



DEFENSE INFORMATION SYSTEMS AGENCY
JOINT INTEROPERABILITY TEST COMMAND
2001 BRAINARD ROAD
FORT HUACHUCA, ARIZONA 85613-7051

Networks, Transmission and
Integration Division (JTE)

Signed September 8, 2003

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Joint Interoperability Test Certification of the SecureLogix Enterprise Telephony Management System, TeleWall Telecommunications Firewall Application with Software Release 4.0.1

References: (a) DOD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 11 January 2002

(b) CJCSI 6212.01B, "Interoperability and Supportability of National Security Systems and Information Technology Systems," 8 May 2000

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification. Additional references are provided in enclosure 1.
2. The SecureLogix Enterprise Telephony Management (ETM) System, TeleWall Telecommunications Firewall Application with Software Release 4.0.1, hereafter referred to as the TeleWall application, meets all of the critical interoperability requirements for the Defense Switched Network (DSN) and is certified for joint use. JITC tested the Telewall application as set forth in reference (c) using test procedures derived from reference (d). This certification expires upon changes that affect interoperability, but no later than three years from the date of this memorandum.
3. This certification is based on interoperability testing conducted by the JITC at the JITC Network Engineering and Integration Lab, Fort Huachuca, Arizona in an operationally realistic environment that is similar to that of the DSN. The Certification Testing Summary (enclosure 2) documents the test results and describes the test network. Users should verify interoperability before deploying the TeleWall application in an environment that varies significantly from that described.
4. The ETM System Application Suite consists of TeleWall, TeleView, TeleAudit and the Authentication, Authorization and Accounting (AAA) Client Server. This certification effort only tested the TeleWall application. TeleView, TeleAudit, and the AAA client server

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applications are not covered under this certification. The TeleWall application takes the firewall concept for data communications and applies it to telecommunications networks. Like the data network version of a firewall, the TeleWall application provides a rule-based policy enforcement mechanism for telecommunications networks. The TeleWall application is designed to automatically monitor and enforce telecommunications policies in order to deter and detect access control violations. It can automatically detect, log, alert, and block phone line traffic that violates a user-defined rule. The primary purpose for testing the TeleWall application was to ensure that the TeleWall application would have no adverse effect on the DSN and appear transparent to the network. Users of this application should ensure it meets their functional requirements for a telecommunications firewall prior to fielding.

5. The TeleWall application was tested using the ETM2100 AND ETM1010 SecureLogix platforms.

The SecureLogix ETM 3200 platform employs the same software and card sets as the ETM 2100 with a larger chassis. JITC analysis determined the SecureLogix ETM 3200 to be functionally identical to the ETM 2100 for interoperability certification purposes. Though not specifically tested, the SecureLogix ETM 3200 platform running with the TeleWall application should pose no interoperability problems with the DSN and is also covered by this certification. The certification of the TeleWall application is based upon evaluation of the platforms using the Exchange Requirements (ERs) derived from DSN voice and data service requirements. The ERs used to evaluate the interoperability of the application are listed in table 1. The interoperability status of the TeleWall application is indicated in table 2.

Table 1. SecureLogix TeleWall Application Exchange Requirements

Platform	Interface	Exchange Requirement
ETM 2100 ETM 3200	T1 CAS (B8ZS/ESF) (AMI/SF)	<ul style="list-style-type: none"> - Alarms - Asynchronous Data - MLPP Preempt Signals - Non-secure Fax - POTS Voice Calls - Secure Fax - STU-III/STE Secure Voice - STU-III/STE Secure Data - Synchronous Data - T1 Electrical Characteristics - Video Teleconferencing
	T1 ISDN PRI (B8ZS/ESF)	
	E1 ISDN PRI (HDB3)	
ETM 1010	2 Wire Loop Analog	<ul style="list-style-type: none"> - POTS Voice Calls - Asynchronous Data - Non-secure Fax - Secure Fax - STU-III/STE Secure Voice - STU-III/STE Secure Data
Legend: AMI - Alternate Mark Inversion B8ZS - Bipolar Eight Zero Substitution CAS - Channel Associated Signaling E1 - European Basic Rate (2.048 Mbps) ESF - Extended Superframe ETM - Enterprise Telephony Management FAX - Facsimile HDB3 - High Density Bipolar Three ISDN - Integrated Services Digital Network Mbps - Megabits per second MLPP - Multi-Level Precedence and Preemption POTS - Plain Old Telephone Service PRI - Primary Rate Interface SF - Superframe STE - Secure Terminal Equipment STU-III - Secure Telephone Unit-III T1 - Digital Transmission Link level 1 (1.544 Mbps)		

