



DEFENSE INFORMATION SYSTEMS AGENCY

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IN REPLY
REFER TO:

Joint Interoperability Test Command (JITE)

17 Sep 13

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of the Alcatel-Lucent 1830 Photonic Services Switch 32 and 16 with Software Release 3.6.54 and Photonic Service Switch 1 with Software Release 1.8, Fixed Network Element

References: (a) Department of Defense 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 (d), see Enclosure 1

1. References (a) and (b) establish the Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.
2. The Alcatel Lucent 1830 Photonic Services Switch (PSS) 32/16 with Software Release 3.6.54 and PSS 1 with Software Release 1.8, are hereinafter referred to as the System Under Test (SUT). The SUT consists of the Alcatel-Lucent 1830 PSS-32 and Alcatel-Lucent 1830 PSS-16 which are two separate but closely related shelves that compose the Alcatel-Lucent 1830 PSS-32/PSS-16 solution, and the PSS 1. The SUT meets all its critical interoperability requirements and JITC certifies the SUT for joint use in the Defense Information Systems Network (DISN) as a Fixed-Network Element (F-NE). The SUT provides additional Optical transport interfaces and functional capabilities. The operational status of the SUT will be verified during deployment. Any new discrepancies that are discovered in the operational environment will be evaluated for impact and adjudicated to the satisfaction of the Defense Information Systems Agency (DISA) in a vendor Plan of Action and Milestones to address the concern(s) within 120 days of identification. The JITC conducted testing using F-NE requirements within the Unified Capabilities Requirements (UCR) 2008, Change 1, Reference (c), and other sponsor requested requirements. JITC tested the SUT using F-NE test procedures, Reference (d) and test procedures developed to address the sponsor requested requirements. No other configurations, features, or functions, except those cited within this memorandum, are certified by JITC. This certification expires 06 Aug 2015 based upon the UC Approved Products List (APL) memorandum expiration, or upon changes that affect interoperability.
3. The JITC approves the extension of this certification for Desktop Review (DTR) 1, submitted to update the software version to 3.6.54 and to include 41 additional items as listed in Table 5. Approval is based on Interoperability (IO) Verification and Validation (V&V) testing on these components. JITC determined, on 23 July 2013, the 41 components have the same exact functionality as previously tested and approved components in Release 3.6.0. This change is

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unlikely to affect the interoperability of the certified F-NE. The Information Assurance (IA) accreditation for DTR 1 was not required because this DTR approval is relevant only to interoperability certification. The results of the tests for the original certification are published in separate IA reports by Unified Capabilities Certification Office (UCCO) Tracking Number (see paragraph 6) and can be found on the Approved Products List Integrated Tracking System (APLITS) at <https://aplits.disa.mil>.

4. Section 5.9 of the UCR establishes the interfaces and threshold CRs/FRs used to evaluate the interoperability of the SUT as a F-NE. Tables 1 and 2 list the F-NE, sponsor-requested interfaces, CRs, FRs, and component status of the SUT.

