CPE device supports IP interfaces, then the CPE shall support the IPv6 requirements as defined for Network Appliance/Simple Server in UCR Section 5, IPv6. The SUT server is based on the Microsoft 2008 operating system which fully supports IPv6; however, due to limitations in our test network we were not able to test IPv6 end-to-end. The SUT IP interface was only for intra-enclave traffic to the Required Ancillary Equipment. Therefore, this requirement does not apply.

d. Functionality Testing. There are no specific functionality requirements in the UCR for this type of CPE. Testers placed calls of varying durations (10, 20, 30, 40, and 50 seconds) from telephones on the Avaya CS1000M, Avaya CS2100, and the Avaya Aura Communication Manager (CM). Testers selected and played back .wav files for each of the calls and verified that the recorded timestamps matched the call durations. In addition, testers verified voice quality based on Table 2-2. Each call received a rating of 5 (Excellent) on the Voice and Video Subjective Quality Scale. JITC tested and verified the SUT had the ability to provide real time voice recording, media files, and data, and a software interface that enables users to work with these various types of recorded information to better manage their public safety organization. This was accomplished by using a PostgreSQL database that enables users to import data from several different sources. The SUT is capable of handling all new media types, allowing for the importing of data from phones, radios, email, IM, ALI streams, photos, video, and many other media sources.

Table 2-2. Voice and Video Subjective Quality Scale

Rating	Reference	Definition
1	*Unusable*	Quality is unusable. Voice and video may be heard and seen but is unrecognizable.
2	*Poor*	Quality is unusable. Words and phrases are not fully understandable or video cannot be properly identified.
3	*Fair*	Quality is seriously affected by distortion. Repeating words and phrases are required to convey speech or video is seriously impacted and barely recognizable.
4	*Good*	Quality is usable. Audio or video is not impaired but some distortion is noticeable
5	*Excellent*	Quality is unaffected. No discernable problems with either audio or video.
NOTE: Audio and video quality during a conference will receive a subjective rating on the Data Collection Form. A rating of lower than 4 on this reference scale is considered a failure.		

f. Hardware/Software/Firmware Version Identification: Table 3-3 provides the SUT components' hardware, software, and firmware tested. The JITC tested the SUT in an operationally realistic environment to determine its interoperability capability with associated network devices and network traffic. Table 3-4 provides the hardware, software, and firmware of the components used in the test infrastructure.

7. TESTING LIMITATIONS. None

8. CONCLUSION(S). The SUT was tested and certified with the CS1000M, release Succession Defense Switched Network (DSN) 5.0, the Avaya CS2100, release Succession Enterprise 09.1, and the Avaya Aura Communication Manager (CM), release 6.3.6 with Patch 03.0.124.0-21862. The certified interfaces for each of these switches are specified in Table 2. JITC analysis determined the SUT is certified for joint use with any digital switching system or Session Controller that is functionally identical to the CS1000M, CS2100, or the Avaya Aura CM and is or was previously on the UC Approved Products List (APL). The SUT meets the interoperability requirements for the interfaces listed in Table 3-1.

DATA TABLES

Table 3-1. SUT Interface Status

Interface	Threshold CR/FR Requirements (See note 1.)	Status	Remarks
Interfaces			
2-Wire Analog Ground Start Lines (C)	1	Met	The SUT met the critical CRs and FRs for this interface.
2-Wire Analog CAMA Trunks (C)	1	Met	The SUT met the critical CRs and FRs for this interface.
Serial EIA-232 (C)	1	Not Tested	The SUT does not support this interface.
Avaya CS1000M 2-Wire Proprietary Digital Line (C)	1 (See note 2.)	Met	The SUT met the critical CRs and FRs for this interface.
Avaya CM 2-Wire Proprietary Digital Line (C)	1 (See note 3.)	Met	The SUT met the critical CRs and FRs for this interface.
Avaya CS2100 Wire Proprietary Digital Line (C)	1 (See note 4.)	Met	The SUT met the critical CRs and FRs for this interface.
IP (C)	1, 2, 3	Not Tested	The SUT IP interface was only for intra-enclave traffic to the Required Ancillary Equipment.

NOTES:

1. The UCR does not identify interface CR/FR applicability. The SUT high-level CR and FR ID numbers depicted in the Threshold CRs/FRs column are cross-referenced with Table 3-2.
2. The UCR does not include requirements for proprietary interfaces. The SUT interface to the M2616, M3904, or the M3905 digital phones was tested using the Avaya CS1000M digital interface as depicted in Figure 2-2.
3. The UCR does not include requirements for proprietary interfaces. The SUT interface to the Avaya 8410, 2420, and 6416 digital phones was tested using Avaya CM 2-Wire proprietary digital interface as depicted in Figure 2-2.
4. The UCR does not include requirements for proprietary interfaces. The SUT interface to the Meridian 5316 and Astra 6320 digital phones was tested using the Avaya CS2100 digital interface as depicted in Figure 2-2.