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Table 2. SecureLogix ETM System Interface Interoperability Status

Interface Requirement	Critical	Status	Remarks
ETM 2100/3200			
T1 CAS (B8ZS/ESF)(AMI/SF)	Yes	Certified	All Exchange Requirements of table 1 met
T1 ISDN PRI (B8ZS/ESF)	Yes	Certified	All Exchange Requirements of table 1 met
E1 ISDN PRI (HDB3)	Yes	Certified	All Exchange Requirements of table 1 met
ETM 1010			
2 Wire Loop Analog	Yes	Certified	All Exchange Requirements of table 1 met
Legend:			
AMI - Alternate Mark Inversion		HDB3 - High Density Bipolar Three	
B8ZS - Bipolar Eight Zero Substitution		ISDN - Integrated Services Digital Network	
CAS - Channel Associated Signaling		Mbps - Megabits per second	
E1 - European Basic Rate (2.048 Mbps)		PRI - Primary Rate Interface	
ESF - Extended Superframe		SF - Superframe	
ETM - Enterprise Telephony Management		T1 - Digital Transmission Link level 1 (1.544 Mbps)	

6. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system -- ERD uses unclassified (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>.

7. The JITC point of contact is LCDR Michael Wojcik, DSN 879-6787 or commercial (520) 538-6787. The e-mail address is wojcikm@fhu.disa.mil.

FOR THE COMMANDER:

- 2 Enclosures:
- 1 Additional References
- 2 Certification Testing Summary

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 Directorate, Technical Interoperability Assessment Branch, ATTN: Code IN11, 5600 Columbia Pike, Suite 240, Falls Church, VA 22041

JITC Memo, Networks, Transmission and Integration Division (JTE), Joint Interoperability Test Certification of the SecureLogix Enterprise Telephony Management System, TeleWall Telecommunications Firewall Application with Software Release 4.0.1

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Office of Assistant Secretary of Defense, C3I, 6000 Defense Pentagon, Washington, DC 20301

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Commander, Defense Information Systems Agency (DISA), ATTN: NS53 (Mr. Osman), Room 5w23, 5275 Leesburg Pike (RTE 7) Falls Church, VA 22041

ADDITIONAL REFERENCES

- (c) Defense Information Systems Agency (DISA), Joint Interoperability and Engineering Organization (JIEO), Technical Report 8249, "Defense Information System Network (DISN) Circuit Switched Subsystem, Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR)," March 1997
- (d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP)," 17 June 1999

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. SecureLogix Enterprise Telephony Management (ETM) System, TeleWall Telecommunications Firewall Application with Software Release 4.0.1

2. PROPONENT. Defense Information Systems Agency (DISA) / SecureLogix Corporation.

3. PROGRAM MANAGERS. Mr. Howard Osman, NS53, Room 5W23, 5275 Leesburg Pike, Falls Church, VA 22041, e-mail: Osmanh@ncr.disa.mil. Jane Byrne, Product Manager, SecureLogix Corporation, 13750 San Pedro, Suite 230 San Antonio, Texas, 78232, (210) 402-9669, e-mail: jbyrne@securelogix.com.

4. TESTERS. Joint Interoperability Test Command (JITC), Ft. Huachuca, Arizona.

5. SYSTEM UNDER TEST DESCRIPTION. The ETM System Application Suite with Software Release 4.0.1 consists of TeleWall, TeleView, TeleAudit, and the Authentication, Authorization, and Accounting (AAA) Client Server. This certification effort only tested the TeleWall application. TeleView, TeleAudit and the AAA client server applications are not covered under this certification. The TeleWall application takes the firewall concept for data communications and applies it to the telecommunications network. Like the data network version of a firewall, the TeleWall application provides a rule-based policy enforcement mechanism for telecommunications networks. The TeleWall application is designed to automatically monitor and enforce telecommunications policies in order to deter and detect access control violations. It automatically detects, logs, alerts, and blocks phone line traffic that violates a user-defined rule.

