



DEFENSE INFORMATION SYSTEMS AGENCY
 JOINT INTEROPERABILITY TEST COMMAND
 P.O. BOX 12798
 FORT HUACHUCA, ARIZONA 85670-2798

IN REPLY
REFER TO:

Battlespace Communications Portfolio (JTE)

12 May 08

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Joint Interoperability Test Certification of the Combined Joint Task Force-82 (CJTF-82) Minuteman Mobile Switching Center (MSC), Version 1.0

- References:
- (a) Department of Defense Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
 - (b) Chairman of the Joint Chiefs of Staff Instruction 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," 8 March 2006
 - (c) through (g), see enclosure 1

1. References (a) and (b) establish the Joint Interoperability Test Command (JITC) as the responsible organization for interoperability test certification.

2. The Minuteman Mobile Switching Center (MSC), Version 1.0, was evaluated for Net-Centric Operations and Warfare interoperability and is certified as interoperable as described in table 1. Table 2 summarizes the Net-Ready Key Performance Parameter (NR-KPP) and any other interoperability requirements status, based on the requirements cited in table 3.

Table 1. Identification/Overall Certification Status

System ID	Program	Minuteman Mobile Switching Center
	System	MSC
	Type	Command and Control
	Tracking	DITPR ID: N/A, IT Registry ID: N/A JCPAT-E: #100137, STP # 2037
	Increment	N/A
	Version	1.0
	Remarks	Information Exchanges support CJTF Minuteman MSC operations
	Mission Area/COIs	Warfighting Mission Area/The Minuteman MSC has no community of interest communications.

Table 1. Identification/Overall Certification Status (continued)

Status	Type of Evaluation/ Certification	Interoperability Certification
	Status	Full – The Minuteman MSC met its threshold requirements
	Operational Environment	Joint
	Remarks	The test occurred in an operational environment.
	Expiration	Three (3) years after date of the original memorandum of certification or upon changes that affect interoperability.
	ICTO Status	Signed 15 January 2008
	ITP IWL (Delinquent List)	The system is not on the IWL or the Joint Staff delinquency list.

LEGEND:

CENTCOM	Central Command	ITP	Interoperability Test Panel
CJOA-A	Combined Joint Operations Area-Afghanistan	IWL	Interoperability Watch List
CJTF	Combined Joint Task Force	JCPAT-E	Joint Command, Control, Communications, Computers, and Intelligence
COI	Community of Interest		Program Assessment Tool - Empowered
DITPR	DoD IT Portfolio Repository	MSC	Mobile Switching Center
DoD	Department of Defense	N/A	Not Applicable
ICTO	Interim Certificate To Operate	STP	System Tracking Program
ID	Identification	TISP	Tailored Information Support Plan
IT	Information Technology		

Table 2. Net-Ready Status

Interoperability Requirement	Status		Remarks
	Threshold	Objective	
NCOW RM Compliance (net-centricity)	N/A	N/A	Requirements did not specify any enterprise-level (core or COI) services or data.
Net-Centric Services/Data	N/A	N/A	Minuteman MSC does not produce or consume any net-centric services/data.
IPv6	N/A	N/A	Minuteman MSC has no IPv6 requirement.
Information Exchange	Met	Met	The Minuteman MSC system met the information requirements for DSN and PSTN information exchanges.
KIPs Compliance	N/A	N/A	No applicable wireless mobile communications KIPs.
IA Compliance	Met	Not Met	The JITC's IA test consisted of Retina and Gold Disk scans to ensure that the Minuteman MSC test configuration is consistent with CJTF-82's planned IA configuration. DAA granted MSC IATO on 8 January 2008 valid for 1 year.
Other			
DISR Compliance	Met	Not Tested	The DISR compliance was addressed primarily during information exchange evaluation. Interoperability testing did not identify any critical non-conformance issues.
UCR 2007 (see note)	Met	N/A	The Minuteman MSC system met the UCR requirements.

LEGEND:

CJTF	Combined Joint Task Force	JITC	Joint Interoperability Test Command
COI	Community of Interest	KIP	Key Interface Profile
DAA	Designated Approving Authority	MSC	Mobile Switching Center
DISR	Department of Defense Information Technology Standards Registry	N/A	Not Applicable
DSN	Defense Switched Network	NCOW	Net-Centric Operations and Warfare
GSCR	Generic Switching Center Requirements	PSTN	Public Switched Telephone Network
IA	Information Assurance	RM	Reference Model
IATO	Interim Authority To Operate	UCR	Unified Capabilities Requirements
IPv6	Internet Protocol version 6		

NOTE: UCR was formally known as the GSCR.

Table 3. Capabilities/Requirements Source

Requirements	J-6 Certified Requirements Citation	
	Type	TISP
	Title	United States Central Command, Combined Joint Task Force-82, Tailored Information Support Plan for Minuteman Mobile Switching Center, reference (c)
	Date	19 November 2007
	J-6 Certification	Interoperability and Supportability Certification, 31 January 2008
	JCPAT-E ID	08-00028-TISP
	DARS (architecture source)	None
	Remarks	JITC tested the Minuteman MSC to requirements contained in the TISP and specific requirements in UCR (December 2007), reference (d).

LEGEND:

DARS	DoD Architecture Registry System	JITC	Joint Interoperability Test Command
DoD	Department of Defense	MSC	Mobile Switching Center
ID	Identification	TISP	Tailored Information Support Plan
J-6	Joint Staff, Command and Control	UCR	Unified Capabilities Requirements
JCPAT-E	Joint Command, Control, Communications, Computers, and Intelligence Program Assessment Tool - Empowered		

3. This finding is based upon interoperability testing conducted by the Combined Joint Task Force representatives in Indian Head, Maryland, and led by the JITC from 17 to 28 March 2008. Testing was conducted in accordance with JITC's NR-KPP test plan, reference (e), and JITC's Minuteman MSC Test Plan, reference (f). The Certification Testing Summary (see enclosure 2) documents the test results and describes the test network and system configuration used during testing. System interoperability should be verified before deployment in an operational environment that varies significantly from the test environment.