Table 1. SUT Interface Requirements Status

Interface	Critical (See note)	UCR Ref (UCR 2008, Change 1)	Threshold CR/FR Requirements	Status	Remarks	
NE	Analog	No	5.9.3.2.1	1, 2, and 4	N/A	Not supported by the SUT.
	Serial	No	5.9.2.3.2	1, 2, and 4	N/A	Not supported by the SUT.
	BRI ISDN	No	5.9.2.3.3	1, 2, and 4	N/A	Not supported by the SUT.
	DS1	No	5.9.2.3.4	1, 2, 3, and 4	N/A	Not supported by the SUT.
	E1	No	5.9.2.3.5	1, 2, 3, and 4	N/A	Not supported by the SUT.
	DS3	No	5.9.2.3.6	1, 2, 3, and 4	N/A	Not supported by the SUT.
	OC-X	No	5.9.2.3.8	1, 2, 3, and 4	Certified	SUT met requirements for the following specified interfaces: PSS32: OC-3/STM1 12/STM4; 48/STM16; 192/STM64; 768/STM256 PSS16: OC-3/STM1 12/STM64; 48/STM16; 192/STM64; PSS1: OC-3/12/48
	IP (Ethernet)	No	5.9.2.3.9	1, 2, 4, and 7	Certified	SUT met requirements for specified interfaces: PSS32 and PSS16: GbE, 10GbE PSS1: GbE
NM	10Base-X	Yes	5.3.2.4.4	8	Certified	SUT met NM requirements for specified interfaces.
	100Base-X	Yes	5.3.2.4.4	8	Certified	
OTHER	10 GbE-LAN	No	5.5.3.2.2.1	1, 2, 4, and 7	Certified	SUT met NM requirements for specified interfaces.
	10 GbE-WAN	No	5.5.3.2.2.1	1, 2, 4, and 7	Certified	SUT met NM requirements for specified interfaces.
	OSC	No	5.5.3.2.2.1	1, 2, 3, 4, and 5	Certified	SUT met NM requirements for specified interfaces.

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Table 1. SUT Interface Interoperability Status (continued)

NOTE: UCR does not specify any minimum interfaces.					
LEGEND:					
100Base-X	100 Mbps Ethernet generic designation	Mbps	Megabits per second		
10Base-X	10 Mbps Ethernet generic designation	N/A	Not Applicable		
BRI	Basic Rate Interface	NE	Network Element		
CR	Capability Requirement	NM	Network Management		
DS1	Digital Signal Level 1 (1.544 Mbps)	OC-X	Optical Carrier - X (OC-3, OC-12, etc.,)		
DS3	Digital Signal Level 3 (44.736 Mbps)	OSC	Optical Supervisory Channel		
E1	European Interface Standard (2.048 Mbps)	PSS	Photonic Service Switch		
FR	Functional Requirement	Ref	Reference		
GbE	Gigabit Ethernet	SUT	System Under Test		
IP	Internet Protocol	UCR	Unified Capabilities Requirements		
ISDN	Integrated Services Digital Network	WAN	Wide Area Network		
LAN	Local Access Network				

Table 2. SUT CRs and FRs Status

CR/FR ID	Capability/Function	Applicability	UCR Ref (UCR 2008, Change 1)	Status	Remarks
F-NE CR/FR					
1	General NE Requirements				
	General Requirements	Required	5.9.2.1	Met	
	Alarms	Required	5.9.2.1.1	Met	
	Congestion Control & Latency	Required	5.9.2.1.2	Met	
2	Compression				
	G.726	Conditional	5.9.2.2	N/A	Not supported by the SUT.
	G.728	Conditional	5.9.2.2	N/A	Not supported by the SUT.
	G.729	Conditional	5.9.2.2	N/A	Not supported by the SUT.
3	Interface Requirements				
	Timing	Required	5.9.2.3.7	Met	
4	Device Management				
	Management Options	Required	5.9.2.4.1	Met	
	Fault Management	Conditional	5.9.2.4.2	N/A	Not supported by the SUT.
	Loop-Back Capability	Conditional	5.9.2.4.3	N/A	Not supported by the SUT.
	Operational Configuration Restoral	Required	5.9.2.4.4	Met	
5	DLoS				
	DLoS Transport	Conditional	5.9.2.4.5	N/A	Not supported by the SUT.
6	IPv6 Requirements				
	Product Requirements	Required	5.3.5.4	Met	SUT is a layer-2 device and transports IPv4 and IPv6 traffic transparently.
7	NM Requirements				
	VVoIP NMS Interface Requirements	Required	5.3.2.4.4	Met	
	General Management Requirements	Required	5.3.2.17.2	Met	

Table 2. SUT CRs and FRs Status (continued)