6. OPERATIONAL ARCHITECTURE. The Generic Switching Center Requirements Defense Switched Network (DSN) operational architecture is depicted in figure 2-1. Upon certification, the TeleWall application will be deployed at camp, post, or station analog dial-up lines and digital Interswitch or access trunks.

7. REQUIRED SYSTEM INTERFACES. Table 2-1 details the interfaces and Exchange Requirements (ERs) derived from reference (c) required for interoperability certification of the ETM System application. Interoperability certification of the interfaces is based on meeting criteria from the ERs.

8. TEST NETWORK DESCRIPTION. The test network is depicted in figure 2-2. The ETM System application was tested at JITC's Network Engineering and Integration Laboratory in a manner and configuration similar to that of the DSN operational environment depicted in figure 2-2.

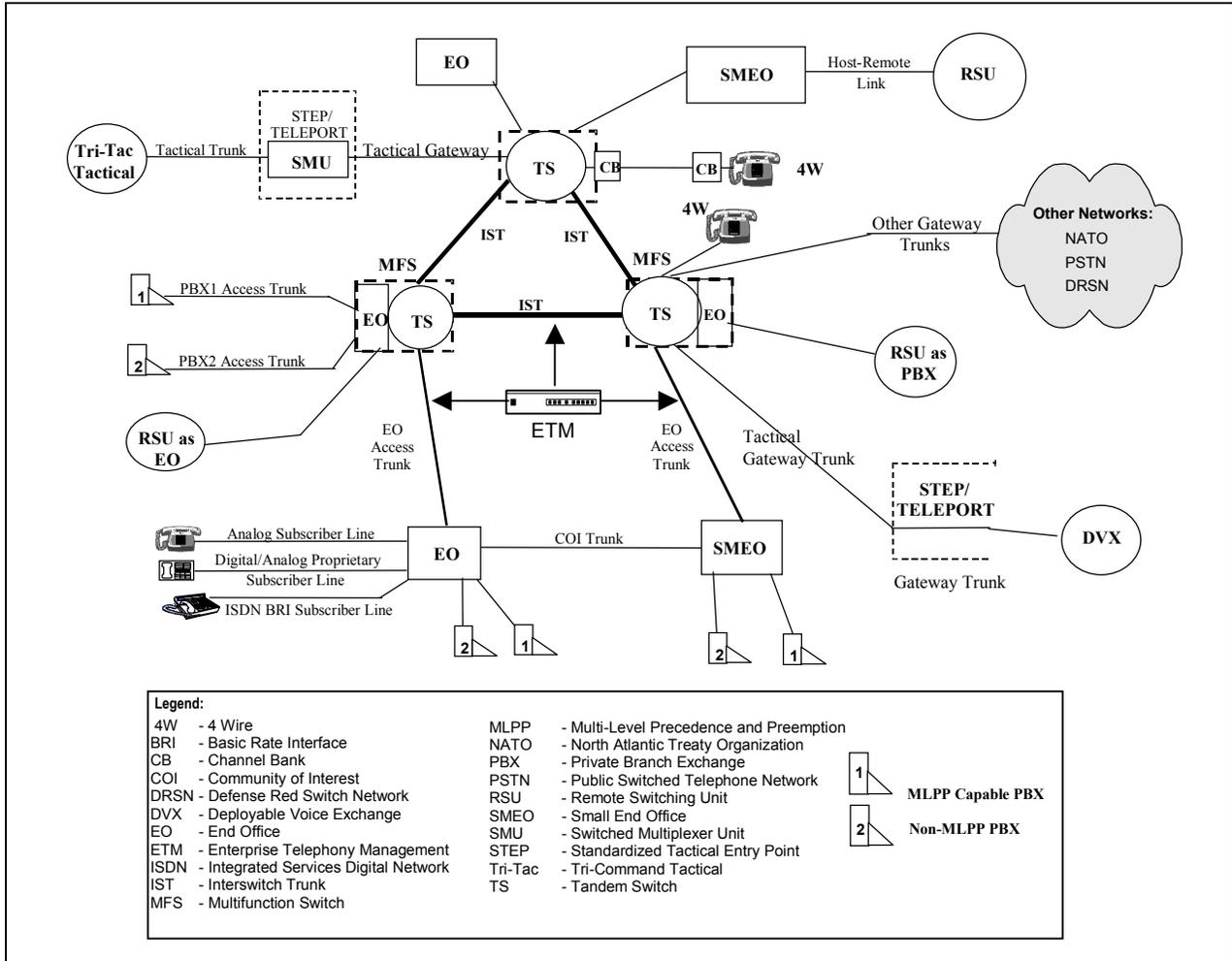


Figure 2-1. DSN Architecture

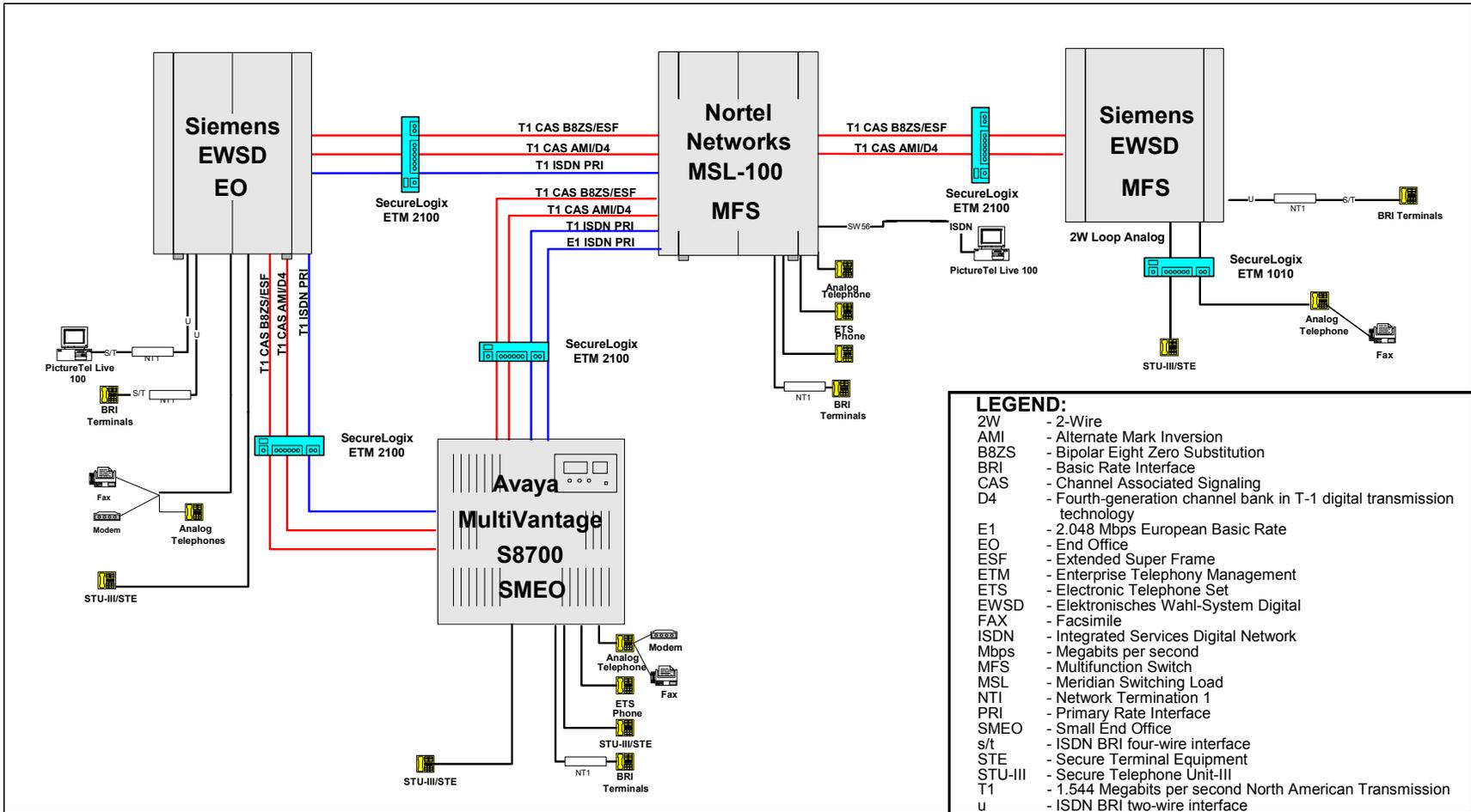


Figure 2-2. Test Network Configuration

Table 2-1. SecureLogix ETM System Exchange Requirements

Interface Requirement	Exchange Requirements	Exchange Method	Critical	References		
SecureLogix ETM 2100/3200						
