



DEFENSE INFORMATION SYSTEMS AGENCY

P. O. BOX 4502
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IN REPLY
REFER TO: Joint Interoperability Test Command (JITE)

21 Sep 10

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of the Fujitsu FLASHWAVE 4500 with Software Release 8.2

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 Fujitsu FLASHWAVE 4500 with Software Release 8.2 is hereinafter referred to as the System Under Test (SUT). 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). Although the SUT offers European Basic Multiplex Rate (E1) access interfaces, these interfaces were not tested by JITC and are not covered under this certification. 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 the original memorandum (23 March 2009).
3. The extension of this certification is based upon Desktop Review (DTR) 4. The original certification is based on interoperability testing conducted by JITC, DISA adjudication of open test discrepancy reports, 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 7 July through 1 August 2008. Regression testing was conducted from 1 through 5 December 2008 and documented in Reference (e). Review of vendor's LoC was completed on 11 December 2008. DISA adjudication of outstanding test discrepancy reports was completed on 18 December 2008. 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 10 March 2009 and

expires three years from date of issue. The original certification specified the expiration date four years from date of issue; however, this certification is also based on the IA accreditation, which is limited to three years, so expiration date has been changed to reflect the maximum authorized timeframe. Additionally, this DTR was requested to include the latest version number for each of the previously certified components listed in Table 1. The components included in Table 1 were certified by JITC either in the original certification or DTR1. The JITC approved this DTR on 9 August 2010. DSAWG accreditation for this DTR was granted on 21 September 2010.

Table 1. SUT Component Version Numbers

Part Number	Part Number Description	Correct/New Version Number																																
FC9580VF21	10 or 20 Gb/Sec VT Switch Fabric (Dependent on STS Fabric Used)	03																																
FC9580GSS3	1000Base-SX, 850-nm MMF, SR, double-wide, with SC connector	06																																
FC9580GLS3	1000Base-LX, 1310-nm SMF/MMF, LR, double-wide, with SC connector	07																																
FC9580C9B1	OC192 Wide Band with SC Connectors SR	07																																
FC9580L9B1	OC192 Wide Band with LC Connectors SR	07																																
FC9580SF31	300Gb/sec STS Switch Fabric Main Shelf	10																																
FC9580SF41	300Gb/sec STS Switch Fabric Expansion Shelf	11																																
FC9580G9C1	OC-192 Single Width Full Band Tuneable	06																																
FC9580GLL3	1000BaseLX (P2P 1310 nm SMF/MMF)	07																																
FC9580DCC2	FLASHWAVE 4500 DCC2 unit	10																																
FC9580CPU2	FLASHWAVE 4500 CPU2 unit	10																																
FC9580FTX3	10/100BaseT (P2P GFP EPORT-3), RJ45, 4 ports (dual width)	04																																
FC9580L2C5	Quad Port OC-12, 1310 LR	06																																
<p>LEGEND:</p> <table> <tr> <td>CPU</td> <td>Central Processing Unit</td> <td>OC-192</td> <td>Optical Carrier Level 192 (10 Gbps)</td> </tr> <tr> <td>Gb</td> <td>Gigabits per second</td> <td>Sec</td> <td>Second</td> </tr> <tr> <td>Gbps</td> <td>Gigabits per second</td> <td>SMF</td> <td>single-mode fiber</td> </tr> <tr> <td>LR</td> <td>Long Reach</td> <td>SR</td> <td>Short Reach</td> </tr> <tr> <td>Mbps</td> <td>Megabits per second</td> <td>STS</td> <td>Synchronous Transport Signal</td> </tr> <tr> <td>MMF</td> <td>multi-mode fiber</td> <td>SUT</td> <td>System Under Test</td> </tr> <tr> <td>nm</td> <td>nanometer</td> <td>VT</td> <td>Virtual Tributary</td> </tr> <tr> <td>OC-12</td> <td>Optical Carrier Level 12 (622 Mbps)</td> <td></td> <td></td> </tr> </table>			CPU	Central Processing Unit	OC-192	Optical Carrier Level 192 (10 Gbps)	Gb	Gigabits per second	Sec	Second	Gbps	Gigabits per second	SMF	single-mode fiber	LR	Long Reach	SR	Short Reach	Mbps	Megabits per second	STS	Synchronous Transport Signal	MMF	multi-mode fiber	SUT	System Under Test	nm	nanometer	VT	Virtual Tributary	OC-12	Optical Carrier Level 12 (622 Mbps)		
CPU	Central Processing Unit	OC-192	Optical Carrier Level 192 (10 Gbps)																															
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4. The SUT Interoperability Test Summary is shown in Table 2 and the Capability and Feature Requirements used to evaluate the interoperability of the SUT are indicated in Table 3.