CR/FR ID	Capability/Function	Applicability	UCR Ref (UCR 2008, Change 1)	Status	Remarks
Other Tested Requirements					
8	Requirements Applicable to all OTS Elements				
	Overall Requirements	Conditional	5.5.3.2.2.1	Met	Certified based on sponsor requirements.
	Performance Requirements	Conditional	5.5.3.2.2.2	Met	Certified based on sponsor requirements.
	Reliability and Quality Assurance	Conditional	5.5.3.2.2.2.1	Partially Met	Certified based on sponsor requirements. See note 1.
	Common Physical Design Requirements	Conditional	5.5.3.2.2.3	Met	Certified based on sponsor requirements.
	Protection and Restoration	Conditional	5.5.3.2.2.4	Met	Certified based on sponsor requirements.
	Optical Amplifier Requirements				
	Optical Amplifier	Conditional	5.5.3.2.3	Partially Met	Certified based on sponsor requirements. See note 2.
	OLA Physical Design Requirements	Conditional	5.5.3.2.3.1	Met	Certified based on sponsor requirements.
	Muxponder Requirements				
	Muxponder	Conditional	5.5.3.2.4	Partially Met	Certified based on sponsor requirements. See note 3.
	Transponder Requirements				
	Transponder	Conditional	5.5.3.2.5	Partially Met	Certified based on sponsor requirements. See note 4.
	Interface Requirements	Conditional	5.5.3.2.5.1	Met	Certified based on sponsor requirements.
	ROADM Requirements				
	ROADM Requirements	Conditional	5.5.3.2.6	Partially Met	Certified based on sponsor requirements. See note 5.
	ROADM Specific Physical Design Requirements	Conditional	5.5.3.2.6.1	Met	Certified based on sponsor requirements.
	Requirements Common to Transponder and ROADM				
	Framed Formats	Conditional	5.5.3.2.7.1	Met	Certified based on sponsor requirements.
	Unframed Formats	Conditional	5.5.3.2.7.2	Partially Met	Certified based on sponsor requirements. See note 6.
	Optical Supervisory Channel Requirements				
	Optical Supervisory Channel	Conditional	5.5.3.2.8	Met	Certified based on sponsor requirements.
	OTS Standards Compliance Requirements				
	OTS Standards Compliance	Required	5.5.3.2.9	Partially Met	Certified based on sponsor requirements. See note 7.

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Table 2. SUT CRs and FRs Status (continued)

NOTES:			
1. The SUT partially meets the Telcordia Technologies, GR-282 NWT-00148* and SR-NWT-002419*. Test Discrepancy Reports (TDRs) were created for all partially met test results. TDRs have been adjudicated with minor operational impact.			
2. Internal OSAs do not provide the ability to report Q fact, show eye diagrams, and estimate Optical Signal to Noise Ratio for each wavelength. Test Discrepancy Reports (TDRs) were created for all partially met test results. TDRs have been adjudicated with minor operational impact.			
3. The 4:1 40Gb MUX does not occupy no more physical space than an OC-192/STM-64 transmit/receive packet. Test Discrepancy Reports (TDRs) were created for all partially met test results. TDRs have been adjudicated with minor operational impact.			
4. The SUT does not support through-transponder to eliminate unnecessary O/E conversions for wavelength regeneration at ROADM/OXC, and regenerator sites. Test Discrepancy Reports (TDRs) were created for all partially met test results. TDRs have been adjudicated with minor operational impact.			
5. The switching time for 1+1 protection is less than 50 ms and should be < or equal to 20ms. The ROADM does not inhibit ring or linear protection switching initiated by ODXC, MSPP or other electronic device. Test Discrepancy Reports (TDRs) were created for all partially met test results. TDRs have been adjudicated with minor operational impact.			
6. The SUT does not support unframed wavelength services. Test Discrepancy Reports (TDRs) were created for all partially met test results. TDRs have been adjudicated with minor operational impact.			
7. The SUT does not meet the EIA 310C requirement. Test Discrepancy Reports (TDRs) were created for all partially met test results. TDRs have been adjudicated with minor operational impact.			
* Not an acronym			
LEGEND:			
ADPCM	Adaptive Differential Pulse Code Modulation	MUX	Multiplexer
CR	Capabilities Requirement	ms	Millisecond
CS-ACELP	Conjugate Structure Algebraic Code-Excited Linear Prediction	N/A	Not Applicable
DLoS	Direct Line of Sight	NE	Network Element
EIA	Electronic Industries Alliance	NM	Network Management
F-NE	Fixed-Network Element	NMS	Network Management System
FR	Functional Requirement	O/E	Optical and Electrical
Gb	Gigabit	OC	Optical Carrier
G.726	ITU-T speech codec for ADPCM (32 Kbps)	ODXC	Optical Digital Cross-Connect
G.728	ITU-T speech codec for LD-CELP (16 Kbps)	OXC	Optical Cross-Connect
G.729	ITU-T speech codec for CS-ACELP (8 Kbps)	Q-Factor	Quality Factor
GR	General Requirements	OLA	Optical Line Amplifier
ID	Identification	OSA	Optical Spectrum Analyzer
IPv4	Internet Protocol version 4	OTS	Optical Transport System
IPv6	Internet Protocol version 6	Ref	Reference
ITU-T	International Telecommunications Union Telecommunications Sector	ROADM	Reconfigurable Optical Add-Drop Multiplexer
Kbps	Kilobits per second	STM	Synchronous Transport Module
LD-CELP	Low Delay-Code Excited Linear Prediction	SUT	System Under Test
MSPP	Multiservice Provisioning Platforms	TDR	Test Discrepancy Report
		UCR	Unified Capabilities Requirements
		VVoIP	Voice and Video over Internet Protocol