4. The detailed status of the Minuteman MSC is indicated below in tables 4, 5, and 6, with further information provided in enclosure 2, Certification Testing Summary. A detailed test report, reference (g), is also available.

Table 4. Interface Status

ID #	Interface	Version	Critical	KIP (See note)	Status	Remarks
I1	T1 CAS DTMF	N/A	Yes	N/A	Certified	Nonsecure, non-C2
I2	T1 CAS MFR1	N/A	No	N/A	Not Tested	None
I3	T1 PRI	N/A	No	N/A	Not Tested	None

LEGEND:

C2	Command and Control	MFR1	Multi Frequency Recommendation 1
CAS	Channel Associated Signaling	N/A	Not Applicable
DTMF	Dual Tone Multi Frequency	PRI	Primary Rate Interface
I	Interface	T1	North American Transmission Standard (1.544 megabits per second)
ID	Identification	TISP	Tailored Information Support Plan
KIP	Key Interface Profile		

NOTE: Specific interface criteria were not specified in the TISP; criteria established using input from the Program Office. Objective requirements not specified in the TISP.

Table 5. Information Exchange Status

IE #	Name	Producer/ Sender ID	Consumer/ Recipient ID	Critical	Interface Ref	Status	Remarks
1	Nonsecure Voice	Minuteman MSC	CJTF-82 Other Government Agencies	Yes	I1	Met	None
2	Secure Voice	Minuteman MSC	CJTF-82 Other Government Agencies	No	I1, I2, and I3	Not Tested	None
3	MLPP	Minuteman MSC	CJTF-82 Other Government Agencies	No	I1, I2, and I3	Not Tested	None

LEGEND:

CJTF	Combined Joint Task Force	MLPP	Multi Level Precedence and Preemption
I	Interface	MSC	Mobile Switching Center
ID	Identification	Ref	Reference
IE	Information Exchange		

NOTE:

- 1) IE# and content nomenclature extracted from SV-6 of the Minuteman MSC, dated 19 November 2007.
- 2) Secure Voice and MLPP are listed as information exchanges because the Minuteman MSC is capable of providing these features; however, they do not apply to the Minuteman MSC at this time.

Table 6. IA Compliance Status

IA Requirements	Status		Remarks
	Threshold	Objective	
IA Configurations used in Test Environment	Met		The Minuteman MSC was configured in its approved DIACAP configuration during all testing.
DIACAP Accreditation	Verified	Not Met	DAA granted the Minuteman MSC an IATO on 8 January 2008 valid for 1 year.
IA Compliance	Met		The Minuteman MSC had Category I and II vulnerabilities that were resolved during testing.

LEGEND:

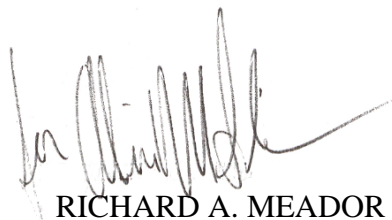
DAA	Designated Approving Authority	IA	Information Assurance
DIACAP	DoD IA Certification and Accreditation Process	IATO	Interim Authority To Operate
DoD	Department of Defense	MSC	Mobile Switching Center

5. The 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 at <https://stp.fhu.disa.mil> (NIPRNet). Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool at <http://jit.fhu.disa.mil/> (NIPRNet) or at <http://199.208.204.125/> Secret Internet Protocol Router Network.

JITC Memo, JTE, Joint Interoperability Test Certification of the Combined Joint Task Force-82 (CJTF-82) Minuteman Mobile Switching Center (MSC), Version 1.0

6. The JITC testing point of contact is Captain David Bagley, commercial (520) 538-4609 or DSN 879-4609. His e-mail address is David.Bagley@disa.mil.

FOR THE COMMANDER:

A handwritten signature in black ink, appearing to read 'Richard A. Meador', written over a faint horizontal line.

RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

2 Enclosures a/s

JITC Memo, JTE, Joint Interoperability Test Certification of the Combined Joint Task Force-82 (CJTF-82) Minuteman Mobile Switching Center (MSC), Version 1.0

Distribution:

Joint Staff J6I, Room 1E596, Pentagon, Washington, DC 20318-6000
Joint Interoperability Test Command, Liaison, ATTN: TED/JT1, 2W24-8C, P.O. Box 4502, Falls Church, VA 22204-4502
Defense Information Systems Agency, Net-Centricity Requirements and Assessment Branch, ATTN: GE333, Room 244, P.O. Box 4502, Falls Church, VA 22204-4502
Office of Chief of Naval Operations (N71CC2), CNO N6/N7, 2000 Navy Pentagon, Washington, DC 20350
Headquarters U.S. Air Force, AF/XICF, 1800 Pentagon, Washington, DC 20330-1800
Department of the Army, Office of the Secretary of the Army, CIO/G6, ATTN: SAIS-IOQ, 107 Army Pentagon, Washington, DC 20310-0107
U.S. Marine Corps (C4ISR), MARCORSYSCOM, 2200 Lester St., Quantico, VA 22134-5010
DOT&E, Net-Centric Systems and Naval Warfare, 1700 Defense Pentagon, Washington, DC 20301-1700
U.S. Coast Guard, CG-64, 2100 2nd St. SW, Washington, DC 20593
Defense Intelligence Agency, 2000 MacDill Blvd., Bldg 6000, Bolling AFB, Washington, DC 20340-3342
National Security Agency, ATTN: DT, Suite 6496, 9800 Savage Road, Fort Meade, MD 20755-6496
Director, Defense Information Systems Agency, ATTN: GS235, Room 5W24-8A, P.O. Box 4502, Falls Church, VA 22204-4502
Office of Assistant Secretary of Defense (NII)/Department of Defense (DoD) CIO, Crystal Mall 3, 7th Floor, Suite 7000, 1851 S. Bell St., Arlington, VA 22202
Office of Under Secretary of Defense, AT&L, Room 3E144, 3070 Defense Pentagon, Washington, DC 20301
U.S. Joint Forces Command, J68, Net-Centric Integration, Communications, and Capabilities Division, 1562 Mitscher Ave., Norfolk, VA 23551-2488
Combined Joint Task Force-82nd Airborne, ATTN: LTC Patrick C. Dedham, Bagram Airfield, Afghanistan

