



## DEFENSE INFORMATION SYSTEMS AGENCY

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

**24 Nov 10**

### MEMORANDUM FOR DISTRIBUTION

**SUBJECT:** Extension of the Special Interoperability Test Certification of the Fujitsu FLASHWAVE 4100 Extension Shelf (ES) 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 ES 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 Desktop Review (DTR) 5. 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

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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 DTR2. The JITC determined there was no risk in approving this DTR because these hardware version number updates would not change the interoperability results. Therefore, JITC approved this DTR. The DSAWG accreditation for this DTR was granted on 23 November 2010.

**Table 1. SUT Component Version Numbers**

Part Number	Part Number Description	Correct/New Version Number
FC9681ED11	4100ES 28 port DS1 Unit	06
FC9681ED31	4100ES 3 port DS3 Unit	05
FC9681EL31	4100ES OC-3 Dual-Port Line Unit, SFP base unit	05
FC9681FAN4	4100ES Fan Tray, 48V	06
FC9681EL21	4100ES OC-12 Line Unit (SFP Base)	04
FC9681EL81	4100ES OC-48 Line Unit (SFP Base)	04
<b>LEGEND:</b>		
DS1	Digital Signal Level 1 (1.544 Mbps) (2.048 Mbps European)	OC-3 Optical Carrier Level 3 (155 Mbps)
DS3	Digital Signal Level 3	OC-12 Optical Carrier Level 12 (622 Mbps)
ES	Extension Shelf	OC-48 Optical Carrier Level 48 (2.448 Gbps)
Gbps	Gigabits per second	SFP Small Form Factor Pluggable
Mbps	Megabits per second	SUT System Under Test
OC	Optical Carrier	

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 <sup>1</sup>	Certified	Met all CRs and FRs.
T1 CAS (B8ZS/ESF) DTMF, MFR1, DP	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	The SUT offers this interface; however it was not tested. The SUT E1 CAS interface is therefore not certified by JITC. This is not a required interface for a Strategic Network Element.
E1 ISDN PRI (ITU-T Q.955.3)	No <sup>1</sup> (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. This is not a required interface for a Strategic Network Element.
E1 SS7 (ANSI T1.619a)	No <sup>1</sup> (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. This is not a required interface for a Strategic Network Element.
DS3	No <sup>1</sup>	Certified	Met all CRs and FRs.

**Table 2. SUT Interoperability Test Summary (continued)**

DSN Access Interfaces (continued)				
DSN Switch Access		Critical	Status	Remarks
DS3C		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.
DSN Transport Interfaces				
Optical Carrier Level	Transport Level	Critical	Status	Remarks
OC-3	VT 1.5	No <sup>2</sup>	Certified	Met all CRs and FRs.
	STS-1	No <sup>2</sup>	Certified	Met all CRs and FRs.
OC-12	VT 1.5	No <sup>2</sup>	Certified	Met all CRs and FRs.
	STS-1	No <sup>2</sup>	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.
<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 Security is tested by DISA-led Information Assurance test teams and published in a separate report.				
<b>LEGEND:</b>				
10/100BaseT	10/100 Mbps (Baseband Operation, Twisted Pair)	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	PRI	Primary Rate Interface	
DP	Dial Pulse	Q.955.3	ISDN Signaling Standard for E1 MLPP	
DS3	Digital Signal Level 3 (44.736 Mbps)	SF	Super Frame	
DS3C	Digital Signal Level 3 (89.472 Mbps)	SS7	Signaling System 7	
DTMF	Dual Tone Multi-Frequency	SUT	System Under Test	
DSN	Defense Switched Network	STS	Synchronous Transport Signal	
E1	European Basic Multiplex Rate (2.048 Mbps)	T1	Digital Transmission Link Level 1 (1.544 Mbps)	
ESF	Extended Super Frame	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1	
FR	Feature Requirements	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 (continued)**

SUT Features And Capabilities			
Feature/Capability	Critical	Requirements Required or Conditional	References
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>

**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	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	para	paragraph
DS0	Digital Signal Level 0	PRI	Primary Rate Interface
DS1	Digital Signal Level 1	Q.955.3	ISDN Signaling standard for E1 MLPP
DS3	Digital Signal Level 3	R	Required
DS3C	Digital Signal Level 3 - Concatenated	RAI	Remote Alarm Indication
DSN	Defense Switched Network	SONET	Synchronous Optical Network
DSS1	Digital Subscriber Signaling 1	SS7	Signaling System 7
DWDM	Dense Wavelength Division Multiplexing	STIGs	Secure Technical Implementation Guides
E1	European Basic Multiplex Rate (2.048 Mbps)	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	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
GR-518-CORE	LSSGR: Synchronization, Section 18	UCR	Unified Capabilities Requirements
GR-782-CORE	SONET Digital Switch Trunk Interface Criteria	VT1.5	Virtual Tributary 1.5
IP	Internet Protocol		

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>.

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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](mailto: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 0820403.

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Enclosure a/s

  
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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, "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 Extension Shelf (ES) with Software Release 6.1," 17 March 2009
- (f) Joint Interoperability test Command, "Information Assurance (IA) Assessment of Fujitsu FLASHWAVE 4100 Extension Shelf (ES) with Software Release 6.1 (Tracking Number 0820403)," 10 March 2009