Table 2. SUT Interoperability Test Summary

DSN Access Interfaces				
DSN Switch Access		Critical	Status	Remarks
T1 CAS (AMI/SF) DTMF, MFR1, DP		No ¹	Certified	Met all CRs and FRs.
T1 CAS (B8ZS/ESF) DTMF, MFR1, DP		No ¹	Certified	Met all CRs and FRs.
T1 PRI (ANSI T1.619a)		No ¹	Certified	Met all CRs and FRs.
T1 SS7 (ANSI T1.619a)		No ¹	Certified	Met all CRs and FRs.
E1 CAS (HDB3) DTMF, MFR1, DP		No ¹ (Europe only)	Not Tested	The SUT offers this interface; however it was not tested. The SUT E1 CAS interface is therefore not certified by JITC, or authorized for use by the DSN PMO for use within the DSN. This is not a required interface for a Strategic Network Element.
E1 ISDN PRI (ITU-T Q.955.3)		No ¹ (Europe only)	Not Tested	The SUT offers this interface; however it was not tested. The SUT E1 CAS interface is therefore not certified by JITC, or authorized for use by the DSN PMO for use within the DSN. This is not a required interface for a Strategic Network Element.
E1 SS7 (ANSI T1.619a)		No ¹ (Europe only)	Not Tested	The SUT offers this interface; however it was not tested. The SUT E1 CAS interface is therefore not certified by JITC, or authorized for use by the DSN PMO for use within the DSN. This is not a required interface for a Strategic Network Element.
DS3		No ¹	Certified	Met all CRs and FRs.
DS3C		No ¹	Certified	Met all CRs and FRs.
10/100 Mbps Ethernet		No ¹	Certified	Met all CRs and FRs.
Gigabit Ethernet		No ¹	Certified	Met all CRs and FRs.
DSN Transport Interfaces				
Optical Carrier Level	Transport Level	Critical	Status	Remarks
OC-3	VT 1.5	No ²	Certified	Met all CRs and FRs.
	STS-1	No ²	Certified	Met all CRs and FRs.
OC-12	VT 1.5	No ²	Certified	Met all CRs and FRs.
	STS-1	No ²	Certified	Met all CRs and FRs.
OC-48	VT 1.5	No ²	Certified	Met all CRs and FRs.
	STS-1	No ²	Certified	Met all CRs and FRs.
OC-192	VT 1.5	No ²	Certified	Met all CRs and FRs.
	STS-1	No ²	Certified	Met all CRs and FRs.
Features And Capabilities				
Features and Capabilities		Critical	Status	Remarks
Synchronization		Yes	Certified	Met all CRs and FRs.
Network Management		Yes	Certified	Met all CRs and FRs.
Security		Yes	See note 3.	See note 3.

Table 2. SUT Interoperability Test Summary (continued)

NOTES:			
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	Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (f).		
LEGEND:			
10/100BaseT	10/100 Mbps (Baseband Operation, Twisted Pair) Ethernet	ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
AMI	Alternate Mark Inversion	Mbps	Megabits per second
ANSI	American National Standards Institute	MFR1	Multi-frequency Recommendation 1
B8ZS	Bipolar Eight Zero Substitution	MLPP	Multi-Level Precedence and Preemption
CAS	Channel Associated Signaling	OC-3	Optical Carrier Level 3 (155 Mbps)
CR	Capability Requirements	OC-12	Optical Carrier Level 12 (622 Mbps)
DISA	Defense Information Systems Agency	OC-48	Optical Carrier Level 48 (2.448 Gbps)
DP	Dial Pulse	OC-192	Optical Carrier Level 192 (10 Gbps)
DS3	Digital Signal Level 3 (44.736 Mbps)	PRI	Primary Rate Interface
DS3C	Digital Signal Level 3 (89.472 Mbps)	Q.955.3	ISDN Signaling Standard for E1 MLPP
DTMF	Dual Tone Multi-Frequency	SF	Super Frame
DSN	Defense Switched Network	SS7	Signaling System 7
E1	European Basic Multiplex Rate (2.048 Mbps)	SUT	System Under Test
ESF	Extended Super Frame	STS	Synchronous Transport Signal
FR	Feature Requirements	T1	Digital Transmission Link Level 1 (1.544 Mbps)
Gbps	Gigabits per second	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
HDB3	High Density Bipolar 3	UCR	Unified Capabilities Requirements
ISDN	Integrated Services Digital Network	VT1.5	Virtual Tributary 1.5