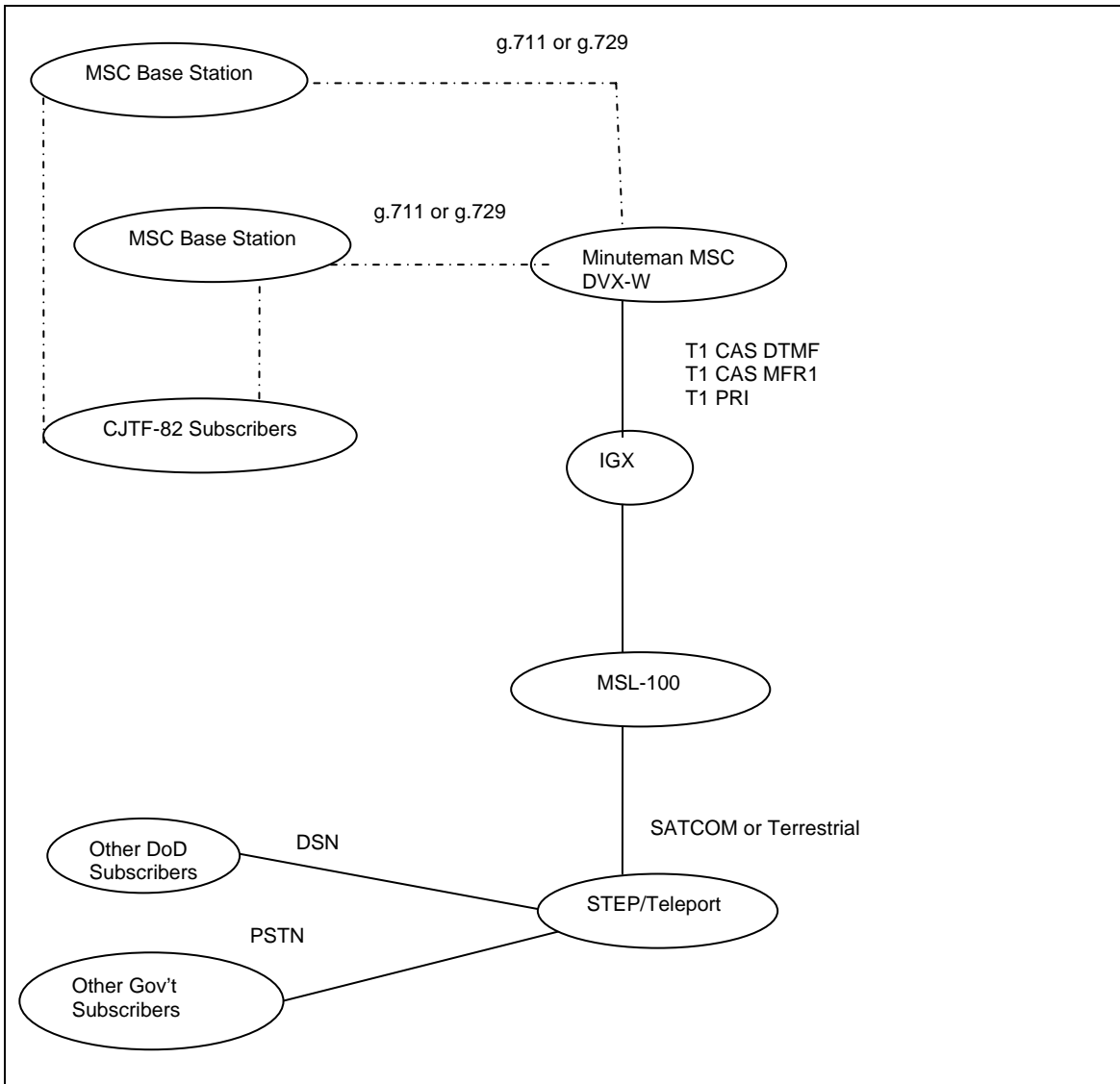
ADDITIONAL REFERENCES

- (c) United States Central Command, Combined Joint Task Force-82, "Tailored Information Support Plan for Minuteman Mobile Switching Center," 19 November 2007
- (d) Department of Defense Networks, "Unified Capabilities Requirements," December 2007
- (e) Joint Interoperability Test Command (JITC), "Net-Ready Key Performance Parameter Evaluation Test Plan," June 2007
- (f) JITC, "Minuteman Mobile Switching Center Interoperability Test Plan," February 2008
- (g) JITC, "Minuteman Mobile Switching Center Interoperability Test Report," April 2008