LEGEND:

C	Conditional	FR	Functional Requirements
CAMA	Centralized Automatic Message Accounting	ID	Identification
CM	Communication Manager	IP	Internet Protocol
CR	Capability Requirements	SUT	System Under Test
CS	Communication Server	UCR	Unified Capability Requirements
EIA	Electronic Industries Alliance		

Table 3-2. Capability and Functional Requirements and Status

CR/FR ID	UCR Requirement (High-Level) (See note 1.)	UCR 2013 Reference	Status
1	Customer Premise Equipment Requirements (R)	3.7.2	Met
2	Differentiated Services Code Point Tagging Requirements (R)	Table 7.2-3	Not Tested (See note 2.)
3	Internet Protocol version 6 Requirements (R)	Table 5.2-1	Not Tested (See note 2.)

NOTES:

1. The annotation of 'required' refers to a high-level requirement category. The applicability of each sub-requirement is provided in Table 3-5.
2. The SUT IP interface was only for intra-enclave traffic to the Required Ancillary Equipment.

LEGEND:

CR	Capability Requirement	R	Required
FR	Functional Requirement	SUT	System Under Test
ID	Identification	UCR	Unified Capabilities Requirements
IP	Internet Protocol		

Table 3-3. SUT Hardware/Software/Firmware Version Identification

Component	Release	Sub-component	Function
Spok HigherGrounds Inc., Calibre Call Recording (Dell Power Edge R720)	8.6.0.0 MS Windows 2012 Server R2	PostgreSQL 9.4.1	Database
		Synway ATP-24A/PCIe+	Analog tap card
		Synway DST-24B/PCIE+	Digital (TDM) tap card
		Synway Driver v. 5.3.2.5	Driver for Synway tap cards
		AudioCodes NGX800/LD809 Smartworks 5.9.0.3915 Firmware: 05.09.00 Build:1038	AudioCodes digital and analog cards
		CADCLU.exe 8.6.2015.0223	HigherGround Voice Recorder module; interfaces with tap cards to capture audio; saves recordings and metadata to database
		CADMASTR.exe 8.6.2015.0223	HigherGround Task Master module; manages all HigherGround service modules
		CADALARM.exe 8.6.2015.0223	HigherGround Alarm Monitor module; monitors all HigherGround service modules
		CADCFG.exe 8.6.2015.0223	HigherGround Configuration Manager module; user interface for editing some configuration files
		CADCOLL.exe 8.6.2015.0223	HigherGround Data Collector module; connect to various data sources (eg. SMDR, ALI)
		CADdisp.exe 8.6.2015.0223	Graphic User Interface (GUI) for the HigherGround modules that run as services.
		CADSHORT.exe 8.6.2015.0223	HigherGround Shortcut wizard module; utility to create desktop shortcuts for more convenient access to the various modules
		HgConnector.exe 8.6.5538.29058	HigherGround Data Connector module; provides database interface and application layer management; connects to various data sources (eg. SMDR)
		HGLoad.exe 8.6.2015.0223	HgLoad makes check/install .NET components at the initial setup. It is not needed after the system is installed properly.
		HgManage.exe 8.6.5538.29088	HigherGround Management module; provides user interface for management of all HigherGround Calibre modules (eg. add users, configure channels, populate various tables)
		HgRetrieval.exe 8.6.5538.29059	HigherGround Retrieval module; user interface for search, retrieval and reporting
		Report.exe 8.6.2015.0223	Report.exe is a legacy feature, which is not tested at JITC, but it is required for the recorder to run.

LEGEND:

ALI	Automatic Line Identification	SP2	Service Pack 2
JITC	Joint Interoperability Test Command	SQL	Structured Query Language
MS	Microsoft	SUT	System Under Test
R2	Release 2	TDM	Time Division Multiplexing
SMDR	Station Message Detail Recording		

