DEFENSE INFORMATION SYSTEMS AGENCY
P. O. BOX 4502
ARLINGTON, VIRGINIA 22204-4502

IN REPLY
REFER TO: Joint Interoperability Test Command (JTE) **1 Jul 09**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of the Fujitsu FLASHWAVE 4100 Large Shelf (LS) with Software Release 6.1

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 4100 LS with Software Release 6.1 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. 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 (17 March 2009).

3. The extension of this certification is based upon a desktop review. 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. The original certification included a four-year certification for interoperability based on reference (b).

JITC Memo, JTE, Extension of the Special Interoperability Test Certification of the Fujitsu FLASHWAVE 4100 Large Shelf (LS) with Software Release 6.1

However, IA accreditation is limited to three years, and the Office of the Secretary of Defense mandated that special interoperability certifications in accordance with the Unified capabilities Requirements (UCR) 2008 be limited to three years. A desktop review was requested to include additional components to the certification, and JITC determined that there was no risk to the DSN to include the additional components. The desktop review request was approved on 14 May 2009. Table 1 includes the tested system configuration and the additional components that have been verified via JITC analysis.

Table 1. Tested Components

Hardware	Component	Sub Component	Version
Fujitsu FLASHWAVE 4100LS, OC-48, (Node/NE 4)	**IFA1-OC48SR1 (2ea)**	**FC95700120**	01
	IFA1-OC48SMX	**FC9681L8X1**	01
	IFA1-DS1TSU (2ea)	**FC9681D1V1**	06
	IFA1-DS3TSU (2ea)	**FC9681D3S1**	07
	IFA1-OC3QTSUX (2ea)	**FC9681LSX5**	01
	IFA-OC3IR1	**FT95700020,** FC95700030, FC95700040, FC9570A10A, FC9570A10B, FC9570A10C, FC9570A10D, FC9570A10E, FC9570A10F, FC9570A10G, FC9570A10H	01
	IFA1-LANFTS2	**FC9681STE2**	02
	IFA1-1000X	**FC95705040,** FC95705051, FC95705030, FC95705130	01
	IFA1-1000SX	**FC95705030**	02
	IFA1-LANBWE	**FC9681EXT1**	03
	IFA1-OC12TSUX (2ea)	**FC9681L4X1**	01
	IFA1-OC12IR1 (2ea)	**FC95700050,** FC95700060, FC95700070, FC9570A20A, FC9570A20B, FC9570A20C, FC9570A20D, FC9570A20E, FC9570A20F, FC9570A20G, FC9570A20H	01
	FNA1-FAN	**FC9681FAN3,** FC9681FAN2	07
		FC9681GXX2, FC9681FBX2, FC95705110, FC9681TMX1, FC9681SFL1	
		PL-MP24100-R0612, PL-MP24100-R0613	
		FC9681SFL1, FC9681SFS1	
		FC9681FLT1, FC9681FLT2	
		FC95705090, FC95705080, FC95705110, FC95705120	
		FC9681L8X1, FC9681L3X1, FC9681L2X3	
		FC95700120, FC95700130, FC95700140, FC95700150, FC9570A30A, FC9570A30B, FC9570A30C, FC9570A30D, FC9570A30E, FC9570A30F, FC9570A30G, FC9570A30H, FC9570AAAC, FC9570AAAD, FC9570AAAE, FC9570AAAF, FC9570AAAG, FC9570AAAH, FC9570AAAJ, FC9570AAAK, FC9570AAAN, FC9570AAAP, FC9570AAAQ, FC9570AAAR, FC9570AAAS, FC9570AAAT, FC9570AAAU, FC9570AAAV, FC9570AAAY, FC9570AAAZ, FC9570AABA, FC9570AABB, FC9570AABC, FC9570AABD, FC9570AABE, FC9570AABF, FC9570AABG, FC9570AABJ, FC9570AABK, FC9570AABL, FC9570AABM, FC9570AABN, FC9570AABP, FC9570AABQ, FC9570AABR, FC9570AABS	
Management Terminals	Windows XP with Service Pack 2, RAM=512 MB, Hard Drive Size=80 GB, Processor Type=Intel Celeron, Processor Speed=2.80 GHz NETSMART 500, Version 3.7		
	NETSMART 1500 NMS Server, Version 5, SP 520		
	NETSMART 1500 Client, Windows XP,		

NOTE: Components bolded and underlined were tested by JITC. The other components in the family series were not tested; however, they utilize the same hardware and JITC analysis determined them to be functionally identical for interoperability certification purposes and they are also certified for joint use.

LEGEND:

GB	Gigabyte	NMS	Network Management System
Gbps	Gigabits per second	OC	Optical Carrier
GHz	Gigahertz	OC-48	Optical Carrier Level 48 (2.448 Gbps)
LS	Large Shelf	RAM	Random Access Memory
MB	Megabyte	SP	Service Pack
NE	Network Element		

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.
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	PRI	Primary Rate Interface
DS3	Digital Signal Level 3 (44.736 Mbps)	Q.955.3	ISDN Signaling Standard for E1 MLPP
DS3C	Digital Signal Level 3 (89.472 Mbps)	SF	Super Frame
DTMF	Dual Tone Multi-Frequency	SS7	Signaling System 7
DSN	Defense Switched Network	SUT	System Under Test
E1	European Basic Multiplex Rate (2.048 Mbps)	STS	Synchronous Transport Signal
ESF	Extended Super Frame	T1	Digital Transmission Link Level 1 (1.544 Mbps)
FR	Feature Requirements	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
Gbps	Gigabits per second	UCR	Unified Capabilities Requirements
HDB3	High Density Bipolar 3	VT1.5	Virtual Tributary 1.5
ISDN	Integrated Services Digital Network		