CERTIFICATION TESTING SUMMARY

- 1. PROGRAM/SYSTEM NAME.** Minuteman Mobile Switching Center (MSC), Version 1.0
- 2. SPONSOR.** Combined Joint Task Force-82 (CJTF-82).
- 3. SYSTEM POINT OF CONTACT.** LTC Patrick C. Dedham, USA, CJTF-82, CJ6 DSN: (318) 431-6001, e-mail: Patrick.c.dedham@afghan.swa.army.mil
- 4. TESTERS.** Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.
- 5. SYSTEM DESCRIPTION.** The Minuteman MSC is fielded and operational within the Combined Joint Operations Area-Afghanistan (CJOA-A) and is comprised of commercial off-the-shelf hardware and software integrated into a scalable package that provides mobile support to deployed forces. The Minuteman is a portable cellular telephone switch consisting of an MSC and a Base Station Subsystem (BSS). The MSC is capable of interfacing with commercial and Defense Switched Network (DSN) voice switches. Minuteman MSC is configurable to provide Global System for Mobile Communications or Code Division Multiple Access cellular service and can support National Security Agency Type 1 Future Narrow-Band Digital Terminal secure voice calls. A single BSS has 15 voice channels and one signaling channel and can support 15 users simultaneously calling mobile to land or 7 users simultaneously calling mobile to mobile.

The MSC can interface to the DSN or commercial Public Switched Telephone Network (PSTN) via other deployed voice switching that connects to a Standardized Tactical Entry Point Teleport. The Minuteman MSC supports T1 Channel Associated Signaling Multi-Frequency (MF) Recommendation 1 (R1) and Dual Tone MF. Minuteman MSC also supports a T1 Common Channel Signaling Primary Rate Interface. The Minuteman MSC is capable of secure communications, via the Inter-Working Function, by using a Sectéra phone and secure sleeve. Combined Joint Task Force (CJTF) will not be using this capability, offered by the Minuteman MSC as a method for secure communications. In addition, the Minuteman MSC does not support Multi-Level Precedence and Preemption.
- 6. OPERATIONAL ARCHITECTURE.** The Minuteman MSC provides the user with access to the DSN/PSTN. Via the T1, Minuteman MSC users can make mobile nonsecure voice calls to support administrative duties. The Minuteman MSC does not contain its own individual DSN/PSTN phone switch. The Minuteman MSC mobile users can access DSN and PSTN subscribers through the Redcom Integrated Services Digital Network Gateway Exchange (IGX) or the MSL-100 located at the deployed location. Figure 2-1 displays the operational concept graphic for Minuteman MSC.



LEGEND:			
CAS	Channel Associated Signaling	MFR1	Multi Frequency Recommendation 1
CJTF	Combined Joint Task Force	MSC	Mobile Switching Center
DoD	Department of Defense	MSL	Meridian Switching Load
DSN	Defense Switched Network	PRI	Primary Rate Interface
DTMF	Dual Tone Multi-Frequency	PSTN	Public Switched Telephone Network
DVX-W	Digital Voice Switch-Wireless	SATCOM	Satellite Communications
g.711	Wireless Communications Protocol	STEP	Standardized Tactical Entry Point
g.729	Wireless Communications Protocol	T1	North American Transmission Standard (1.544 megabits per second)
Gov't	Government		
IGX	Integrated Services Digital Network Gateway Exchange		

Figure 2-1. Minuteman MSC Operational View - 1

7. INTEROPERABILITY REQUIREMENTS. The JITC derived the requirements for the Minuteman MSC from the CJTF-82 Minuteman MSC Tailored Information Support Plan (TISP), dated 19 November 2007. Tables 2-1 through 2-4 show the tested requirements.

7.1 Net-Centric Operations and Warfare Reference Model (NCOW RM). The Net Centric Enterprise Services and Net-Centric Data Strategy are not applicable to the Minuteman MSC.

Table 2-1. NCOW-RM Net-Centric Requirements

NCOW RM Requirement	Criteria		Remarks
	Threshold	Objective	
CES (NCES)			
Services	N/A	N/A	Minuteman MSC has no net-centric services.
Data	N/A	N/A	Minuteman MSC has no net-centric data.
COI			
Services	N/A	N/A	Minuteman MSC has no COI services.
Data	N/A	N/A	Minuteman MSC has no COI data.
IPv6	N/A	N/A	Minuteman MSC has no IPv6 requirements.

LEGEND:
 CES Core Enterprise Services
 COI Community of Interest
 IPv6 Internet Protocol Version 6
 MSC Mobile Switching Center
 N/A Not Applicable
 NCES Net-Centric Enterprise Services
 NCOW RM Net-Centric Operations and Warfare Reference Model

7.2 Information Exchange. The JITC evaluated the Minuteman MSC transport capabilities, intra-system and inter-system. The JITC tested intra-system transport, such as mobile to mobile Minuteman MSC calls, and inter-system transport, such as mobile Minuteman MSC to other Department of Defense (DoD) user calls.