Table 3-4. Test Infrastructure Hardware/Software/Firmware Version Identification

System Name	Software Release	Function
Required Ancillary Equipment (Site provided)		
Active Directory		
Public Key Infrastructure		
Syslog Server		
Test Network Components		
Avaya CS1000M	Succession DSN 5.0	Small End Office
Avaya 3904	Not Applicable	Proprietary digital telephone for the Avaya CS1000M switches
Avaya 3905	Not Applicable	Proprietary digital telephone for the Avaya CS1000M switches
Avaya 2616	Not Applicable	Proprietary digital telephone for the Avaya CS1000M switches
Avaya Aura Communication Manager	6.3.6 with Patch 03.0.124.0-21862	Local Session Controller
Avaya 8410	Not Applicable	Proprietary digital telephone for the Avaya CM switches
Avaya 2420	Not Applicable	Proprietary digital telephone for the Avaya CM switches
Avaya 6416	Not Applicable	Proprietary digital telephone for the Avaya CM switches
Avaya CS2100	Succession Enterprise 09.1	Multifunction Switch
Meridian 5316	Not Applicable	Proprietary digital telephone for the Avaya CS2100 switches
Aastra 6320	Not Applicable	Proprietary digital telephone for the Avaya CS2100 switches
Generic analog telephone	Not Applicable	Generic analog telephone

LEGEND:

CM	Communication Manager	E911	Enhanced emergency service
CS	Communication Server	JITC	Joint Interoperability Test Command
DSN	Defense Switched Network		

Table 3-5. Products Capability/Functional Requirements

ID	Requirement	UCR Ref (See note 1.)	LoC/TP ID (See note 2.)	C/R
1	**3.7.2 – CPE Requirements**			
1-1	If a CPE device supports MLPP, then that device shall do so in accordance with the requirements listed in Section 2.25.2, Multilevel Precedence and Preemption, and shall not affect the DSN interface features and functions associated with line supervision and control.	3.7.2 AUX-006140	T	C
1-2	All DSN CPE, at a minimum, must meet the requirements of Part 15 and Part 68 of the FCC Rules and Regulations, and the Administrative Council for Terminal Attachments (ACTA).	3.7.2 AUX-006150	L	R
1-3	If a CPE device supports autoanswer, then that device shall have an “autoanswer” mode feature allowing the autoanswer mode to be set to a “time” more than the equivalency of four ROUTINE precedence ring intervals, in accordance with Section 2.25.2, Multilevel Precedence and Preemption, before “answer” supervision is provided.	3.7.2 AUX-006160	T	C
1-4	If a CPE device is required to support precedence calls above ROUTINE precedence, then that device shall respond properly to an incoming alerting (ringing) precedence call cadence, as described in Section 2.9.1.2.1, UC Ringing Tones, Cadences, and Information Signals.	3.7.2 AUX-006170	L/T	C
1-5	If a CPE device can “out dial” DTMF and/or dial pulse (DP) digits (automatic and/or manual), then that device shall comply with the requirements as specified in Telcordia Technologies GR-506-CORE, LSSGR: Signaling for Analog Interfaces, Issue 1, June 1996, paragraph 10. That device shall also be capable of out pulsing and interpretation of DTMF digits on outgoing and two-way trunks as specified in Telcordia Technologies GR-506-CORE, LSSGR: Signaling for Analog Interfaces, Issue 1, June 1996, paragraph 15, and Table 3.7-1.	3.7.2 AUX-006180	L	C
1-6	If a CPE device contains a modem or facsimile machine, then that modem or facsimile machine shall be compatible with ITU and Telcordia standards, as applicable.	3.7.2 AUX-006190	L	C
1-7	If a CPE device contains a facsimile device, then that facsimile device, at a minimum, shall meet the requirements in accordance with applicable DoD Information Technology (IT) Standards Registry (DISR) standards.	3.7.2 AUX-006200	L	C
1-8	If Configuration Management and/or Fault Management is provided by the CPE device so that it can be managed by the Advanced DSN Integrated Management Support System (ADIMSS) or other management systems, then the management information for that CPE device shall be provided by one or more of the following serial or Ethernet interfaces: Serial interfaces shall be in accordance with one of the following standards: ITU-T Recommendation V.35. TIA-232-F. EIA-449-1. TIA-530-A. Ethernet interfaces shall be in accordance with IEEE 802.3-2002.	3.7.2 AUX-006210	L	C
1-9	If a CPE device supports 911 and E911 emergency services, then, at a minimum, the 911 and the E911 (tandem) emergency services shall have the capability to “hold” (prevent) the originating subscriber or caller from releasing the call, via the “switch supervision interaction for line and trunk control by the called party” feature, in accordance with Telcordia Technologies GR-529-CORE. Additionally, the FCC regulations regarding 911 and E911 must be considered.	3.7.2 AUX-006220	L/T IO-1	C
2	**Table 7.2-3 – DSCP Tagging Requirements**			
2-1	Products that supports IP interfaces shall support the DSCP plan, as shown in Table 7.2-3. Differentiated Services (DS) assignments shall be software configurable for the full range of six-bit values (0-63 Base10).	7.2.1 EDG-000160	T	R
3	**5.2 – IPv6 Requirements**			
3-1	If a CPE device supports IP interfaces, then the CPE shall support the IPv6 requirements as defined for NA/SS in UCR Section 5, IPv6. Refer to Table 3-6.	Table 5.2-1	L	R

NOTES:

1. Refers to the Unified Capabilities Requirements 2013, Errata 1 signed 1 July 2013, Reference (b).
2. Refers to how the requirement is met, either with the vendor’s LoC or by testing and cross references the test procedure identification (TP ID) number.

