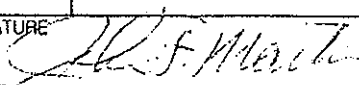
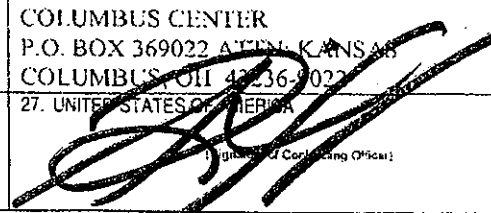


SOLICITATION, OFFER AND AWARD		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)		PAGE 1 OF 56	
2. CONTRACT NO. M67854-07-C-7010		3. SOLICITATION NO. M67854-06-R-7017		4. TYPE OF SOLICITATION [] SEALED BID (IFB) [X] NEGOTIATED (RFP)	
5. DATE ISSUED See Block 28		6. REQUISITION/PURCHASE NO. M19545006RC64336			
7. ISSUED BY COMMANDING GENERAL MARCORSSYSCOM (CODE CT0271-WW) 2200 LESTER STREET QUANTICO VA 22134-6050 BUYER: William R. Waggoner (703) 432-4161		CODE M67854		8. ADDRESS OFFER TO (If other than Item 7) TBD - BASED UPON SUCCESSFUL OFFEROR LOCATION DCMA COGNIZANCE	
NOTE: In sealed bid solicitations "offer" and offeror" mean "bid" and "bidder".					
SOLICITATION					
9. Sealed offers in original and <u>4</u> copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in <u>BLDG 2200, CTQ MCSC 0271, Quantico, VA</u> <u>1PM</u> until <u>EST</u> local time <u>22 August 2006</u> . (Hour) (Date)					
CAUTION - LATE Submissions, Modifications, and Withdrawals: Section L, Provision No. 52.214-7 or 52.215-10. All offers are subject to all terms and conditions contained in this solicitation.					
10. FOR INFORMATION CALL		NAME: WILLIAM R. WAGGONER		B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS): 703-432-4161	
11. TABLE OF CONTENTS					
(X)	SEC	DESCRIPTION	PAGES	(X)	SEC
PART I - THE SCHEDULE				PART II - CONTRACT CLAUSES	
X	A	SOLICITATION/CONTRACT FORM	1	X	I
X	B	SUPPLIES OR SERVICES AND PRICES/COSTS	2-6	PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.	
X	C	DESCRIPTION/SPECS/WORK STATEMENT	7	X	J
X	D	PACKAGING AND MARKING	8	PART IV - REPRESENTATIONS AND INSTRUCTIONS	
X	E	INSPECTION AND ACCEPTANCE	9-10	X	K
X	F	DELIVERIES OR PERFORMANCE	11-12	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
X	G	CONTRACT ADMINISTRATION DATA	13-16	X	L
X	H	SPECIAL CONTRACT REQUIREMENTS	17-18	X	M
				INSTRS., CONDS., AND NOTICES TO OFFERORS	
				EVALUATION FACTORS FOR AWARD	
OFFER (Must be fully completed by offeror)					
NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.					
12. In compliance with the above, the undersigned agrees, if this offer is accepted within <u>60</u> calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.					
13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)		10 CALENDAR DAYS		20 CALENDAR DAYS	
		%		%	
14. ACKNOWLEDGEMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated:)		Amendment 0001		06 April 2006	
		Amendment 0002		06 June 2006	
		Amendment 0003		08 June 2006	
15A General Dynamics C4 Systems, Inc. 400 John Quincy Adams Rd. Taunton, MA 02780-1069		CODE 67032		15. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or Print) John Martin, Vice President & General Manager	
15B. TELEPHONE NO. (508)880-4673		15c. CHECK IF REMITTANCE ADDRESS [] IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE		17. SIGNATURE 	
				18. OFFER DATE 22 August 2006	
AWARD (To be completed by Government)					
19. ACCEPTED AS TO ITEMS NUMBERS CLINS 0001 - 0010		20. AMOUNT \$45,635,047		21. ACCOUNTING AND APPROPRIATION SEE SECTION G.	
22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: [] 10 U.S.C. 2304 () () [] 41 U.S.C. 253 () ()		23. SUBMIT INVOICES TO ADDRESS SHOWN IN SEE SECTION G.			
24. ADMINISTERED BY (If other than Item 7) CODE M67854		25. PAYMENT WILL BE MADE BY DEFENSE FINANCE ACCOUNTING SERVICE COLUMBUS CENTER P.O. BOX 369022 ATTN: KANSAS COLUMBUS, OH 43236-9022			
26. NAME OF CONTRACTING OFFICER (Type or print) STEPHEN L. RIFFE, CONTRACTING OFFICER MARINE CORPS SYSTEMS COMMAND		27. UNITED STATES OF AMERICA  (Signature of Contracting Officer)		28. AWARD DATE NOV 21 2006	

- Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice

NSN 7540-01-152-8064
PREVIOUS EDITION NOT USABLE

33-134

STANDARD FORM 33 (REV. 4-85)
Prescribed by GSA
FAR (48 CFR) 53.214(c)

SECTION B –SUPPLIES/SERVICES AND PRICES/COSTS**B.1 COST ELEMENTS**

ITEM(S)	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
0001	TDN DDS-R First Article Test Suite: Includes 1 Communications Security Module (CSM), 1 Application Server Module (ASM), 1 LAN Services Module (LSM), 4 LAN Extension Modules (LEM), and Power Module(s) as per vendor's system design				
0001AA ACRN: AA	TDN DDS-R First Article Test Suite	1	Each		
0001AB ACRN: AA	TDN DDS-R MCTSSA Test Suite	2	Each		
0002	Contract Data Requirements List (CDRLs)				
0002AA	A001 – Packaging, Handling, Storage, and Transportation – Validation Report	1	Lot		
0002AB	B001 – Conference Agenda	1	Lot		
0002AC	B002 – Conference Minutes	1	Lot		
0002AD	C001 – Engineering Data for Provisioning	1	Lot		
0002AE	C002 – Provisioning and Other Pre-procurement Screening	1	Lot		
0002AF	C003 – Provisioning Plan	1	Lot		
0002AG	C004 – Provisioning Parts List	1	Lot		
0002AH	C005 – Spare Parts List	1	Lot		
0002AJ	C006 – Provisional Technical Documentation	1	Lot		
0002AK	C007 – Tools and Test Equipment List	1	Lot		
0002AL	C008 – Support Equipment Recommendation Data	1	Lot		
0002AM	D001 – Contractor's Configuration Management Plan	1	Lot		
0002AN	D002 – Engineering Change Proposal	1	Lot		
0002AP	D003 – Request for Deviation (RFD)	1	Lot		
0002AQ	D004 – Configuration Audit Summary Report	1	Lot		
0002AR	D005 – Request for Nomenclature	1	Lot		
0002AS	F001 – Maintenance, Test, and Support Equipment Requirements List	1	Lot		
0002AT	G001 – System/Subsystem Specification (SSS)	1	Lot		
0002AU	G002 – Computer Operation Manual (COM)	1	Lot		
0002AV	G003 – Firmware Support Manual (FSM)	1	Lot		
0002AW	H001 – Bar Code Identification	1	Lot		
0002AX	H002 – Contractor's Progress, Status, and Management Report	1	Lot		
0002AY	H003 – Receipt of Government Property Report	1	Lot		
0002AZ	H004 – Government Furnished Information Deficiency Report	1	Lot		
0002BA	H005 – Contract Work Breakdown Structure (CWBS)	1	Lot		
0002BB	H006 – Hazardous Materials Management Program (HMMP) Plan	1	Lot		
0002BC	H007 – Integrated Master Schedule (IMS)	1	Lot		
0002BD	J001 – Integrated Support Plan	1	Lot		

(b)(4)

ITEM(S)	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
0002BE	J002 -- Interim Support Plan	1	Lot	(b)(4)	(b)(4)
0002BF	J003 -- Notification of Changes to Commercial Equipment, Software, and Firmware	1	Lot		
0002BG	J004 -- Key Performance Parameters	1	Lot		
0002BH	J005 -- Diminishing Manufacturing Sources and Material Shortages Report	1	Lot		
0002BJ	J006 -- Action Item Database	1	Lot		
0002BK	J007 -- Helpdesk Log	1	Lot		
0002BL	J008 -- Unique Identification (UID) Data for Embedded Component Plan	1	Lot		
0002BM	J009 -- Hazardous Materials Management Program (HMMP) Report	1	Lot		
0002BN	K001 -- Test Plan	1	Lot		
0002BP	K002 -- First Article Test Procedures	1	Lot		
0002BQ	K003 -- Production Acceptance Test Procedures	1	Lot		
0002BR	K004 -- System Integration/Qualification Test Procedures	1	Lot		
0002BS	K005 -- System Integration/Qualification Test Report	1	Lot		
0002BT	K006 -- First Article Test Report	1	Lot		
0002BU	K007 -- Production Acceptance Test Report	1	Lot		
0002BV	L001 -- Preservation and Packing Data	1	Lot		
0002BW	L002 -- Special Packaging Instructions (SPI)	1	Lot		
0002BX	M001 -- Calibration and Measurement Requirements Summary (CMRS)	1	Lot		
0002BY	N001 -- Failure Summary Analysis	1	Lot		
0002BZ	N002 -- Failure Summary and Corrective Action Report	1	Lot		
0002CA	P001 -- Safety Assessment Report (SAR)	1	Lot		
0002CB	Q001 -- Product Drawings/Models and Associated Lists	1	Lot		
0002CC	Q002 -- Learning Analysis Report	1	Lot		
0002CD	Q003 -- Training Program Plan of Action and Milestones	1	Lot		
0002CE	Q004 -- Instructional Visuals Aids	1	Lot		
0002CF	Q005 -- Lesson Plan	1	Lot		
0002CG	Q006 -- Trainee Guide	1	Lot		
0002CH	Q007 -- Test Package	1	Lot		
0002CI	Q008 -- Diminishing Manufacturing Sources and Material Shortages Plan	1	Lot		
0002CK	R001 -- COTS Manual and Associated Supplemental Data	1	Lot		
0002CL	S001 -- Technical Manual Contracts Requirements (TMCR) Change Pages	1	Lot		
0002CM	S002 -- Technical Manual Contracts Requirements Validation Certification	1	Lot		
0002CN	S003 -- Technical Manual Contracts Requirements Electronic Technical Manual	1	Lot		