Table 2-2. Minuteman MSC Information Exchange Requirements

IE#	Name	Producer/ Sender ID	Consumer/ Recipient ID	Critical	Interface Ref	Criteria		Remarks
						T	O	
1	Nonsecure Voice	Minuteman MSC	CJTF-82 Other Government Agencies	Yes	I1	≥98% Call completion w/ MOS ≥3	N/A	Non-C2 DSN/PSTN via g.711 or g.729
2	Secure Voice	Minuteman MSC	CJTF-82 Other Government Agencies	No	I1, I2, and I3	N/A	≥95% Call completion w/ MOS ≥3	Not currently used by CJTF-82 MSC

Table 2-2. Minuteman MSC Information Exchange Requirements (continued)

IE#	Name	Producer/ Sender ID	Consumer/ Recipient ID	Critical	Interface Ref	Criteria		Remarks
						T	O	
3	MLPP	Minuteman MSC	CJTF-82 Other Government Agencies	No	I1, I2, and I3	N/A	≥95% Call completion w/ MOS ≥3	Not currently used by CJTF-82 MSC

LEGEND:

C2	Command and Control	MLPP	Multi Level Precedence and Preemption
CJTF	Combined Joint Task Force	MSC	Mean Opinion Score
DSN	Defense Switched Network	N/A	Mobile Switching Center
g.711	Wireless Communications Protocol	O	Not Applicable
g.729	Wireless Communications Protocol	PSTN	Objective
I	Interface	Ref	Public Switch Telephone Network
ID	Identification	T	Reference
IE	Information Exchange		Threshold

Table 2-3. Interface Requirements

#	Interface	Version	Critical	KIP	Criteria	
					Threshold	Objective
I1	T1 CAS DTMF	N/A	Yes	N/A	Trunk signaling IAW UCR 2007	N/A
I2	T1 CAS MFR1	N/A	No	N/A	N/A	Trunk signaling IAW UCR 2007
I3	T1 PRI	N/A	No	N/A	N/A	Trunk signaling IAW UCR 2007

LEGEND:

CAS	Channel Associated Signaling	MFR1	Multi-Frequency Recommendation
DTMF	Dual Tone Multi Frequency	N/A	Not Applicable
I	Interface	PRI	Primary Rate Interface
IAW	In Accordance With	T1	North American Transmission Standard (1.544 megabits per second)
KIP	Key Interface Profile	UCR	Unified Capabilities Requirements

7.3 Key Interface Profile (KIP). There are currently no KIPs mandating wireless mobile communications.

7.4 Information Assurance (IA). The Minuteman MSC has followed the Defense Information Technology Security Certification and Accreditation (C&A) Process/DoD IA C&A Process and received authority to connect from its Designated Approving Authority (DAA). The JITC's IA test consisted of Retina and SRR scans to ensure that the Minuteman MSC test configuration is consistent with CJTF-82's planned IA configuration. The DAA granted the Minuteman MSC an Interim Authority To Operate (IATO) on 8 January 2008 valid for 1 year.

Table 2-4. Information Assurance (IA) Requirements

IA Requirements	Criteria	
	Threshold	Objective
IA Configurations used in Test Environment	Tested configuration must be consistent with architecture proposed in SSAA.	N/A
DITSCAP/DIACAP Accreditation	IATO	ATO
IA Compliance (JITC assessments)	The JITC conducted Retina and SRR scans.	N/A

LEGEND:
ATO Authority to Operate
DIACAP Department of Defense Information Assurance Certification and Accreditation Process
DITSCAP Department of Defense Information Technology Security Certification and Accreditation Process
IA Information Assurance
IATO Interim Authority to Operate
JITC Joint Interoperability Test Command
N/A Not Applicable
SRR Security Readiness Review
SSAA System Security Authorization Agreement

7.5 Other

7.5.1 DISR. DoD Information Technology (IT) Standards Registry (DISR) Global Information Grid (GIG) IT Standards. When reviewing the Minuteman MSC compliance to its published TV-1 DISR standards, JITC found the standards listed in table 2-5 to be high-risk during the DoD Interoperability Communications Exercise interoperability test of the Minuteman MSC information exchanges.

Table 2-5. DISR Compliance Requirements

DISR Service Area / Service	Standard / Standards Profile	Name	Interface Cross-ref	Criteria		Remarks
				T	O	
Network Technologies	ANSI T1.102-1993 (R2005)	Digital Hierarchy - Electrical Interfaces, December 1993	I1	IAW UCR 2007		

LEGEND:
ANSI American National Standards Institute
DISR Department of Defense Information Technology Standards Registry
I Interface
IAW In Accordance With
JITC Joint Interoperability Test Command
O Objective
Ref Reference
T Threshold
T1 North American Transmission Standard (1.544 megabits per second)
UCR Unified Capabilities Requirements

NOTE: The UCR defines threshold requirements as "required" and objective requirements as "conditional". The JITC tested all "required" capabilities.

7.5.2 Unified Capabilities Requirements (UCR) 2007. The UCR 2007 was formally known as the Generic Switching Center Requirements. The requirements for the UCR are listed in table 2-6.

Table 2-6. UCR Test Requirements

UCR	Criteria		Remarks
	T	O	
Individual Line	IAW UCR 2.1.1	The UCR does not specify objective criteria. The UCR "conditional" requirements may be determined to be objective requirements.	
Originating Treatment	IAW UCR 4.1.1		
Originating Busy	IAW UCR 4.1.1.1		
Termination Treatment	IAW UCR 4.1.2		
Busy or Idle Status	IAW UCR 4.1.2.1		
Release Statement	IAW UCR 4.1.3		
Interruption Treatment	IAW UCR 4.1.4		
Connections	IAW UCR 4.1.5		
Originating Call Processing	IAW UCR 4.4.1		
Terminating Call Processing	IAW UCR 4.4.2		
DSN User Dialing	IAW UCR 4.5.1.1		
7-Digit Dialing	IAW UCR 4.5.1.2.1		
10-Digit Dialing	IAW UCR 4.5.1.2.2		
DTMF Signaling	IAW UCR 5.4.2		
PCM-24 Interface	IAW UCR 7.1		
Interface Characteristics	IAW UCR 7.1.1		
CAS, Alarm, Restore	IAW UCR 7.1.4		
Remote Access to Switch	IAW UCR 9.8		
Timing	IAW UCR 11.1		