Table 3-5. Products Capability/Functional Requirements (continued)

LEGEND:

C	Conditional	ITU	International Telecommunication Union
CPE	Customer Premise Equipment	L	LoC Item
DoD	Department of Defense	LoC	Letter(s) of Compliance
DSCP	Differentiated Services Code Point	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements
DSN	Defense Switched Network	MLPP	Multi-level Precedence and Preemption
DTMF	Dual Tone Multi Frequency	NA/SS	Network Appliance/Simple Server
EIA	Electronic Industries Alliance	R	Required
FCC	Federal Communications Commission	TIA	Telecommunications Industry Association
GR	Generic Requirement	TP	Test Plan
ID	Identification	UC	Unified Capabilities
IEEE	Institute of Electrical and Electronics Engineers	UCR	Unified Capabilities Requirements
IP	Internet Protocol		
IPv6	Internet Protocol version 6		

Table 3-6. IPv6 Requirements

ID	Requirement	UCR Ref (See note 1.)	R/C
3-1	The product shall support dual IPv4 and IPv6 stacks as described in RFC 4213.	5.2.1 IP6-000010	R
3-2	Dual-stack end points or Call Connection Agents (CCAs) shall be configured to choose IPv4 over IPv6.	5.2.1 IP6-000020	R
3-3	All nodes and interfaces that are "IPv6-capable" must be carefully configured and verified that the IPv6 stack is disabled until it is deliberately enabled as part of a deliberate transition strategy. This includes the stateless autoconfiguration of link-local addresses. Nodes with multiple network interfaces may need to be separately configured per interface.	5.2.1 IP6-000030	R
3-4	The system shall provide the same (or equivalent) functionality in IPv6 as in IPv4 consistent with the requirements in the UCR for its Approved Products List (APL) category. NOTE: This requirement applies only to products that are required to perform IPv6 functionality.	5.2.1 IP6-000050	R
3-5	The product shall support the IPv6 format as described in RFC 2460 and updated by RFC 5095.	5.2.1 IP6-000060	R
3-6	The product shall support the transmission of IPv6 packets over Ethernet networks using the frame format defined in RFC 2464. NOTE: This requirement does not mandate that the remaining sections of RFC 2464 have to be implemented.	5.2.1 IP6-000070	R
3-7	The product shall support a minimum MTU of 1280 bytes as described in RFC 2460 and updated by RFC 5095.	5.2.1.1 IP6-000090	R
3-8	If Path MTU Discovery is used and a "Packet Too Big" message is received requesting a next-hop MTU that is less than the IPv6 minimum link MTU, then the product shall ignore the request for the smaller MTU and shall include a fragment header in the packet.	5.2.1.1 IP6-000100	C
3-9	The product shall not use the Flow Label field as described in RFC 2460.	5.2.1.2 IP6-000110	R
3-10	The product shall be capable of setting the Flow Label field to zero when originating a packet.	5.2.1.2 IP6-000120	R
3-11	The product shall be capable of ignoring the Flow Label field when receiving packets.	5.2.1.2 IP6-000140	R
3-12	The product shall support the IPv6 Addressing Architecture as described in RFC 4291.	5.2.1.3 IP6-000150	R
3-13	The product shall support the IPv6 Scoped Address Architecture as described in RFC 4007.	5.2.1.3 IP6-000160	R
3-14	If a scoped address (RFC 4007) is used, then the product shall use a scope index value of zero when the default zone is intended.	5.2.1.3 IP6-000170	C
3-15	If Dynamic Host Configuration Protocol (DHCP) is supported within an IPv6 environment, then it shall be implemented in accordance with the DHCP for IPv6 (DHCPv6) as described in RFC 3315.	5.2.1.4 IP6-000180	C
3-16	If the product is a DHCPv6 client, then the product shall discard any messages that contain options that are not allowed to appear in the received message type (e.g., an Identity Association option in an Information-Request message).	5.2.1.4 IP6-000200	C
3-17	If the product is a DHCPv6 client and the first retransmission timeout has elapsed since the client sent the Solicit message and the client has received an Advertise message(s), but the Advertise message(s) does not have a preference value of 255, then the client shall continue with a client-initiated message exchange by sending a Request message.	5.2.1.4 IP6-000220	C
3-18	If the product is a DHCPv6 client and the DHCPv6 solicitation message exchange fails, then it shall restart the reconfiguration process after receiving user input, system restart, attachment to a new link, a system configurable timer, or a user defined external event occurs.	5.2.1.4 IP6-000230	C

