



## DEFENSE INFORMATION SYSTEMS AGENCY

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IN REPLY  
REFER TO:

Joint Interoperability Test Command (JITE)

20 March 2012

### MEMORANDUM FOR DISTRIBUTION

**SUBJECT:** Extension of the Special Interoperability Test Certification of the Fujitsu FLASHWAVE 9500 Optical Transport System with Software Release 3.1

- References:
- (a) Department of Defense Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
  - (b) Chairman, Joint Chiefs of Staff Instruction 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 Joint Interoperability Test Command (JITC) as the responsible organization for interoperability certification.
2. The Fujitsu FLASHWAVE 9500 with Software Release 3.1, hereinafter referred to as the System Under Test (SUT), is certified for joint use in the Defense Information System Network (DISN) as an Optical Transport System (OTS). The Defense Information Systems Agency (DISA) adjudicated all Test Discrepancy Reports (TDR) open at the completion of testing, to have a minor operational impact. JITC will verify the SUT's certification status by evaluating any new discrepancies noted in the operational environment for impact on the existing certification. These discrepancies will be adjudicated to the satisfaction of DISA via a vendor Plan of Actions and Milestones that will address all new critical TDRs within 120 days of identification. JITC conducted testing using OTS product requirements derived from the Unified Capabilities Requirements (UCR), Reference (c). The SUT includes additional models and capabilities not covered by this certification. No other configurations, features, or functions, except those cited in this memorandum, are certified by JITC. This certification expires upon changes that affect interoperability, but no later than three years from the date of the original memorandum.
3. The extension of this certification is based upon Desktop Review (DTR)-1. JITC conducted interoperability testing at the JITC Advanced Technology Test Facility, Indian Head, Maryland during August and September 2009. Review of the vendor's Letter of Compliance (LoC) was completed during July 2009, Reference (e). A review of the current changes in the SUT in Reference (d) and comparison with the new requirements in Reference (c) was conducted in July 2011 to certify the SUT for interoperability within the DISN without additional interoperability testing. DSAWG granted accreditation on 14 June 2010 based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (f). The original certification specified the expiration date three years from date of issue; therefore, this certification is also based on the IA accreditation, which is limited to three years. This

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DTR-1 was requested to include 46 components that the original certification letter did not include in the tested system equipment list. JITC determined, through the analysis, that there is minimal risk in approving this DTR-1 because of the omitted components the 23 components relating to certification were included in original SUT configuration. This change is unlikely to affect the interoperability functionality of the certified OTS. Therefore, JITC approves this DTR-1. The DSAWG accreditation for this DTR-1 was not required because this DTR-1 is relevant only to interoperability certification.

4. The interface, Capability Requirements (CR), Functional Requirements (FR), and component status of the SUT are listed in Tables 1 and 2. JITC evaluated the interoperability status of the SUT based on the corresponding applicable threshold of CRs/FRs in UCR 2008 Change 1, Section 5.5.3.

**Table 1. SUT Interface Interoperability Status**

Interface	Critical	UCR Reference	Threshold CR/FR Requirements	Status	Remarks
OC-48/STM-16	Yes	5.5.3.2.5.1	1, 2, 4, 5, 6, and 8	Not-Certified	SUT does not support OC-48/STM-16 (See note 1).
OC-192/STM-64	Yes	5.5.3.2.5.1	1, 2, 3, 4, 5, 6, and 8	Certified	Met threshold CRs/FRs for OC-192/STM-64
OC-768/STM-256	Yes	5.5.3.2.5.1	1, 2, 3, 4, 5, 6, and 8	Not-Certified	SUT does not support OC-768/STM-256(See note 2).
1 Gigabit Ethernet	Yes	5.5.3.2.5.1	1, 2, 4, 5, and 8	Certified	Met threshold CRs/FRs.
10 Gigabit Ethernet LAN	Yes	5.5.3.2.5.1	1, 2, 4, 5, 6, and 8	Certified	Met threshold CRs/FRs.
10 Gigabit Ethernet-WAN	Yes	5.5.3.2.5.1	1, 2, 4, 5, 6, and 8	Certified	Met threshold CRs/FRs.
OTN ODU1/ODU2	Yes	5.5.3.2.5.1	1, 2, 4, 5, 6, and 8	Certified	Met requirement based on vendor's LoC (See note 3).
OTN ODU3	Yes	5.5.3.2.5.1	1, 2, 4, 5, 6, and 8	Not-Certified	SUT does not support OTN ODU3 (See note 4).
OTN 100 Gbps	Yes	5.5.3.2.5.1	7	Not-Certified	SUT does not support OTN 100 Gbps (See note 5).
OSC	Yes	5.5.3.2.8	8	Certified	Met threshold CRs/FRs.