LEGEND:

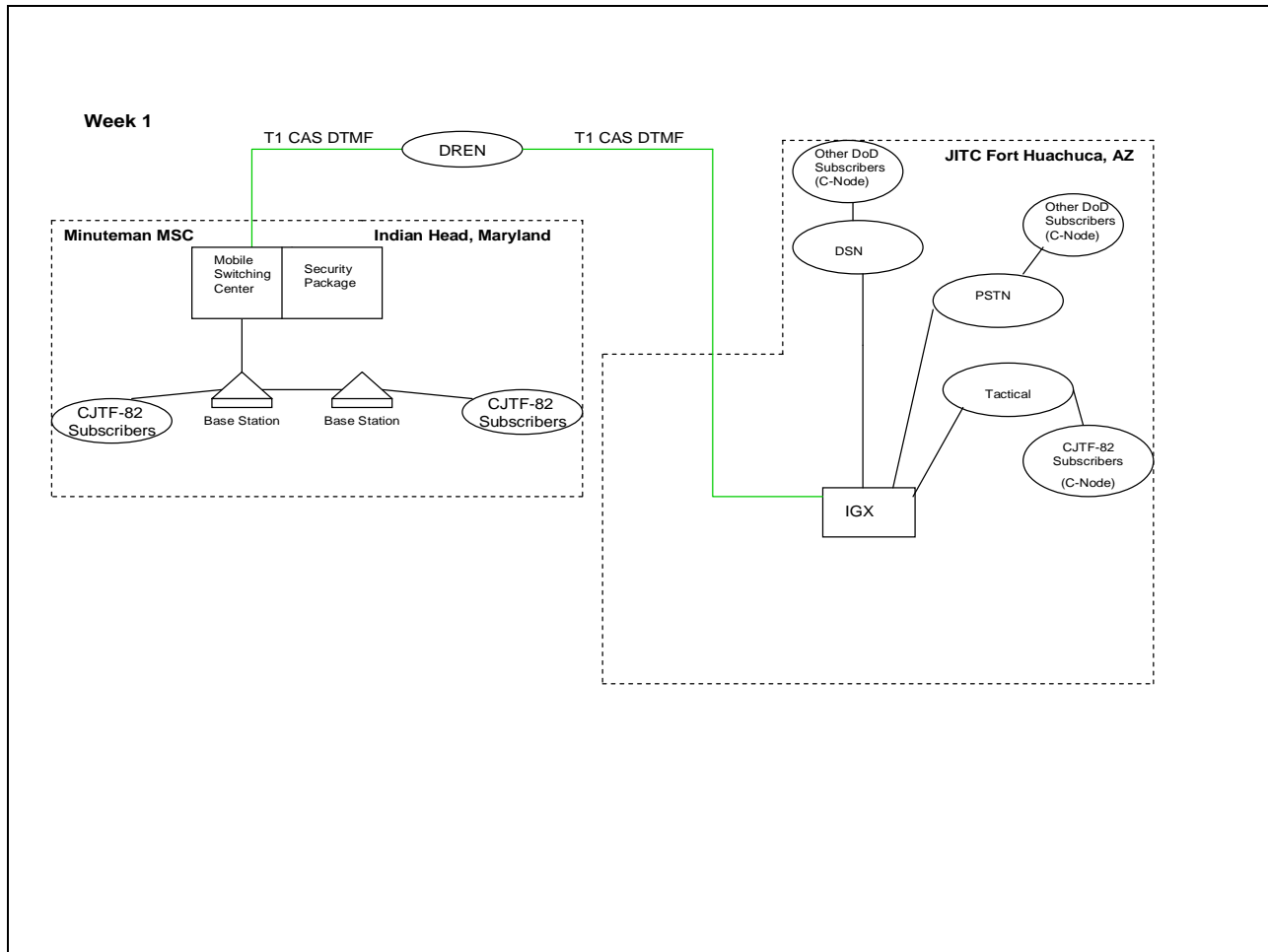
CAS
DSN
DTMF
IAW

Channel Associated Signaling
Defense Switched Network
Dual Tone Multi Frequency
In Accordance With