T1 CAS	Alarms Asynchronous Data MLPP Preempt Signals Non-secure FAX POTS Voice Calls Secure FAX STU-III/STE Secure Voice STU-III/STE Secure Data Synchronous Data T1 Electrical Characteristics Video Teleconferencing	AMI/SF B8ZS/ESF	Yes	GSCR Mar 97 GSTP Jun 99		
T1 ISDN PRI		B8ZS/ESF	Yes			
E1 ISDN PRI		HDB3	Yes			
SecureLogix ETM 1010						
2 Wire Loop Analog	POTS Voice Calls Asynchronous Data Non-secure FAX Secure FAX STU-III/STE Secure Voice STU-III/STE Secure Data	2 Wire POTS	Yes	GSCR Mar 97 GSTP Jun 99		
Legend:						
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> AMI - Alternate Mark Inversion B8ZS - Bipolar Eight Zero Substitution CAS - Channel Associated Signaling E1 - European Basic Rate (2.048 Mbps) ESF - Extended Super Frame ETM - Enterprise Telephony Management FAX - Facsimile GSCR - Generic Switching Center Requirements GSTP - Generic Switch Test Plan HDB3 - High Density Bipolar Three </td> <td style="width: 50%; vertical-align: top;"> ISDN - Integrated Services Digital Network Mbps - Megabits per second MLPP - Multi-Level Precedence and Preemption POTS - Plain Old Telephone Service PRI - Primary Rate Interface SF - Super Frame STE - Secure Terminal Equipment STU-III - Secure Telephone Equipment-III T1 - Digital Transmission Link level 1 (1.544 Mbps) </td> </tr> </table>					AMI - Alternate Mark Inversion B8ZS - Bipolar Eight Zero Substitution CAS - Channel Associated Signaling E1 - European Basic Rate (2.048 Mbps) ESF - Extended Super Frame ETM - Enterprise Telephony Management FAX - Facsimile GSCR - Generic Switching Center Requirements GSTP - Generic Switch Test Plan HDB3 - High Density Bipolar Three	ISDN - Integrated Services Digital Network Mbps - Megabits per second MLPP - Multi-Level Precedence and Preemption POTS - Plain Old Telephone Service PRI - Primary Rate Interface SF - Super Frame STE - Secure Terminal Equipment STU-III - Secure Telephone Equipment-III T1 - Digital Transmission Link level 1 (1.544 Mbps)
AMI - Alternate Mark Inversion B8ZS - Bipolar Eight Zero Substitution CAS - Channel Associated Signaling E1 - European Basic Rate (2.048 Mbps) ESF - Extended Super Frame ETM - Enterprise Telephony Management FAX - Facsimile GSCR - Generic Switching Center Requirements GSTP - Generic Switch Test Plan HDB3 - High Density Bipolar Three	ISDN - Integrated Services Digital Network Mbps - Megabits per second MLPP - Multi-Level Precedence and Preemption POTS - Plain Old Telephone Service PRI - Primary Rate Interface SF - Super Frame STE - Secure Terminal Equipment STU-III - Secure Telephone Equipment-III T1 - Digital Transmission Link level 1 (1.544 Mbps)					

9. SYSTEM CONFIGURATIONS. Table 2-2 lists the hardware and software configurations associated with the systems used during the test.

