



## DEFENSE INFORMATION SYSTEMS AGENCY

P. O. BOX 4502  
ARLINGTON, VIRGINIA 22204-4502

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

### MEMORANDUM FOR DISTRIBUTION

**21 Sep 10**

**SUBJECT:** Extension of the Special Interoperability Test Certification of the Cisco Optical Network System (ONS) 15454 with Software Release 8.5.2

**References:** (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004  
(b) CJCSI 6212.01E, "Interoperability and Supportability of Information Technology and National Security Systems," 15 December 2008  
(c) through (f), see Enclosure

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.
2. The Cisco ONS 15454 with Software Release 8.5.2 is hereinafter referred to as the System Under Test (SUT). The ONS 15454 can be configured in the following two platforms: the Synchronous Optical Network (SONET)/Synchronous Digital Hierarchy (SDH) Multiservice Provisioning Platform (MSPP) and the Multiservice Transport Platform (MSTP). Only the SONET/SDH MSPP configuration was tested and is covered under this certification. The SUT meets all of the critical interoperability requirements for the Defense Switched Network (DSN) and is certified for joint use. The SUT met the critical interoperability requirements for a Strategic Network Element set forth in appendices 5 and 9 of Reference (c) using test procedures derived from Reference (d). No other configurations, features, or functions, except those cited within this report, are certified by the JITC. This certification expires upon changes that affect interoperability, but no later than three years from the date of this memorandum.
3. The extension of this certification is based upon Desktop Review (DTR) 2. The original certification is based on interoperability testing conducted by JITC, review of the vendor's Letters of Compliance (LoC), and Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation. Interoperability testing was conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, Arizona from 5 through 23 January 2009 and documented in Reference (e). Review of the vendor's LoC was completed on 11 February 2009. DSAWG grants accreditation based on the security testing completed by DISA-led Information Assurance test teams and published in a separate report, Reference (f). DSAWG accreditation was granted on 11 August 2009. This DTR was requested to include software release 8.6.1 for the ONS chassis. The JITC determined there was minor risk in approving this DTR because this software update would not change the interoperability results.

JITC Memo, JTE, Extension of the Special Interoperability Test Certification of the Cisco Optical Network System (ONS) 15454 with Software Release 8.5.2

The JITC approved this DTR on 11 August 2010. The DSAWG accreditation for this DTR was granted on 21 September 2010.

4. The SUT Interoperability Test Summary is shown in Table 1 and the Capability and Feature Requirements used to evaluate the interoperability of the SUT are indicated in Table 2.

**Table 1. SUT Interoperability Test Summary**

<b>DSN Access Interfaces</b>				
<b>Interface &amp; Signaling</b>		<b>Critical</b>	<b>Status</b>	<b>Remarks</b>
T1 CAS (AMI/SF) DTMF, DP, MFR1		No <sup>1</sup>	Certified	Met all CRs and FRs.
T1 CAS (B8ZS/ESF) DTMF, DP, MFR1		No <sup>1</sup>	Certified	Met all CRs and FRs.
T1 PRI (ANSI T1.619a)		No <sup>1</sup>	Certified	Met all CRs and FRs.
T1 SS7 (ANSI T1.619a)		No <sup>1</sup>	Certified	Met all CRs and FRs.
E1 CAS (HDB3) DTMF, MFR1, DP		No <sup>1</sup> (Europe only)	Not Tested	E1 CAS is supported by the SUT; however it was not tested. The SUT E1 CAS interface is therefore not certified by JITC. This is not a required interface for a S-NE.
E1 ISDN PRI (ITU-T Q.955.3)		No <sup>1</sup> (Europe only)	Not Tested	E1 ISDN PRI is supported by the SUT; however it was not tested. The SUT E1 ISDN PRI interface is therefore not certified by JITC. This is not a required interface for a S-NE.
E1 SS7 (ANSI T1.619a)		No <sup>1</sup> (Europe only)	Not Tested	E1 SS7 is supported by the SUT; however it was not tested. The SUT E1 SS7 interface is therefore not certified by JITC. This is not a required interface for a S-NE.
DS3		No <sup>1</sup>	Certified	Met all CRs and FRs.
10/100 Mbps Ethernet		No <sup>1</sup>	Certified	Met all CRs and FRs.
Gigabit Ethernet		No <sup>1</sup>	Certified	Met all CRs and FRs.
<b>DSN Transport Interfaces</b>				
<b>Optical Carrier Level</b>	<b>Transport Level</b>	<b>Critical</b>	<b>Status</b>	<b>Remarks</b>
OC-3	VT1.5	No <sup>2</sup>	Certified	Met all CRs and FRs.
	STS-1	No <sup>2</sup>	Certified	Met all CRs and FRs.
OC-12	VT1.5	No <sup>2</sup>	Certified	Met all CRs and FRs.
	STS-1	No <sup>2</sup>	Certified	Met all CRs and FRs.
OC-48	VT1.5	No <sup>2</sup>	Certified	Met all CRs and FRs.
	STS-1	No <sup>2</sup>	Certified	Met all CRs and FRs.
OC-192	VT1.5	No <sup>2</sup>	Certified	Met all CRs and FRs.
	STS-1	No <sup>2</sup>	Certified	Met all CRs and FRs.
<b>Features And Capabilities</b>				
<b>Features and Capabilities</b>		<b>Critical</b>	<b>Status</b>	<b>Remarks</b>
Synchronization		Yes	Certified	Met all CRs and FRs.
Network Management		Yes	Certified	Met all CRs and FRs.
Security		Yes	Certified	See note 3.
<b>NOTES:</b>				
1 The UCR does not stipulate a minimum Access interface requirement for a Strategic Network Element.				
2 The UCR does not stipulate a minimum Transport interface requirement for a Strategic Network Element.				
3 Information assurance testing is accomplished via DISA-led Information Assurance test teams and published in a separate report, Reference (f).				