Table 3. SUT Capability and Feature Interoperability Requirements

DSN Access Interfaces			
Interface	Critical	Requirements Required or Conditional	References
T1 CAS	No ¹	<ul style="list-style-type: none"> • DS1 Interface Characteristics (C) • DS1 Supervisory Channel Associated Signaling (C) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.2.4 • UCR para. A9.5.1.2.4
T1 SS7 (ANSI T1.619a)	No ¹	<ul style="list-style-type: none"> • DS1 Clear Channel Capability (C) • DS1 Alarm and Restoral Requirements (C) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.2.4 • UCR para. A9.5.1.2.4
T1 ISDN PRI (ANSI T1.607/ANSI T1.619a)	No ¹	<ul style="list-style-type: none"> • E1 Interface Characteristics (C) • E1 Supervisory Channel Associated Signaling (C) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.2.5 • UCR para. A9.5.1.2.5
E1 ISDN PRI (ITU-T Q.955.3)	No ¹	<ul style="list-style-type: none"> • E1 Clear Channel Capability (C) • E1 Alarm and Restoral Requirements (C) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.2.5 • UCR para. A9.5.1.2.5
E1 CAS	No ¹ (Europe only)	<ul style="list-style-type: none"> • MOS (R) • BERT (R) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.1 • UCR para. A9.5.1.1
E1 SS7 (ANSI T1.619a)	No ¹ (Europe only)	<ul style="list-style-type: none"> • Secure Transmission (Voice and Data) (R) • Modem (R) • Facsimile (R) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.1 • UCR para. A9.5.1.1 • UCR para. A9.5.1.1
DS3, DS3C	No ¹	<ul style="list-style-type: none"> • Call Control Signals (R) • Delay (R) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.1 • UCR para. A9.5.1.1
10/100 Mbps Ethernet	No ¹	<ul style="list-style-type: none"> • Call Congestion Control (R) • Call Congestion (R) • Voice Compression (C) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.1.3 • UCR para. A9.5.1.1.4
Gigabit Ethernet	No ¹	<ul style="list-style-type: none"> • DS3 Interface Requirements (R) • IP Interface (C) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.2.6 • UCR para. A9.5.1.2.9

Table 3. SUT Capability and Feature Interoperability Requirements (continued)