Table 2-2. Tested System Configurations

System Name	Hardware	Software Release
SecureLogix ETM System	ETM 1010 ETM 2100/3200	4.0.1
Nortel Networks MSL-100	RISC Processor	MSL-17
Avaya MultiVantage S8700	Linux Processor	R011x.7585.7.0.2
Siemens EWSD	CP 113C	19d with patch set 33
Legend:		
CP - Central Processor EWSD - Elektronisches Wahl-System Digital ETM - Enterprise Telephony Management MSL - Meridian Switching Load RISC - Reduced Instruction Set Computer		

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. T1 CAS AMI/SF and B8ZS/ESF. The ETM System has the ability to automatically or manually enter a bypass mode. In this mode, the input and output connections of the T1 CAS AMI/SF and B8ZS/ESF circuits are electronically

connected bypassing the monitoring functionality of the ETM System application. The power was disconnected from the ETM System during call loading of approximately 2100 calls per hour over both the T1 CAS AMI/SF and B8ZS/ESF circuits. The call load scenario included a 56 kilobits per second (kbps) Bit Error Rate Test (BERT) using a 2047 pattern for approximately 25 seconds per call. When the power was disconnected, the ETM System automatically entered the bypass mode and there was no adverse impact on the call load results. Furthermore, there was no adverse effect on call load results when the power was reconnected to the ETM System. The ETM System appears transparent to the circuit during a power failure condition. The ETM System was also placed in the manual bypass mode during call loading via software producing the same results as recorded during the automatic mode.

(1) Alarms. Red and yellow (Remote) Carrier Group Alarms passed in accordance with the Defense Communications Agency Circular (DCAC) 370-175-13, Defense Switched Network (DSN) System Interface Criteria (SIC). All alarms propagated through the ETM System transparently.

(2) Asynchronous Data Calls. All asynchronous modem calls were placed over the T1 CAS AMI/SF and B8ZS/ESF circuits with a 100-percent success rate. The ETM System had no adverse effect on asynchronous data calls and appeared transparent to the circuit under test.

(3) Multi-Level Precedence and Preemption (MLPP). The four types of MLPP call scenarios listed below were tested over the T1 CAS AMI/SF and B8ZS/ESF interfaces. Each preemption scenario met the MLPP preemption signal requirements in accordance with the Generic Switching Center Requirements (GSCR) paragraph 6.3.1. The ETM System transparently passed A/B signaling bit transitions and did not alter the MLPP preempt signals sent by the switch.

- (a) Answered Call; Circuit to be Reused
- (b) Unanswered Call; Circuit to be Reused
- (c) Answered Call; Circuit not to be Reused
- (d) Unanswered Call; Circuit not to be Reused

(4) Non-Secure Facsimile (FAX). Automated FAX calls were placed over the T1 CAS AMI/SF and B8ZS/ESF circuits using the Abacus Spirent call loader with a 100-percent success rate. The ETM System had no adverse effect on non-secure FAX calls and appeared transparent to the circuit under test.

(5) Plain Old Telephone Service (POTS) Voice Calls. Manual calls were placed over the T1 CAS AMI/SF and B8ZS/ESF circuits. All calls received a subjective voice call quality mean opinion score of 4 or better on the International

Voice Quality scale. The ETM System had no adverse effect on POTS voice calls and appeared transparent to the circuit under test.

(6) Secure FAX. Secure FAX calls were placed over the T1 CAS AMI/SF and B8ZS/ESF circuits with a 100-percent success rate. The ETM System had no adverse effect on secure FAX calls and appeared transparent to the circuit under test.

(7) Secure Telephone Unit-III (STU-III)/Secure Terminal Equipment (STE) Secure Voice Calls. The following secure voice call scenarios were conducted with a 100-percent success rate. The ETM System had no adverse effect on STU-III/STE secure voice calls and appeared transparent to the circuit under test.

(a) STU-III to STU-III calls @ 9.6 kbps

(b) STE to STE calls @ 4.8 kbps

(c) STU-III to STE calls @ 4.8 kbps

(8) STU-III/STE Secure Data Calls. The Sunset T10 test set was used to conduct an asynchronous BERT using a 511 test pattern in the secure data mode for a period of 30 minutes per call. The ETM System had no adverse effect on STU-III/STE secure data calls and appeared transparent to the circuit under test. The following secure data call scenarios were conducted with a 100-percent success rate.