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

<b>LEGEND:</b>			
AMI	Alternate Mark Inversion	JITC	Joint Interoperability Test Command
ANSI	American National Standards Institute	Mbps	Megabits per second
B8ZS	Bipolar Eight Zero Substitution	MFR1	Multi-frequency Recommendation 1
CAS	Channel Associated Signaling	MLPP	Multi-Level Precedence and Preemption
CRs	Capability Requirements	OC-3	Optical Carrier Level 3 (155 Mbps)
DISA	Defense Information Systems Agency	OC-12	Optical Carrier Level 12 (622 Mbps)
DP	Dial Pulse	OC-48	Optical Carrier Level 48 (2.448 Gbps)
DS3	Digital Signal Level 3 (44.736 Mbps)	OC-192	Optical Carrier Level 192 (10 Gbps)
DSN	Defense Switched Network	PRI	Primary Rate Interface
DTMF	Dual Tone Multi-Frequency	Q.955.3	ISDN Signaling Standard for E1 MLPP
E1	European Basic Multiplex Rate (2.048 Mbps)	SF	Super Frame
ESF	Extended Super Frame	S-NE	Strategic Network Element
FRs	Feature Requirements	SS7	Signaling System 7
Gbps	Gigabits per second	SUT	System Under Test
UCR	Generic Switching Center Requirements	STS	Synchronous Transport Signal
HDB3	High Density Bipolar 3	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	VT1.5	Virtual Tributary