DSN Transport Interfaces			
Interface	Critical	Requirements Required or Conditional	References
OC-3	No ²	<ul style="list-style-type: none"> • MLPP (R) • GR-303-CORE (R) • GR-253-CORE (R) • GR-782-CORE (R) • ANSI T1.105-2001 (R) • DS1 Rate Transport via VT1.5 (R) 	<ul style="list-style-type: none"> • UCR para. A5.5.1 • UCR para. A5.5.2
OC-12	No ²	<ul style="list-style-type: none"> • DS1 Rate Provisioning (R) • DS0 Call Processing (R) • DS0 to OC-3 Route Assignment (R) • Facility Alarms (R) • DS1 AIS/Yellow (R) • DS0 AIS/DS0 RAI (R) 	<ul style="list-style-type: none"> • UCR para. A5.5.2 • UCR para. A5.5.2 • UCR para. A5.5.3 • UCR para. A5.5.4 • UCR para. A5.5.4 • UCR para. A5.5.4
OC-48	No ²	<ul style="list-style-type: none"> • Synchronization in accordance with GR-518-CORE (R) • Synchronization in accordance with GR-253-CORE (R) • Synchronization in accordance with GR-436-CORE (R) • Reliability (R) • Security (R) • MOS (R) • BERT (R) 	<ul style="list-style-type: none"> • UCR para. A5.5.5 • UCR para. A5.5.5 • UCR para. A5.5.5 • UCR para. A5.5.6 • UCR para. A5.6 • UCR para. A9.5.1.1 • UCR para. A9.5.1.1
OC-192	No ²	<ul style="list-style-type: none"> • Secure Transmission (Voice and Data) (R) • Modem (R) • Facsimile (R) • Call Control Signals (R) • Delay (R) • Call Congestion Control (R) • Voice Compression (C) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.1 • UCR para. A9.5.1.1.3 • UCR para. A9.5.1.1.4
SUT Features And Capabilities			
Feature/Capability	Critical	Requirements Required or Conditional	References
Synchronization	Yes	<ul style="list-style-type: none"> • Timing (R) 	<ul style="list-style-type: none"> • UCR para. A9.5.1.2.7
Network Management	Yes	<ul style="list-style-type: none"> • Management Option (R) <ul style="list-style-type: none"> - Local Management (Front Panel and/or External Console) (C) - ADIMSS (C) • Fault Management (C) • Loop Back Capability (C) • Operational Configuration Restoral (R) 	<ul style="list-style-type: none"> • UCR para. A9.5.2.1 • UCR para. A9.5.2.2 • UCR para. A9.5.2.3 • UCR para. A9.5.3
Security	Yes	<ul style="list-style-type: none"> • DIACAP and STIGs (R) 	<ul style="list-style-type: none"> • UCR para. A9.6
NOTES:			
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 3. SUT Capability and Feature Interoperability Requirements (continued)

LEGEND:			
A	Appendix	ISDN	Integrated Services Digital Network
ADIMSS	Advanced DSN Integrated Management Support System	ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
AIS	Alarm Indication Signal	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements
ANSI	American National Standards Institute	Mbps	Megabits per second
BERT	Bit Error Rate Test	MLPP	Multi-Level Precedence and Preemption
C	Conditional	MOS	Mean Opinion Score
CAS	Channel Associated Signaling	OC-3	Optical Carrier Level 3 (155 Mbps)
DIACAP	DoD Information Assurance Certification and Accreditation Process	OC-12	Optical Carrier Level 12 (622 Mbps)
DoD	Department of Defense	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
DS3C	Digital Signal Level 3 - Concatenated	Q.955.3	ISDN Signaling standard for E1 MLPP
DSN	Defense Switched Network	R	Required
DSS1	Digital Subscriber Signaling 1	RAI	Remote Alarm Indication
DWDM	Dense Wavelength Division Multiplexing	SONET	Synchronous Optical Network
E1	European Basic Multiplex Rate (2.048 Mbps)	SS7	Signaling System 7
Gbps	Gigabits per second	STIGs	Secure Technical Implementation Guides
GR	Generic Requirement	SUT	System Under Test
GR-253-CORE	SONET Transport Systems: Common Generic Criteria	T1	Digital Transmission Link Level 1 (1.544 Mbps)
GR-303-CORE	Integrated Digital Loop Carrier System Generic Requirements, Objectives, and Interface	T1.105-2001	SONET – Basic Description include Multiplexer structure, rates, formats
GR-436-CORE	Digital Network Synchronization Plan	T1.607	ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
GR-518-CORE	LSSGR: Synchronization, Section 18	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
GR-782-CORE	SONET Digital Switch Trunk Interface Criteria	UCR	Unified Capabilities Requirements
IP	Internet Protocol	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. Khoa Hoang, DSN 879-4376, commercial (520) 538-4376, FAX DSN 879-4347, or e-mail to khoa.hoang@disa.mil. The JITC’s mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0820405.

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 Fujitsu
FLASHWAVE 4500 with Software Release 8.2

Distribution (electronic mail):

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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 Requirements (UCR), 21 December 2007
- (d) Joint Interoperability Test Command (JITC), "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006
- (e) JITC Memo, JTE, "Special Interoperability Test Certification of the Fujitsu FLASHWAVE 4500 with Software Release 8.2," 23 March 2009
- (f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Fujitsu FLASHWAVE 4500 with Software Release 8.2 (Tracking Number 0820405)," 10 March 2009