Table 3-6. IPv6 Requirements (continued)

ID	Requirement	UCR Ref (See note 1.)	R/C
3-19	If the product is a DHCPv6 client and it sends an Information-Request message, then it shall include a Client Identifier option to allow it to be authenticated to the DHCPv6 server.	5.2.1.4 IP6-000240	C
3-20	If the product is a DHCPv6 client, then it shall perform duplicate address detection upon receipt of an address from the DHCPv6 server before transmitting packets using that address for itself.	5.2.1.4 IP6-000250	C
3-21	If the product is a DHCPv6 client, then it shall log all reconfigure events. NOTE: Some systems may not be able to log all this information (e.g., the system may not have access to this information).	5.2.1.4 IP6-000260	C
3-22	If the product supports DHCPv6 and uses authentication, then it shall discard unauthenticated DHCPv6 messages from UC products and log the event.	5.2.1.4 IP6-000270	C
3-23	The product shall support Neighbor Discovery for IPv6 as described in RFC 4861.	5.2.1.5 IP6-000280	R
3-24	The product shall not set the override flag bit in the Neighbor Advertisement message for solicited advertisements for any cast addresses or solicited proxy advertisements.	5.2.1.5 IP6-000300	R
3-25	When a valid "Neighbor Advertisement" message is received by the product and the product neighbor cache does not contain the target's entry, the advertisement shall be silently discarded.	5.2.1.5 IP6-000310	R
3-26	When a valid "Neighbor Advertisement" message is received by the product and the product neighbor cache entry is in the INCOMPLETE state when the advertisement is received and the link layer has addresses and no target link-layer option is included, the product shall silently discard the received advertisement.	5.2.1.5 IP6-000320	R
3-27	When address resolution fails on a neighboring address, the entry shall be deleted from the product's neighbor cache.	5.2.1.5 IP6-000330	R
3-28	The product shall support the ability to configure the product to ignore Redirect messages.	5.2.1.5.1 IP6-000340	R
3-29	The product shall only accept Redirect messages from the same router as is currently being used for that destination.	5.2.1.5.1 IP6-000350	R
3-30	If "Redirect" messages are allowed, then the product shall update its destination cache in accordance with the validated Redirect message.	5.2.1.5.1 IP6-000360	C
3-31	If the valid "Redirect" message is allowed and no entry exists in the destination cache, then the product shall create an entry.	5.2.1.5.1 IP6-000370	C
3-32	If redirects are supported, then the device shall support the ability to disable this functionality.	5.2.1.5.1 IP6-000380	C
3-33	The product shall prefer routers that are reachable over routers whose reachability is suspect or unknown.	5.2.1.5.2 IP6-000400	R
3-34	If the product supports stateless IP address autoconfiguration including those provided for the commercial market, then the product shall support IPv6 Stateless Address Autoconfiguration (SLAAC) for interfaces supporting UC functions in accordance with RFC 4862.	5.2.1.6 IP6-000420	C
3-35	If the product supports IPv6 SLAAC, then the product shall have a configurable parameter that allows the function to be enabled and disabled. Specifically, the product shall have a configurable parameter that allows the "managed address configuration" flag and the "other stateful configuration" flag to always be set and not perform stateless autoconfiguration.	5.2.1.6 IP6-000430	C
3-36	If the product supports IPv6 SLAAC, then the product shall have the configurable parameter set not to perform stateless autoconfiguration.	5.2.1.6 IP6-000440	C
3-37	While nodes are not required to auto configure their addresses using SLAAC, all IPv6 Nodes shall support link-local address configuration and Duplicate Address Detection (DAD) as specified in RFC 4862. In accordance with RFC 4862, DAD shall be implemented and shall be on by default. Exceptions to the use of DAD are noted in the following text.	5.2.1.6 IP6-000450	R
3-38	A node MUST allow for autoconfiguration-related variable to be configured by system management for each multicast-capable interface to include DupAddrDetectTransmits where a value of zero indicates that DAD is not performed on tentative addresses as specified in RFC 4862.	5.2.1.6 IP6-000460	R
3-39	The product shall support manual assignment of IPv6 addresses.	5.2.1.6 IP6-000470	R
3-40	The product shall support the Internet Control Message Protocol (ICMP) for IPv6 as described in RFC 4443.	5.2.1.7 IP6-000520	R
3-41	The product shall support the capability to enable or disable the ability of the product to generate a Destination Unreachable message in response to a packet that cannot be delivered to its destination for reasons other than congestion.	5.2.1.7 IP6-000540	R
3-42	The product shall support the enabling or disabling of the ability to send an Echo Reply message in response to an Echo Request message sent to an IPv6 multicast or anycast address.	5.2.1.7 IP6-000550	R
3-43	The product shall validate ICMPv6 messages, using the information contained in the payload, before acting on them.	5.2.1.7 IP6-000560	R
3-44	The product shall support MLD as described in RFC 2710.	5.2.1.8 IP6-000680	R