**Table 2. SUT Capability and Feature Interoperability Requirements**

<b>DSN Access Interfaces</b>			
<b>Interface</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>	<b>References</b>
T1 CAS	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• DS1 Interface Characteristics (C)</li> <li>• DS1 Supervisory Channel Associated Signaling (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.2.4</li> <li>• UCR para. A9.5.1.2.4</li> </ul>
T1 SS7 (ANSI T1.619a)	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• DS1 Clear Channel Capability (C)</li> <li>• DS1 Alarm and Restoral Requirements (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.2.4</li> <li>• UCR para. A9.5.1.2.4</li> </ul>
T1 ISDN PRI (ANSI T1.607/ANSI T1.619a)	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• E1 Interface Characteristics (C)</li> <li>• E1 Supervisory Channel Associated Signaling (C)</li> <li>• E1 Clear Channel Capability (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.2.5</li> <li>• UCR para. A9.5.1.2.5</li> <li>• UCR para. A9.5.1.2.5</li> </ul>
E1 ISDN PRI (ITU-T Q.955.3)	No <sup>1</sup> (Europe only)	<ul style="list-style-type: none"> <li>• E1 Alarm and Restoral Requirements (C)</li> <li>• MOS (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.2.5</li> <li>• UCR para. A9.5.1.1</li> </ul>
E1 CAS	No <sup>1</sup> (Europe only)	<ul style="list-style-type: none"> <li>• BERT (R)</li> <li>• Secure Transmission (Voice and Data) (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.1</li> <li>• UCR para. A9.5.1.1</li> </ul>
E1 SS7 (ANSI T1.619a)	No <sup>1</sup> (Europe only)	<ul style="list-style-type: none"> <li>• Modem (R)</li> <li>• Facsimile (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.1</li> <li>• UCR para. A9.5.1.1</li> </ul>
DS3	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• Call Control Signals (R)</li> <li>• Delay (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.1</li> <li>• UCR para. A9.5.1.1</li> </ul>
10/100 Mbps Ethernet	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• Call Congestion Control (R)</li> <li>• Call Congestion (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.1.2</li> <li>• UCR para. A9.5.1.1.2</li> </ul>
Gigabit Ethernet	No <sup>1</sup>	<ul style="list-style-type: none"> <li>• Voice Compression (C)</li> <li>• DS3 Interface Requirements (R)</li> <li>• IP Interface (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.1.4</li> <li>• UCR para. A9.5.1.2.6</li> <li>• UCR para. A9.5.1.2.9</li> </ul>

**Table 2. SUT Capability and Feature Interoperability Requirements (continued)**

<b>DSN Transport Interfaces</b>			
<b>Interface</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>	<b>References</b>
OC-3	No <sup>2</sup>	<ul style="list-style-type: none"> <li>• MLPP (R)</li> <li>• GR-303-CORE (R)</li> <li>• GR-253-CORE (R)</li> <li>• GR-782-CORE (R)</li> <li>• ANSI T1.105-2001 (R)</li> <li>• DS1 Rate Transport via VT 1.5 (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A5.5.1</li> <li>• UCR para. A5.5.2</li> </ul>
OC-12	No <sup>2</sup>	<ul style="list-style-type: none"> <li>• DS1 Rate Provisioning (R)</li> <li>• DS0 Call Processing (R)</li> <li>• DS0 to OC-3 Route Assignment (R)</li> <li>• Facility Alarms (R)</li> <li>• DS1 AIS/Yellow (R)</li> <li>• DS0 AIS/DS0 RAI (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A5.5.2</li> <li>• UCR para. A5.5.2</li> <li>• UCR para. A5.5.3</li> <li>• UCR para. A5.5.4</li> <li>• UCR para. A5.5.4</li> <li>• UCR para. A5.5.4</li> </ul>
OC-48	No <sup>2</sup>	<ul style="list-style-type: none"> <li>• Synchronization in accordance with GR-518-CORE (R)</li> <li>• Synchronization in accordance with GR-253-CORE (R)</li> <li>• Synchronization in accordance with GR-436-CORE (R)</li> <li>• Reliability (R)</li> <li>• Security (R)</li> <li>• MOS (R)</li> <li>• BERT (R)</li> <li>• Secure Transmission (Voice and Data) (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A5.5.5</li> <li>• UCR para. A5.5.5</li> <li>• UCR para. A5.5.5</li> <li>• UCR para. A5.5.6</li> <li>• UCR para. A5.6</li> <li>• UCR para. A9.5.1.1</li> <li>• UCR para. A9.5.1.1</li> <li>• UCR para. A9.5.1.1</li> </ul>
OC-192	No <sup>2</sup>	<ul style="list-style-type: none"> <li>• Modem (R)</li> <li>• Facsimile (R)</li> <li>• Call Control Signals (R)</li> <li>• Delay (R)</li> <li>• Call Congestion Control (R)</li> <li>• IP Congestion Control (C)</li> <li>• Voice Compression (C)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.1</li> <li>• UCR para. A9.5.1.1.2a</li> <li>• UCR para. A9.5.1.1.2b</li> <li>• UCR para. A9.5.1.1.4</li> </ul>
<b>SUT Features And Capabilities</b>			
<b>Feature/Capability</b>	<b>Critical</b>	<b>Requirements Required or Conditional</b>	<b>References</b>
Synchronization	Yes	<ul style="list-style-type: none"> <li>• Timing (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.1.2.7</li> </ul>
Network Management	Yes	<ul style="list-style-type: none"> <li>• Management Option (R)                             <ul style="list-style-type: none"> <li>- Local Management (Front Panel and/or External Console) (C)</li> <li>- ADIMSS (C)</li> </ul> </li> <li>• Fault Management (C)</li> <li>• Loop Back Capability (C)</li> <li>• Operational Configuration Restoral (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.5.2.1</li> <li>• UCR para. A9.5.2.2</li> <li>• UCR para. A9.5.2.3</li> <li>• UCR para. A9.5.3</li> </ul>
Security	Yes	<ul style="list-style-type: none"> <li>• DIACAP and STIGs (R)</li> </ul>	<ul style="list-style-type: none"> <li>• UCR para. A9.6</li> </ul>
<b>NOTES:</b>			
1 The UCR does not stipulate a minimum Access interface requirement for a Strategic Network Element.			
2 The UCR does not stipulate a minimum Transport interface requirement for a Strategic Network Element.			