O
PCM
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UCR

Objective
Pulse Code Modulation
Threshold
Unified Capabilities Requirements

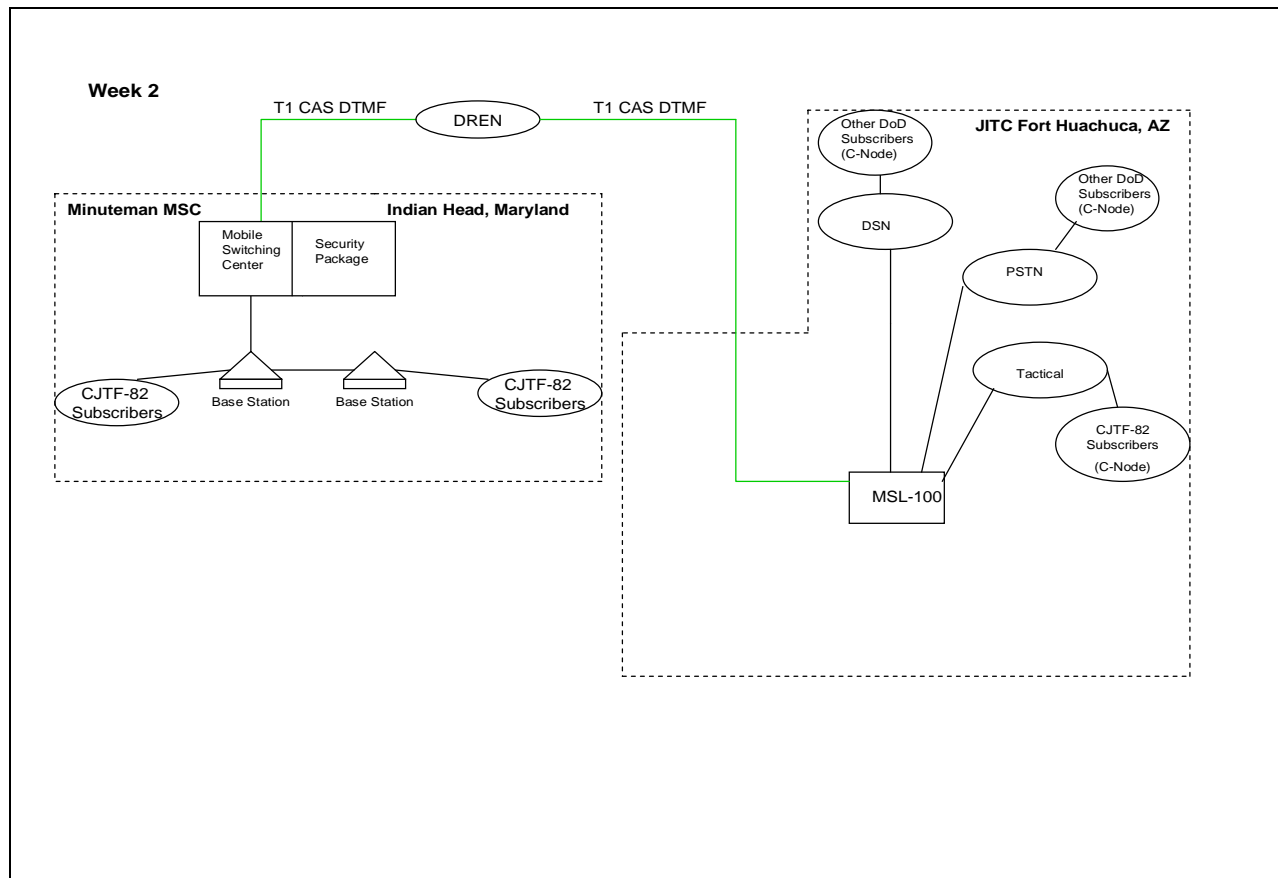
8. TEST NETWORK DESCRIPTION. Figures 2-2 and 2-3 show the network architecture DSN nonsecure voice services. The JITC performed the interoperability testing of Minuteman MSC at Indian Head, Maryland, from 17 March to 28 March 2008.



LEGEND:

AZ	Arizona	DTMF	Dual Tone Multi-Frequency
CAS	Channel Associated Signaling	IGX	Integrated Services Digital Network Gateway Exchange
CJTF	Combined Joint Task Force	JITC	Joint Interoperability Test Command
DoD	Department of Defense	MSC	Mobile Switching Center
DREN	Defense Research Engineering Network	PSTN	Public Switched Telephone Network
DSN	Defense Switched Network	T1	North American Transmission Standard (1.544 megabits per second)

Figure 2-2. Minuteman MSC Test Network Week 1



LEGEND:

AZ	Arizona	DTMF	Dual Tone Multi-Frequency
CAS	Channel Associated Signaling	JITC	Joint Interoperability Test Command
CJTF	Combined Joint Task Force	MSC	Mobile Switching Center
DoD	Department of Defense	MSL	Meridian Switching Load
DREN	Defense Research Engineering Network	PSTN	Public Switched Telephone Network
DSN	Defense Switched Network	T1	North American Transmission Standard (1.544 megabits per second)

Figure 2-3. Minuteman MSC Test Network Week 2

9. SYSTEM CONFIGURATION. Table 2-7 provides a listing of the components used for testing and their applicability to the Minuteman MSC configuration. The Minuteman MSC provides the user with access to the DSN/PSTN. Via the T1, Minuteman MSC users can make mobile nonsecure voice calls to support administrative duties. The Minuteman MSC does not contain its own individual DSN/PSTN phone switch. The Minuteman MSC mobile users can access DSN/PSTN subscribers through the Redcom IGX located at the deployed location.

Table 2-7. Equipment Listing

Description	Model	Quantity	Serial/Firmware/Version
Telephone Services			
Mobile Switching Center, 16 Port, base station	800-02002-03	1	3450
Sun Microsystems SPARC Card	CP2080-500	1	UNIX-Solaris 5.8, McAfee VirusScan
DSP Card, base station	AudioCodes Trunk Pack 1610	1	3.91.59.0
System Slot Controller, base station	Kontron CP604	1	Windows2000 version 5.00.2195 Service Pack 4, McAfee VirusScan
GSM Cell Phone	Samsung X210	2	N/A

LEGEND:

DSP	Digital Signal Processor	N/A	Not Applicable
GSM	Global System for Mobile Communications	SPARC	Scalable Processor Architecture

10. TESTING LIMITATIONS

None

11. INTEROPERABILITY EVALUATION RESULTS. Tables 2-8 through 2-13 provide the results of the test.

11.1 NCOW-RM. As no NCOW-RM requirements were identified as applicable, the Minuteman MSC was not tested for NCOW-RM compliance.