Table 3-6. IPv6 Requirements (continued)

ID	Requirement	UCR Ref (See note 1.)	R/C
3-45	If the product uses IPsec, then the product shall be compatible with the Security Architecture for the IPSec described in RFC 4301.	5.2.1.9 IP6-000690	C
3-46	If RFC 4301 is supported, then the product shall not support the mixing of IPv4 and IPv6 in a SA.	5.2.1.9 IP6-000700	C
3-47	If RFC 4301 is supported, then the product's security association database (SAD) cache shall have a method to uniquely identify a SAD entry.	5.2.1.9 IP6-000710	C
3-48	If RFC 4301 is supported, then the product shall implement IPsec to operate with both integrity and confidentiality.	5.2.1.9 IP6-000720	C
3-49	If RFC 4301 is supported, then the product shall be capable of enabling and disabling the ability of the product to send an ICMP message informing the sender that an outbound packet was discarded.	5.2.1.9 IP6-000730	C
3-50	If an ICMP outbound packet message is allowed, then the product shall be capable of rate limiting the transmission of ICMP responses.	5.2.1.9 IP6-000740	C
3-51	If RFC 4301 is supported, then the system's Security Policy Database (SPD) shall have a nominal, final entry that discards anything unmatched.	5.2.1.9 IP6-000750	C
3-52	If RFC 4301 is supported, and the product receives a packet that does not match any SPD cache entries, and the product determines it should be discarded, then the product shall log the event and include the date/time, Security Parameter Index (SPI) if available, IPsec protocol if available, source and destination of the packet, and any other selector values of the packet.	5.2.1.9 IP6-000760	C
3-53	If RFC 4301 is supported, then the product should include a management control to allow an administrator to enable or disable the ability of the product to send an IKE notification of an INVALID_SELECTORS.	5.2.1.9 IP6-000770	C
3-54	If RFC 4301 is supported, then the product shall support the ESP Protocol in accordance with RFC 4303.	5.2.1.9 IP6-000780	C
3-55	If RFC 4303 is supported, then the product shall be capable of enabling anti-replay.	5.2.1.9 IP6-000790	C
3-56	If RFC 4303 is supported, then the product shall check, as its first check, after a packet has been matched to its SA whether the packet contains a sequence number that does not duplicate the sequence number of any other packet received during the life of the security association.	5.2.1.9 IP6-000800	C
3-57	If RFC 4301 is supported, then the product shall support IKEv1 as defined in RFC 2409.	5.2.1.9 IP6-000810	C
3-58	To prevent a Denial of Services (DoS) attack on the initiator of an IKE_SA, the initiator shall accept multiple responses to its first message, treat each as potentially legitimate, respond to it, and then discard all the invalid half-open connections when it receives a valid cryptographically protected response to any one of its requests. Once a cryptographically valid response is received, all subsequent responses shall be ignored whether or not they are cryptographically valid.	5.2.1.9 IP6-000820	C
3-59	If RFC 4301 is supported, then the product shall support extensions to the Internet IP Security Domain of Interpretation for the Internet Security Association and Key Management Protocol (ISAKMP) as defined in RFC 2407.	5.2.1.9 IP6-000830	C
3-60	If RFC 4301 is supported, then the product shall support the ISAKMP as defined in RFC 2408.	5.2.1.9 IP6-000840	C
3-61	If the product supports the IPsec Authentication Header Mode, then the product shall support the IP Authentication Header (AH) as defined in RFC 4302.	5.2.1.9 IP6-000850	C
3-62	If RFC 4301 is supported, then the product shall support manual keying of IPsec.	5.2.1.9 IP6-000860	C
3-63	If RFC 4301 is supported, then the product shall support the ESP and AH cryptographic algorithm implementation requirements as defined RFC 4835.	5.2.1.9 IP6-000870	C
3-64	If RFC 4301 is supported, then the product shall support the IKEv1 security algorithms as defined in RFC 4109.	5.2.1.9 IP6-000880	C
3-65	If the product uses Uniform Resource Identifiers (URIs) in combination with IPv6, then the product shall use the URI syntax described in RFC 3986.	5.2.1.10 IP6-000990	C
3-66	If the product uses the Domain Name Service (DNS) resolver for IPv6 based queries, then the product shall conform to RFC 3596 for DNS queries.	5.2.1.10 IP6-001000	C
3-67	For traffic engineering purposes, the bandwidth required per voice subscriber is calculated to be 110.0 kbps (each direction) for each IPv6 call. This is based on G.711 (20 ms codec) with IP overhead (100 kbps) resulting in a 250-byte bearer packet plus 10 kbps for signaling, Ethernet Interframe Gap, and the Secure Real-Time Transport Control Protocol (SRTCP) overhead. Based on overhead bits included in the bandwidth calculations, vendor implementations may use different calculations and hence arrive at slightly different numbers.	5.2.1.11 IP6-001010	R
3-68	The product shall forward packets using the same IP version as the version in the received packet.	5.2.1.12 IP6-001040	R
3-69	When the product is establishing media streams from dual-stacked appliances for AS-SIP signaled sessions, the product shall use the Alternative Network Address Type (ANAT) semantics for the Session Description Protocol (SDP) in accordance with RFC 4091.	5.2.1.12 IP6-001050	R