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ITEM(S)	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
0003	Communications Security Module (CSM)				
0003AA ACRN: AA	CSM CONUS Destination	117	Each	(b)(4)	
0003AB ACRN: AA	CSM OCONUS Destination	33	Each		
0004	Application Server Module (ASM)				
0004AA ACRN: AA	ASM CONUS Destination	117	Each		
0004AB ACRN: AA	ASM OCONUS Destination	33	Each		
0005	LAN Services Module (LSM)				
0005AA ACRN: AA	LSM CONUS Destination	117	Each		
0005AB ACRN: AA	LSM OCONUS Destination	33	Each		
0006	LAN Extension Module (LEM)				
0006AA	LEM CONUS Destination	468	Each		
0006AA01 ACRN: AA	Funding SubCLIN in Support of CLIN 0006 Funding Document Number: M9545006RC64336	(b)(4)			
0006AA02 ACRN: AB	Funding SubCLIN in Support of CLIN 0006 Funding Document Number: M9545006RC64682	(b)(4)			
0006AB ACRN: AA	LEM OCONUS Destination	132	Each	(b)(4)	
0007	Power Module (PM)				
0007AA ACRN: AA	Power Module: One or more power modules as required by the vendor's system design to provide power to modules in CLINs 0003, 0004 and 0005 and modules in Optional CLINs 0011, 0012, and 0013 where design constraints prohibit the integration of an UPS into the other module's design. (See Para. 3.4.3.3.2 of the DDS-R Performance Specification v3.5, dated 17 March 2006)	1	Lot		
0008	Training (IAW the TDN DDS-R SOW, dated 14 April 2006)				
0008AA ACRN: AA	Instructor and Key Personnel Training	1	Lot		
0008AB ACRN: AA	Operator Course Training	1	Lot		
0008AC ACRN: AA	Maintenance Course Training	1	Lot		
0008AD ACRN: AA	New Equipment Training (CONUS)	1	Lot		
0008AE ACRN: AA	New Equipment Training (OCONUS)	1	Lot		

0009	Spares Parts (IAW the TDN DDS- R SOW, dated 14 April 2006)		
0009AA ACRN: AA	Peacetime Operations Spares Package	1	Lot
0009AB ACRN: AA	Wartime Operations Spares Package	1	Lot
0010	Warranty (IAW the TDN DDS-R SOW)		
0010AA ACRN: AA	3-year Warranty	117	Each
0010AB ACRN: AA	3-year Warranty	33	Each
OPTIONAL ITEMS			
(OPTION)			
0011	WAN Services Module (WSM) (V)1		
0011AA	WSM (V)1 CONUS Destination	117	Each
0011AB	WSM (V)1 OCONUS Destination	33	Each
(OPTION)			
0012	WAN Services Module (WSM) (V)2		
0012AA	WSM (V)2 CONUS Destination	117	Each
0012AB	WSM (V)2 OCONUS Destination	33	Each
ITEM(S)	SUPPLIES/SERVICES	QUANTITY	UNIT
(OPTION)			
0013	Data Storage Module (DSM)		
0013AA	DSM CONUS Destination	117	Each
0013AB	DSM OCONUS Destination	33	Each
(OPTION)			
0014	Contractor Interim Support Services (CISS)(IAW the TDN DDS-R SO		
0014AA	Contractor Interim Support Services	12	Months

B-2 CONTRACT TYPE:

A Firm Fixed Price (FFP) contract will be utilized throughout this effort.