(a) STU-III to STU-III calls @ 9.6 kbps

(b) STE to STE calls @ 19.2 kbps

(c) STU-III to STE calls @ 9.6 kbps

(9) Synchronous 56 kbps Data Calls. The Sunset T10 and ADTRAN ISU 2x64-S test sets were used to conduct switched 56 kbps synchronous BERT calls using a 2047 test pattern. Calls completed with a 100-percent success rate. Furthermore, switched 56 kbps calls were also placed over the T1 CAS AMI/SF and B8ZS/ESF circuits using the Ameritec AM2D call loaders. 141,668 Switched 56 kbps data calls using a 2047 pattern for a period of 25 seconds per call were placed over a three-day period producing a 99.99-percent success rate. A successful call requires a completed BERT with no bit errors per call. The ETM System had no adverse effect on switched 56 kbps data calls and appeared transparent to the circuit under test.

(10) T1 Electrical Interface Characteristics. A pulse mask analysis was conducted on both the T1 CAS AMI/SF and B8ZS/ESF interfaces to verify the ETM System met the required T1 electrical interface characteristics. The Pulse Mask analysis passed in accordance with the GSCR paragraph 7.1. The ETM System had no adverse effect on T1 electrical interface characteristics and appeared transparent to the circuit under test.

(11) Video Teleconferencing (VTC). 336 Kbps Bonding 1 VTC calls were placed over T1 CAS AMI/SF and B8ZS/ESF interfaces with a 100-percent call completion rate. The ETM System had no adverse effect on VTC calls and appeared transparent to the circuit under test.

b. T1 ISDN PRI. The same test scenarios conducted over T1 CAS above were also conducted over the T1 ISDN PRI interface with the exception that both 56 kbps and 64 kbps circuit switched data calls were placed, with the same results. The ETM System had no adverse effect on T1 ISDN PRI interface and appeared transparent to the circuit under test.

c. E1 ISDN PRI. The same test scenarios conducted over T1 CAS above were also conducted over the E1 ISDN PRI interface with the exception that both 56 kbps and 64 kbps circuit switched data calls were placed with the same results. The ETM System had no adverse effect on E1 ISDN PRI interface and appeared transparent to the circuit under test.

d. 2 Wire Loop Analog

(1) Normal Mode. The following call types were successfully completed.

- (a) POTS voice calls
- (b) Asynchronous data calls
- (c) Non-secure FAX
- (d) Secure FAX
- (e) STU-III/STE secure voice calls
- (f) STU-III/STE secure data calls

(2) Bypass Mode. As with the T1 CAS, T1 ISDN PRI, and E1 ISDN PRI interfaces, the ETM System also has the ability to automatically or manually bypass the analog interface creating a physical connection. The power was disconnected from the ETM System when the following call types were established: POTS voice calls, synchronous data calls, STU-III/STE secure voice calls, and STU-III/STE secure data calls. The ETM System automatically entered the bypass mode and there was no adverse impact on any of the established calls. The ETM System was also placed in the manual bypass mode during call loading via software, which produced the same results as recorded during the automatic mode.

12. SUMMARY. The SecureLogix Enterprise Telephony Management (ETM) System, TeleWall Telecommunications Firewall Application with Software Release 4.0.1 is

certified for joint use in the DSN, in accordance with the requirements set forth in reference (c). When connected to the interfaces certified in this letter, the ETM System was transparent to the switching systems or lines interfaced causing no degradation of service or negative impact, and met all the critical interoperability requirements. The SecureLogix ETM System Interoperability Status is shown in table 2-3.