Table 3-6. IPv6 Requirements (continued)

ID	Requirement		UCR Ref (See note 1.)	R/C
3-70	If the product is using AS-SIP, and the <addrtype> is IPv6, and the <connection-address> is a unicast address, then the product shall support generation and processing of unicast IPv6 addresses having the following formats: • x:x:x:x:x:x:x:x (where x is the hexadecimal values of the eight 16-bit pieces of the address). Example: 1080:0:0:0:8:800:200C:417A. • x:x:x:x:x:x:d.d.d.d (where x is the hexadecimal values of the six high-order 16-bit pieces of the address, and d is the decimal values of the four low-order 8-bit pieces of the address (standard IPv4 representation). For example, 1080:0:0:0:8:800:116.23.135.22.		5.2.1.13 IP6-001060	C
3-71	If the product is using AS-SIP, then the product shall support the generation and processing of IPv6 unicast addresses using compressed zeros consistent with one of the following formats: • x:x:x:x:x:x:x:x format: 1080:0:0:0:8:800:200C:417A. • x:x:x:x:x:x:d.d.d.d format: 1080:0:0:0:8:800:116.23.135.22. • compressed zeros: 1080::8:800:200C:417A.		5.2.1.13 IP6-001070	C
3-72	If the product is using AS-SIP, and the <addrtype> is IPv6, and the <connection-address> is a multicast group address (i.e., the two most significant hexadecimal digits are FF), then the product shall support the generation and processing of multicast IPv6 addresses having the same formats as the unicast IPv6 addresses.		5.2.1.13 IP6-001080	C
3-73	If the product is using AS-SIP, and the <addrtype> is IPv6, then the product shall support the use of RFC 4566 for IPv6 in SDP as described in AS-SIP 2013, Section 4, SIP Requirements for AS-SIP Signaling Appliances and AS-SIP EIs.		5.2.1.13 IP6-001090	C
3-74	If the product is using AS-SIP, and the <addrtype> is IPv6, and the <connection-address> is an IPv6 multicast group address, then the multicast connection address shall not have a Time To Live (TTL) value appended to the address as IPv6 multicast does not use TTL scoping.		5.2.1.13 IP6-001100	C
3-75	If the product is using AS-SIP, then the product shall support the processing of IPv6 multicast group addresses having the <number of address> field and may support generating the <number of address> field. This field has the identical format and operation as the IPv4 multicast group addresses.		5.2.1.13 IP6-001110	C
3-76	The products shall support Differentiated Services as described in RFC 2474 for a voice and video stream in accordance with Section 2, Session Control Products, and Section 6, Network Infrastructure End-to-End Performance, plain text DSCP plan.		5.2.1.14 IP6-001150	R
3-77	If the product acts as an IPv6 tunnel broker, then the product shall support the function as defined in RFC 3053.		5.2.1.14 IP6-001160	C
3-78	If the system has an IP interface, then the system must be IPv6-capable. Use guidance below from Table 5.2-4 for NA/SS.		Table 5.2-1	R
	RFC 2407	The Internet IP Security Domain of Interpretation for ISAKMP	Table 5.2-4	C
	RFC 2408	Internet Security Association and Key Management Protocol (ISAKMP)	Table 5.2-4	C
	RFC 2409	The Internet Key Exchange (IKE)	Table 5.2-4	C
	RFC 2460	Internet Protocol, Version 6 (IPv6) Specification	Table 5.2-4	R-2
	RFC 2464	Transmission of IPv6 Packets over Ethernet Networks	Table 5.2-4	R-3
	RFC 2474	Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers	Table 5.2-4	R-4
	RFC 2710	Multicast Listener Discovery (MLD) for IPv6	Table 5.2-4	R-8
	RFC 3053	IPv6 Tunnel Broker	Table 5.2-4	C
	RFC 3315	Dynamic Host Configuration Protocol for IPv6 (DHCPv6)	Table 5.2-4	C
	RFC 3596	DNS Extensions to Support IPv6	Table 5.2-4	C
	RFC 3986	Uniform Resource Identifier (URI): Generic Syntax	Table 5.2-4	C
	RFC 4007	IPv6 Scoped Address Architecture	Table 5.2-4	R
	RFC 4091	The Alternative Network Address Types (ANAT) Semantics for the Session Description Protocol (SDP) Grouping Framework	Table 5.2-4	R
	RFC 4092	Usage of the Session Description Protocol (SDP) Alternative Network Address Types (ANAT) Semantics in the Session Initiation Protocol (SIP)	Table 5.2-4	R
	RFC 4109	Algorithms for Internet Key Exchange Version 1 (IKEv1)	Table 5.2-4	C
	RFC 4213	Basic Transition Mechanisms for IPv6 Hosts and Routers	Table 5.2-4	R-1
	RFC 4291	IP Version 6 Addressing Architecture	Table 5.2-4	R
	RFC 4301	Security Architecture for the Internet Protocol	Table 5.2-4	C
	RFC 4302	IP Authentication Header	Table 5.2-4	C
	RFC 4303	IP Encapsulating Security Payload (ESP)	Table 5.2-4	C
	RFC 4443	Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification	Table 5.2-4	R