**Table 1. SUT Interface Interoperability Status (continued)**

<b>NOTES:</b>			
1. The SUT does not support OC-48/STM-16. The Program Manager adjudicated this test discrepancy as having a minor operational impact because the current fielding does not implement OC-48/STM-16.			
2. The SUT does not support OC-768/STM-256. The Program Manager adjudicated this test discrepancy as having a minor operational impact because the current fielding does not implement OC-768/STM-256.			
3. Based on vendor's LoC, the SUT meets the corresponding UCR requirements. JITC did not test the OTN rates including ODU1/ODU2/ODU3 (See Enclosure 2 test limitations in the original certification letter for more details).			
4. The SUT does not support OTN-ODU-3. The Program Manager adjudicated this test discrepancy as having a minor operational impact because the current fielding does not implement OTN-ODU-3 interface.			
5. The SUT does not support 100 Gbps. The Program Manager adjudicated this test discrepancy as having a minor operational impact because the current fielding does not implement 100 Gbps interface.			
<b>LEGEND:</b>			
CR	Capability Requirements		
FR	Functional Requirement	OSC	Optical Supervisory Channel
Gbps	Gigabits per second	OTN	Optical Transport Network
JITC	Joint Interoperability Test Command	STM	Synchronous Transport Module
LAN	Local Area Network	SUT	System Under Test
LoC	Letter of Compliance	UCR	Unified Capabilities Requirements
OC	Optical Carrier	WAN	Wide Area Network
ODU	Optical Channel Data Unit		

**Table 2. SUT Capability Requirements and Functional Requirements Status**

CR/FR ID	Capability/Function	Applicability (See note 1.)	UCR Reference	Status	Remarks
1	<b>Requirements Applicable to all OTS Elements</b>				
	Overall Requirements	Required	5.5.3.2.2.1	Met	
	Performance Requirements	Required	5.5.3.2.2.2	Met	
	Reliability and Quality Assurance	Required	5.5.3.2.2.1	Met	
	Common Physical Design Requirements	Required	5.5.3.2.2.3	Met	
	Protection and Restoration	Required	5.5.3.2.2.4	Met	
2	<b>Optical Amplifier Requirements</b>				
	OLA Physical Design Requirements	Required	5.5.3.2.3.1	Met	
3	<b>Muxponder Requirements</b>				
	Muxponder	Required	5.5.3.2.4	Met	
4	<b>Transponder Requirements</b>				
	Transponder	Required	5.5.3.2.5	Met	See note 2
	Interface Requirements	Required	5.5.3.2.5.1	Partially Met	See notes 2 and 3.
5	<b>ROADM Requirements</b>				
	ROADM Requirements	Required	5.5.3.2.6	Met	
	ROADM Specific Physical Design Requirements	Required	5.5.3.2.6.1	Met	
6	<b>Requirements Common to Transponder and ROADM</b>				
	Framed Formats	Required	5.5.3.2.7.1	Met	
	Unframed Formats	Required	5.5.3.2.7.2	Met	
7	<b>Optical Supervisory Channel Requirements</b>				
	Optical Supervisory Channel	Required	5.5.3.2.8	Met	
8	<b>OTS Standards Compliance Requirements</b>				
	OTS Standards Compliance	Required	5.5.3.2.9	Met	