Table 3. List of DTR 1 Equipment to be included in the Original Certification

DTR 1 - New Components Part Number	Description	Comparable Approved Components Part Number
8DG59605AB	Main Shelf Kit PSS-32, High Capacity Fan (incl. COSHF, USRPNL, FAN32H, TIBNKx2)	8DG59605AA
8DG59606AB	Extension Shelf Kit PSS-32, High Capacity Fan (incl COSHF, UPBNK, FAN32H, TIBNKx2)	8DG59606AA
8DG59241AD	Equipment Controller (16GB)	8DG59241AB
8DG59242BD	DC Power Filter (20A) w/ V Monitoring	8DG59242AB
8DG59242AD	DC Power Filter (20A) - PSS-32	8DG59242AB
8DG59242BC	DC Power Filter (30A) w/ V Monitoring	8DG59242AB
8DG59242AC	DC Power Filter (30A)	8DG59242AB
8DG59242BB	DC Power Filter (50A) w/ V Monitoring	8DG59242AB
8DG59242BE	DC Power Filter (60A) w/ V Monitoring	8DG59242AB

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Table 3. List of DTR 1 Equipment to be included in the Original Certification (continued)

8DG59242AE	DC Power Filter (60A)	8DG59242AB	
8DG59242BA	DC Power Filter (70A) w/ V Monitoring	8DG59242AB	
8DG59242AA	DC Power Filter (70A)	8DG59242AB	
8DG59243AA	Fan Unit	8DG60273AA	
8DG59243AB	High Output PSS-32 Fan Tray	8DG60273AA	
8DG60175AB	PSS-16 DC Power Filter Managed (35A)	8DG60175AA	
8DG60094AA	User Interface Card PSS-16	8DG59244AA	
8DG60323AA	Wavelength Tracker Enhanced w/ OCM	8DG59245AA	
8DG59244AA	Low Power High Gain DWDM Amplifier	8DG59245AA	
8DG60255AA	Low PWR Fixed Gain Amp w Total PWR Mon Unkeyed	8DG59245AA	
8DG59829AA	Opt Supervisory Card w Total PWR Mon Unkeyed	8DG59245AA	
8DG60242AA	Amplifier, 23dB	8DG59245AA	
8DG60566AA	Medium Variable Gain AMP with DCM access	8DG59945AA	
8DG60912AA	Medium Variable Gain AMP w/o DCM access	8DG59945AA	
8DG60565AA	Low Variable Gain Amplifier, no mid-stage access	8DG59945AA	
8DG60117AA	8 Channel Colorless Wavelength Router	8DG59827AA	
8DG59827AB	8 channel wavelength router - Add side	8DG59827AA	
8DG60568AA	Mesh Extension Pack (External coupler card)	8DG59841AA	
8DG59841AB	88 Channel Interleaver (unidirectional)	8DG59841AA	
8DG59857AA	44 Channel Optical Mux/Demux - 50GHz offset	8DG59248AA	
8DG59561AA	Single Variable Attenuator Card	8DG59249AA	
8DG59561AB	Multiple Variable Attenuator Card Keyed	8DG59249AA	
8DG59339AA	11G Single Port Tunable GBE Mux (12 client)	8DG59249AA	
8DG60158AA	4G Dual Port Pluggable AnyRate (2 client)	8DG59713AA	
8DG59340AA	11G Dual Port Pluggable GBE Mux (12 client)	8DG59251AA	
8DG59340AB	11G Dual Port Pluggable GBE Mux (12 client) - enhanced (SyncE, Eth OAM)	8DG59251AA	
8DG59828AA	11G Dual Port Pluggable Multirate Mux (12 universal clients)	8DG59251AA	
8DG60349AA	11G Quad Port Pluggable Anyrate (4 client)	8DG59251AA	