Table 3. SUT Capability and Feature Interoperability Requirements

DSN Access Interfaces			
Interface	**Critical**	**Requirements Required or Conditional**	**References**
T1 CAS	No[1]	• DS1 Interface Characteristics (C) • DS1 Supervisory Channel Associated Signaling (C)	• UCR para. A9.5.1.2.4 • UCR para. A9.5.1.2.4
T1 SS7 (ANSI T1.619a)	No[1]	• DS1 Clear Channel Capability (C) • DS1 Alarm and Restoral Requirements (C)	• 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]	• E1 Interface Characteristics (C) • E1 Supervisory Channel Associated Signaling (C)	• UCR para. A9.5.1.2.5 • UCR para. A9.5.1.2.5
E1 ISDN PRI (ITU-T Q.955.3)	No[1] (Europe only)	• E1 Clear Channel Capability (C) • E1 Alarm and Restoral Requirements (C)	• UCR para. A9.5.1.2.5 • UCR para. A9.5.1.2.5
E1 CAS	No[1] (Europe only)	• MOS (R) • BERT (R) • Secure Transmission (Voice and Data) (R)	• UCR para. A9.5.1.1 • UCR para. A9.5.1.1 • UCR para. A9.5.1.1
E1 SS7 (ANSI T1.619a)	No[1] (Europe only)	• Modem (R) • Facsimile (R)	• UCR para. A9.5.1.1 • UCR para. A9.5.1.1
DS3, DS3C	No[1]	• Call Control Signals (R) • Delay (R) • Call Congestion Control (R)	• UCR para. A9.5.1.1 • UCR para. A9.5.1.1 • UCR para. A9.5.1.1
10/100 Mbps Ethernet	No[1]	• Call Congestion (R) • Voice Compression (C)	• UCR para. A9.5.1.1.3 • UCR para. A9.5.1.1.4
Gigabit Ethernet	No[1]	• DS3 Interface Requirements (R) • IP Interface (C)	• 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 OC-12 OC-48	No[2]	• 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) • 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) • 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) • Secure Transmission (Voice and Data) (R) • Modem (R) • Facsimile (R) • Call Control Signals (R) • Delay (R) • Call Congestion Control (R) • Voice Compression (C)	• UCR para. A5.5.1 • UCR para. A5.5.2 • UCR para. A5.5.2 • UCR para. A5.5.2 • UCR para. A5.5.2 • UCR para. A5.5.2 • 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 • 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 • UCR para. A9.5.1.1 • UCR para. A9.5.1.1 • UCR para. A9.5.1.1 • UCR para. A9.5.1.1 • 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	• Timing (R)	• UCR para. A9.5.1.2.7
Network Management	Yes	• Management Option (R) - Local Management (Front Panel and/or External Console) (C) - ADIMSS (C) • Fault Management (C) • Loop Back Capability (C) • Operational Configuration Restoral (R)	• 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	• DIACAP and STIGs (R)	• UCR para. A9.6

Table 3. SUT Capability and Feature Interoperability Requirements (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.

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		
BERT	Bit Error Rate Test	Mbps	Megabits per second
C	Conditional	MLPP	Multi-Level Precedence and Preemption
CAS	Channel Associated Signaling	MOS	Mean Opinion Score
DIACAP	DoD Information Assurance Certification and Accreditation Process	OC-3	Optical Carrier Level 3 (155 Mbps)
		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	para	paragraph
DS1	Digital Signal Level 1	PRI	Primary Rate Interface
DS3	Digital Signal Level 3	Q.955.3	ISDN Signaling standard for E1 MLPP
DS3C	Digital Signal Level 3 - Concantenated	R	Required
DSN	Defense Switched Network	RAI	Remote Alarm Indication
DSS1	Digital Subscriber Signaling 1	SONET	Synchronous Optical Network
DWDM	Dense Wavelength Division Multiplexing	SS7	Signaling System 7
E1	European Basic Multiplex Rate (2.048 Mbps)	STIGs	Secure Technical Implementation Guides
Gbps	Gigabits per second	SUT	System Under Test
GR	Generic Requirement	T1	Digital Transmission Link Level 1 (1.544 Mbps)
GR-253-CORE	SONET Transport Systems: Common Generic Criteria	T1.105-2001	SONET – Basic Description include Multiplexer structure, rates, formats
GR-303-CORE	Integrated Digital Loop Carrier System Generic Requirements, Objectives, and Interface	T1.607	ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
GR-436-CORE	Digital Network Synchronization Plan		
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. Joseph Roby, DSN 879-0507, commercial (520) 538-0507, FAX DSN 879-4347, or e-mail joseph.roby@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0820404.

FOR THE COMMANDER:

Enclosure a/s

for RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

Distribution (electronic mail):
Joint Staff J-6
Joint Interoperability Test Command, Liaison, TE3/JT1
Office of Chief of Naval Operations, CNO N6F2
Headquarters U.S. Air Force, Office of Warfighting Integration & CIO, AF/XCIN (A6N)
Department of the Army, Office of the Secretary of the Army, DA-OSA CIO/G-6 ASA (ALT), SAIS-IOQ
U.S. Marine Corps MARCORSYSCOM, SIAT, MJI Division I
DOT&E, Net-Centric Systems and Naval Warfare
U.S. Coast Guard, CG-64
Defense Intelligence Agency
National Security Agency, DT
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 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 4100 Large Shelf (LS) with Software Release 6.1," 17 March 2009
(f) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of Fujitsu FLASHWAVE 4100 Large Shelf (LS) with Software Release 6.1 (Tracking Number 0820404)," 10 March 2009