**Table 2. SUT Capability Requirements and Functional Requirements Status (continued)**

<b>NOTES:</b>			
1. Annotation of 'required' refers to high-level requirement category. See Enclosure 2 in the original certification letter for applicability of each sub-requirement.			
2. The SUT does not supports OC-48/STM-16, OC-768/STM-256, ODU-3, and 100 Gigabit interface. The Program Manager adjudicated this test discrepancy as having a minor operational impact because the current fielding does not implement OC-48/STM-16, OC768/STM-256, ODU-3, and 100 Gigabit interface.			
3. The SUT met all other UCR OTN interface requirements based on vendor's LoC.			
<b>LEGEND:</b>			
CR	Capability Requirements	OTS	Optical Transport System
FR	Functional Requirement	ROADM	Reconfigurable Optical Add Drop Multiplexer
ID	Identification	STM	Synchronous Transport Module
LoC	Letter of Compliance	SUT	System Under Test
OLA	Optical Line Amplifier	UCR	Unified Capabilities Requirements
OTN	Optical Transport Network		

**Table 3. List of Equipment not included in the Original Certification Tested Equipment List**

Number	Fujitsu Part Number	Description
1	FC9565ASC1	Short Reach Amplifier
2	FC9565DA02	Dispersion Compensation Module – 10Km - SMF
3	FC9565LGB1	OUPSR Module
4	FC9565MAA1	44 Channel C-band mux/demux
5	FC9565MAA2	44 Channel C-band mux/demux with interleaver
6	FC9565MPC1	CPU and Timing clock
7	FC9565MPE1	CPU and Timing clock
8	FC9565PCA1	Passive Inventory Module for EP 3U shelf
9	FC9565SF11	480Gbps SONET & Packet switch fabric
10	FC9565W8A1	8x1 WSS 100GHz ready (double width)
11	FC95705000	1000BaseSX, MMF 2km SFP
12	FC95705082	100Base-FX
13	FC95705092	100Base-LX10
14	FC95705200	1000Base-LX10
15	FC95705210	10/100/1000Base-T (copper)
16	FC95731410	Multi-rate OC-192 SR-1/10Base-LR XFP mod
17	HA660-1106-T003	Alarm Port: Rack multi-cable
18	21-195-015	Housekeeping Alarm
29	21-300-015	Alarm Port
20	21-634-025	Primary External Clock
21	21-635-025	Secondary External Clock
22	21-636-025	Primary Internal Clock Out
23	21-637-025	Secondary Internal Clock

  

<b>LEGEND:</b>			
ASSY	Assembly	LR	Long Range
CPU	Central Processing Unit	MMF	Multi-Mode Fiber
DB	Decibel	MUX	Multiplexors
DEMUX	De-multiplexor	POE	Point of Entry
FX	Full Duplex	SHLD	Shield
Gbps	Gigabits per second	SMF	Single Mode Fiber
Km	Kilometer	SONET	Synchronous Optical Network
		SR	Short Range

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

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system, which uses Non-secure 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 Defense Switched Network (DSN) testing is on the Telecom Switched Services Interoperability website at <http://jitic.fhu.disa.mil/tssi>. All associated data is available on the DISA Unified Capability Coordination Office website located at <http://www.disa.mil/ucco/>.

6. The JITC testing point of contact is Mr. Son Pham, commercial (301) 744-2636, or DSN 354-2636. His e-mail address is [Son.Pham@disa.mil](mailto:Son.Pham@disa.mil). The JITC mailing address is 3341 Strauss Avenue, Suite 236, Indian Head, Maryland 20640-5149. The SUT system tracking number is TN 0915502.

FOR THE COMMANDER:

Enclosure a/s

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Chief

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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) Fujitsu Desk Top Review (DTR)-1 Reference Document, "FLASHWAVE 9500, R3.1 DTR-1," March 2011
- (e) Fujitsu Document, "Letter of Compliance," July 2009
- (f) Joint Interoperability Test Command Document, "Information Assurance (IA) Assessment of Fujitsu FLASHWAVE 9500 with Software Release 3.1 (TN 0915503)," for APL 1 October 2009 and for DTR-1 5 October 2010

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