11.2 Information Exchange. Table 2-8 shows the Minuteman MSC Information Exchange Status.

Table 2-8. Information Exchange Status

IE #	Name	Producer/Sender ID	Consumer/Recipient ID	Critical	Interface Ref	Status	Remarks
1	Nonsecure Voice	Minuteman MSC	CJTF-82 Other Government Agencies	Yes	I1	Met	Non-C2 DSN/PSTN via g.711 or g.729
2	Secure Voice	Minuteman MSC	CJTF-82 Other Government Agencies	No	I1, I2, and I3	Not Tested	Not currently used by CJTF-82 MSC
3	MLPP	Minuteman MSC	CJTF-82 Other Government Agencies	No	I1, I2, and I3	Not Tested	Not currently used by CJTF-82 MSC

LEGEND:

C2	Command and Control	ID	Identification
CJTF	Combined Joint Task Force	IE	Information Exchange
DSN	Defense Switched Network	MLPP	Multi Level Precedence and Preemption
g.711	Wireless Communications Protocol	MSC	Mobile Switching Center
g.729	Wireless Communications Protocol	PSTN	Public Switch Telephone Network
I	Interface	Ref	Reference

NOTE: Secure Voice and MLPP are listed as information exchanges because the Minuteman MSC is capable of providing these features; however, they do not apply to the Minuteman MSC at this time.

Table 2-9. Interface Status

#	Interface	Version	Critical	KIP (See note)	Status	Remarks
I1	T1 CAS DTMF	ANSI T1.102- 1993 (R2005)	Yes	N/A	Certified	Nonsecure, non-C2
I2	T1 CAS MFR1	ANSI T1.102- 1993 (R2005)	No	N/A	Not Tested	None
I3	T1 PRI	ANSI T1.102- 1993 (R2005)	No	N/A	Not Tested	None

LEGEND:

ANSI	American National Standards Institute	MFR1	Multi Frequency Recommendation 1
C2	Command and Control	N/A	Not Applicable
CAS	Channel Associated Signaling	PRI	Primary Rate Interface
DTMF	Dual Tone Multi Frequency	T1	North American Transmission Standard (1.544 megabits per second)
I	Interface	TISP	Tailored Information Support Plan
KIP	Key Interface Profile		

NOTE: Specific interface criteria were not specified in the TISP; criteria established using input from the Program Office. Objective requirements not specified in the TISP.

11.3 KIP. There are currently no KIPs for wireless mobile communications.

11.4 IA. The Minuteman MSC obtained an IATO as a part of the approved System Security Authorization Agreement from its DAA on 8 January 2008. The JITC verified that the Minuteman MSC followed the DoD IT Security C&A Process/DoD IA C&A Process and received authority to connect from its DAA.

Table 2-10. Information Assurance (IA) Status

IA Requirements	Status		Remarks
	Threshold	Objective	
IA Configurations used in Test Environment	Met		None
DITSCAP/DIACAP Accreditation (see note)	Verified	Not Met	None
IA Compliance (JITC assessment)	Met		None

LEGEND:

DIACAP	Department of Defense Information Assurance Certification and Accreditation Process	JITC	Joint Interoperability Test Command
DITSCAP	Department of Defense Information Technology Security Certification and Accreditation Process	SSAA	System Security Authorization Agreement
IA	Information Assurance		

NOTE: Tested configuration must be consistent with architecture proposed in SSAA.

11.5 Other

11.5.1 DISR. The Minuteman MSC met the DISR compliance requirements identified on its TV-1.

Table 2-11. DISR Compliance Status

DISR Service Area / Service	Standard / Standards Profile	Name	Interface Cross-ref	Status	Remarks
Network Technologies	ANSI T1.102-1993 (R2005)	Digital Hierarchy - Electrical Interfaces, December 1993	I1	Met	None

LEGEND:

ANSI	American National Standards Institute	Ref	Reference
DISR	Department of Defense Information Technology Standards Registry	T1	North American Transmission Standard (1.544 megabits per second)
I	Interface		

11.5.2 UCR. The Minuteman MSC met its UCR requirements that were identified in its TISP.

Table 2-12. UCR Test Status

UCR	Criteria	Status	Remarks
Individual Line	IAW UCR 2.1.1	Met	None
Originating Treatment	IAW UCR 4.1.1	Met	None
Originating Busy	IAW UCR 4.1.1.1	Met	None
Termination Treatment	IAW UCR 4.1.2	Met	None
Busy or Idle Status	IAW UCR 4.1.2.1	Met	None
Release Statement	IAW UCR 4.1.3	Met	None
Interruption Treatment	IAW UCR 4.1.4	Met	None
Connections	IAW UCR 4.1.5	Met	None
Originating Call Processing	IAW UCR 4.4.1	Met	None
Terminating Call processing	IAW UCR 4.4.2	Met	None
DSN User Dialing	IAW UCR 4.5.1.1	Met	None
7-Digit Dialing	IAW UCR 4.5.1.2.1	Met	None
10-Digit Dialing	IAW UCR 4.5.1.2.2	Met	None
DTMF Signaling	IAW UCR 5.4.2	Met	None
PCM-24 Interface	IAW UCR 7.1	Met	None
Interface Characteristics	IAW UCR 7.1.1	Met	None

Table 2-12. UCR Test Status (continued)

UCR	Criteria	Status	Remarks
CAS, Alarm, Restore	IAW UCR 7.1.4	Met	None
Remote Access to Switch	IAW UCR 9.8	Met	None
Timing	IAW UCR 11.1	Met	None

LEGEND:

CAS	Channel Associated Signaling	IAW	In Accordance With
DSN	Defense Switched Network	UCR	Unified Capabilities Requirements
DTMF	Dual Tone Multi Frequency		

12. TEST AND ANALYSIS REPORT. For the Minuteman MSC test in March 2008 JITC prepared a detailed report, titled “Minuteman Mobile Switching Center Interoperability Test Report,” April 2008. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses 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 at <http://jit.fhu.disa.mil> (NIPRNet) or at <http://199.208.204.125/> (SIPRNet).