Table 2-3. SecureLogix TeleWall Application Interoperability Status

Interface	ER/Criteria	Critical Interface	Result	Interface Status
T1 CAS (B8ZS/ESF) (AMI/SF)	Alarms must be propagated in accordance with GSCR Para. 10.2	Yes	ER met	Certified
	Asynchronous Data must pass in accordance with GSCR Para. 10.2		ER met	
	MLPP Preempt Signals/Messages must be propagated in accordance with GSCR Para. 6.3.1		ER met	
	Non-secure FAX calls must pass in accordance with GSCR Para 10.1		ER met	
	POTS Voice calls must pass in accordance with GSCR Para. 10.1		ER met	
	Secure FAX calls must pass in accordance with GSCR Para 10.1		ER met	
	STU-III/STE Secure Voice calls must pass in accordance with GSCR Para. 10.2		ER met	
	STU-III/STE Secure Data calls must pass in accordance with GSCR Para. 10.1		ER met	
	Synchronous Data calls must pass in accordance with GSCR Para. 10.2		ER met	
	T1 Electrical Interface Characteristics in accordance with GSCR Para. 7.1		ER met	
	Video Teleconferencing in accordance with GSCR Para. 10.2		ER met	
T1 ISDN PRI	Alarms must be propagated in accordance with GSCR Para. 10.2	Yes	ER met	Certified
	Asynchronous Data must pass in accordance with GSCR Para. 10.2		ER met	
	MLPP Preempt Signals/Messages must be propagated in accordance with GSCR Para. 6.3.1		ER met	
	Non-secure FAX calls must pass in accordance with GSCR Para 10.1		ER met	
	POTS Voice calls must pass in accordance with GSCR Para. 10.1		ER met	
	Secure FAX calls must pass in accordance with GSCR Para 10.1		ER met	
	STU-III/STE Secure Voice calls must pass in accordance with GSCR Para. 10.2		ER met	
	STU-III/STE Secure Data calls must pass in accordance with GSCR Para. 10.1		ER met	
	Synchronous Data calls must pass in accordance with GSCR Para. 10.2		ER met	
	T1 Electrical Interface Characteristics in accordance with GSCR Para. 7.1		ER met	
	Video Teleconferencing in accordance with GSCR Para. 10.2		ER met	
E1 ISDN PRI	Alarms must be propagated in accordance with GSCR Para. 10.2	Yes	ER met	Certified
	Asynchronous Data must pass in accordance with GSCR Para. 10.2		ER met	
	MLPP Preempt Signals/Messages must be propagated in accordance with GSCR Para. 6.3.1		ER met	
	Non-secure FAX calls must pass in accordance with GSCR Para 10.1		ER met	
	POTS Voice calls must pass in accordance with GSCR Para. 10.1		ER met	
	Secure FAX calls must pass in accordance with GSCR Para 10.1		ER met	
	STU-III/STE Secure Voice calls must pass in accordance with GSCR Para. 10.2		ER met	
	STU-III/STE Secure Data calls must pass in accordance with GSCR Para. 10.1		ER met	
	Synchronous Data calls must pass in accordance with GSCR Para. 10.2		ER met	
	T1 Electrical Interface Characteristics in accordance with GSCR Para. 7.1		ER met	
	Video Teleconferencing in accordance with GSCR Para. 10.2		ER met	

Table 2-3. SecureLogix TeleWall Application Interoperability Status (continued)

2 Wire Loop Analog	POTS Voice Calls must pass in accordance with GSCR Para. 10.1	Yes	ER met	Certified
	Asynchronous Data must pass in accordance with GSCR Para. 10.2		ER met	
	Non-secure FAX calls must pass in accordance with GSCR Para 10.1		ER met	
	Secure FAX calls must pass in accordance with GSCR Para 10.1		ER met	
	STU-III/STE Secure Voice calls must pass in accordance with GSCR Para. 10.2		ER met	
	STU-III/STE Secure Data calls must pass in accordance with GSCR Para. 10.1		ER met	
Legend:				
AMI	- Alternate Mark Inversion	Mbps	- Megabits per second	
B8ZS	- Bipolar Eight Zero Substitution	MLPP	- Multi-Level Precedence and Preemption	
CAS	- Channel Associated Signaling	POTS	- Plain Old Telephone Service	
E1	- European Basic Rate (2.048 Mbps)	PRI	- Primary Rate Interface	
ER	- Exchange Requirements	SF	- Super Frame	
ESF	- Extended Super Frame	STE	- Secure Terminal Equipment	
FAX	- Facsimile	STU-III	- Secure Telephone Unit-III	
GSCR	- Generic Switching Center Requirements	T1	- Digital Transmission Link level 1 (1.544 Mbps)	
ISDN	- Integrated Services Digital Network			