Table 3-6. IPv6 Requirements (continued)

ID	Requirement		UCR Ref (See note 1.)	R/C
	RFC 4566	SDP: Session Description Protocol	Table 5.2-4	C
	RFC 4835	Cryptographic Algorithm Implementation Requirements for Encapsulating Security Payload (ESP) and Authentication Header (AH)	Table 5.2-4	C
	RFC 4861	Neighbor Discovery for IP Version 6 (IPv6)	Table 5.2-4	R
	RFC 4862	IPv6 Stateless Address Autoconfiguration	Table 5.2-4	C
	RFC 5095	Deprecation of Type 0 Routing Headers in IPv6	Table 5.2-4	R

NOTES:

1. Refers to the Unified Capabilities Requirements 2013, Errata 1 signed 1 July 2013, Reference (b). The individual requirements in this table are not tested. The requirements are met either with the vendor's LoC or by testing over the network configured for IPv4 and then reconfiguring and testing over the network configured for IPv6.

R1. Meets only the dual-stack requirements of this RFC.

R2. Meets only the IPv6 formatting requirements of this RFC.

R3. Meets only the framing format aspects of RFC.

R4. Requirement covered in Section 6, Network Infrastructure End-to-End Performance.

R8. EI (softphones only).

LEGEND:

AH	Authentication Header	kbps	kilobits per second
AS-SIP	Assured Services Session Initiation Protocol	LoC	Letter(s) of Compliance
C	Conditional	MLD	Multicast Listener Discovery
CPE	Customer Premise Equipment	ms	millisecond
DAD	Duplicate Address Detection	MTU	Maximum Transmission Unit
DHCP	Dynamic Host Configuration Protocol	NA/SS	Network Appliance/Simple Server
DHCPv6	Dynamic Host Configuration Protocol for IPv6	R	Required
DNS	Domain Name Service	RFC	Request for Comments
DSCP	Differentiated Services Code Point	SA	Security Architecture
EI	End Instrument	SAD	Security Association Database
ID	Identification	SDP	Session Description Protocol
ICMP	Internet Control Message Protocol	SLAAC	Stateless Address Autoconfiguration
ICMPv6	Internet Control Message Protocol for IPv6	SPD	Security Policy Database
IP	Internet Protocol	TTL	Time To Live
IPSec	Internet Protocol Security	UC	Unified Capabilities
IPv4	Internet Protocol version 4	UCR	Unified Capabilities Requirements
IPv6	Internet Protocol version 6	URI	Uniform Resource Identifiers
ISAKMP	Internet Security Association and Key Management Protocol		