8DG60349AB	11G Quad Port Pluggable Anyrate HARDENED (4 client)	8DG59251AA	
8DG60008AA	100G Anyrate A/D, coherent	8DG17121AA	
8DG60987AA	100G Anyrate A/D, Coherent w/Enh OSNR	8DG17121AA	
8DG60977AA	10x10G Mux, Coherent w/Enh OSNR	8DG17121AA	
LEGEND:			
A/D	Add/Drop	GHz	Gigahertz
A	Amperes	incl	Include
AMP	Amplifier	Mon	Monitor
COSHF	CO Shelf	Mux	Multiplexer
dB	Decibel	OAM	Operations, Administration, and Maintenance
DC	Direct Current	OCM	Optical Channel Multiplexer
DCM	Digital Carrier Module	OSNR	Optical Signal Noise Ratio
Demux	De-Multiplexor	PSS	Photonic Services Switch
DTR	Desktop Review	PWR	Power
DWDM	Dense Wavelength Division Multiplexing	SyncE	Synchronous Ethernet
Enh	Enhanced	TIBNKx2	Timing Interface Blank
Eth	Ethernet	UPBNK	User Panel Blank
FAN32H	High Power Fan	USRPNL	User Panel
G	Gigabyte	V	Volt
GB	Gigabit	w/	with
GbE	Gigabit Ethernet		

5. In accordance with the Program Manager’s request, JITC did not develop a detailed test report. JITC distributes interoperability information via the JITC Electronic Report Distribution 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, which .mil/.gov users can access 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 at <http://jit.fhu.disa.mil> (NIPRNet). Information related to APL testing is

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available on the DISA APL Testing and Certification website located at <http://www.disa.mil/Services/Network-Services/UCCO>. All associated test information is available on the DISA UCCO APLITS website located at <https://aplits.disa.mil>.

6. The JITC testing point of contact is Mr. Son Pham, commercial (301) 743-4258. His e-mail address is Son.m.Pham2.civ@mail.mil, mailing address: 3341 Strauss Avenue, Suite 236, Indian Head, Maryland 20640-5149. The UCCO Tracking Number (TN) for the SUT is 0927301.

FOR THE COMMANDER:



for RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

1 Enclosure a/s

Distribution (electronic mail):

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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

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NSG Interoperability Assessment Team

DOT&E, Netcentric Systems and Naval Warfare

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ADDITIONAL REFERENCES

- (c) Office of Assistant Secretary of Defense for Networks and Information Integration Document, "Department of Defense Unified Capabilities Requirements 2008, Change 1," 22 January 2010
- (d) Joint Interoperability Test Command, "Unified Capabilities Test Plan (UCTP)," 29 September 2010

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