**Table 2. SUT Capability and Feature Interoperability Requirements (continued)**

<b>LEGEND:</b>			
A	Appendix	ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
ADIMSS	Advanced DSN Intergraded Management Support System	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements
ANSI	American National Standards Institute	Mbps	Megabits per second
AIS	Alarm Indication Signal	MLPP	Multi-Level Precedence and Preemption
BERT	Bit Error Ratio Test	MOS	Mean Opinion Score
C	Conditional	OC-3	Optical Carrier Level 3 (155 Mbps)
CAS	Channel Associated Signaling	OC-12	Optical Carrier Level 12 (622 Mbps)
DIACAP	Department of Defense Information Assurance Certification and Accreditation Process	OC-48	Optical Carrier Level 48 (2.448 Gbps)
DS0	Digital Signal Level 0	OC-192	Optical Carrier Level 192 (10 Gbps)
DS1	Digital Signal Level 1	Para	paragraph
DS3	Digital Signal Level 3	PRI	Primary Rate Interface
DSN	Defense Switched Network	Q.955.3	ISDN Signaling standard for E1 MLPP
DSS1	Digital Subscriber Signaling 1	R	Required
DWDM	Dense Wavelength Division Multiplexing	RAI	Remote Alarm Indication
E1	European Basic Multiplex Rate (2.048 Mbps)	SONET	Synchronous Optical Network
Gbps	Gigabits per second	SS7	Signaling System 7
GR	Generic Requirement	STIGs	Security Technical Implementation Guides
GR-253-CORE	SONET Transport Systems: Common Generic Criteria	SUT	System Under Test
GR-303-CORE	Integrated Digital Loop Carrier System Generic Requirements, Objectives, and Interface	T1	Digital Transmission Link Level 1 (1.544 Mbps)
GR-436-CORE	Digital Network Synchronization Plan	T1.105-2001	SONET – Basic Description include Multiplexer structure, rates, formats
GR-518-CORE	LSSGR: Synchronization, Section 18	T1.607	ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
GR-782-CORE	SONET Digital Switch Trunk Interface Criteria	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
IP	Internet Protocol	UCR	Unified Capabilities Requirements
ISDN	Integrated Services Digital Network	VT1.5	Virtual Tributary 1.5

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>.

6. The JITC point of contact is Mr. Edward Mellon, DSN 879-5159, commercial (520) 538-5159, FAX DSN 879-4347, or e-mail to [Edward.mellon@disa.mil](mailto:Edward.mellon@disa.mil). The JITC’s mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0822401.

FOR THE COMMANDER:

Enclosure a/s

  
 for RICHARD A. MEADOR  
 Chief  
 Battlespace Communications Portfolio

JITC Memo, JTE, Extension of the Special Interoperability Test Certification of the Cisco Optical Network System (ONS) 15454 with Software Release 8.5.2

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DOT&E, Net-Centric Systems and Naval Warfare

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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, "Department of Defense Voice Networks Unified Capabilities Requirement," 21 December 2007
- (d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
- (e) Joint Interoperability Test Command, Memo, JTE, "Special Interoperability Test Certification of the Cisco Optical Network System (ONS) 15454 with Software Release 8.5.2," 13 August 2009
- (f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Cisco Optical Network System (ONS) with Software Release 8.5 (Tracking Number 0822401)," 11 August 2009