B-3 EXPEDITING CONTRACT CLOSEOUT

(a) As part of the negotiated fixed price or total estimated amount of this contract, both the Government and the Contractor have agreed to waive any entitlement that otherwise might accrue to either party in any residual dollar amount of \$500 or less at the time of final contract closeout. The term "residual dollar amount" shall include all money that would otherwise be owed to either party at the end of the contract, except that, amounts connected in any way with taxation, allegations of fraud and/or antitrust violations shall be excluded. For purposes of determining residual dollar amounts, offsets of money owed by one party against money that would otherwise be paid by that party may be considered to the extent permitted by law.

(b) This agreement to waive entitlement to residual dollar amounts has been considered by both parties. It is agreed that the administrative costs for either party associated with collecting such small dollar amounts could exceed the amount to be recovered.

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SECTION C – DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

C-1 STATEMENT OF WORK:

See Attachment 1

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SECTION D – PACKAGING AND MARKING

D-1 PACKAGING AND MARKING:

All supplies/deliverables ordered hereunder shall be prepared, packaged, and marked in accordance with best commercial practice.

Any supplies ordered that may require delivery overseas shall be packaged and marked in accordance with MIL -STD-129N.

All reports deliverable under this contract shall prominently show the following information on the cover page:

CONTRACTOR NAME: **GENERAL DYNAMIC C4 SYSTEMS**

CONTRACT NUMBER: **M67854-07-C-7010**

SPONSOR: **PM CNS**

PROJECT OFFICER: **MAJOR PARADISE**

D-2 TECHNICAL DATA:

Contacts Data Requirements Lists (CDRLs) shall be packaged, packed, and marked in accordance with the applicable DD Form 1423 attached hereto.

D-3 CLASSIFIED DATA:

Classified reports, data and documentation, if applicable, shall be prepared for shipment in accordance with the National Industrial Security Program Operating Manual (NISPOM) DOD 5220.22M dated January 1995, Change 1, 31 July 1997, Change 2 dated 1 May 2000, when applicable, NISPOM Supplement 1 dated February 1995

SECTION E – INSPECTION AND ACCEPTANCE

E-1 INSPECTION AND ACCEPTANCE:

Inspection and Acceptance of the supplies or services to be furnished hereunder shall be made at destination by the Project Officer identified herein or his duly authorized representative(s) in accordance with FAR 52.246-2 (Aug 1996). Moreover, the Project Officer serves in a supporting role to the Contracting Officer, providing advice and expertise on technical issues. However, only the Contracting Officer has the authority to authorize deviations from the terms and conditions of this delivery order, including deviations from the specification requirements. In the event the Contractor does deviate without written approval of the Contracting Officer, such deviation shall be at the risk of, and any cost related thereto shall be borne by, the contractor.

E-2 TECHNICAL DATA:

Final acceptance of technical data will be made by the Government as specified for each CDRL in accordance with the applicable DD Form 1423 attached hereto. Technical Data will be inspected and accepted by the activity listed first in Block 14 of the DD Form 1423. Codes are further explained below:

CODE	INSPECTION	ACCEPTANCE
SS	Source	Source
DD	Destination	Destination
SD	Source	Destination

LT - Letter Transmittal only; inspection and acceptance at destination unless Defense Contract Management Agency (DCMA) is a block fourteen (14) addressee, in which case inspection will be at source with acceptance at destination.

E-3 PROJECT OFFICER

The Project officer for the Tactical Data Network Data Distribution System - Replacement (TDN DDS-R) program is:

**COMMANDING GENERAL
MARINE CORPS SYSTEMS COMMAND
ATTN: MAJOR RICHARD A. PARADISE (PM CNS)
2200 LESTER STREET
QUANTICO, VA 22134-6050**

Tel: (703) 432-4026

Fax: (703) 432-3549

Email: richard.paradise@usmc.mil

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E-4 CLAUSES INCORPORATED BY REFERENCE:

FAR/DFARS
REFERENCE

TITLE

52.246-2	Inspection of Supplies - Fixed Price (Aug 1996)
52.246-16	Responsibility for Supplies (Apr 1984)
52.247-34	F.O.B. Destination (Nov 1991)
DFARS	
252.246-7000	Material Inspection and Receiving Report (Mar 2003)

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SECTION F – DELIVERIES OR PERFORMANCE

F-1 DELIVERY:

All items shall be delivered in accordance with FAR 52.247-34 F.O.B. DESTINATION to the destinations and at the times specified in the delivery schedule below.

CLIN 0001AA – The initial order will be the First Article Test (FAT). Delivery of one (1) TDN DDS-R Test Suite no later than 60 days after award of contract.

CLIN 0001AB – Delivery of two (2) TDN DDS-R Test Suites to MCTSSA for the System Integration/Qualification Test (SIT) no later than 3 days after successful completion of the First Article Test (FAT).

CLIN 0002, SubCLINS 0002AA-0002CN – Delivery of Contract Data Requirements List (CDRL), see Exhibits A001-S003. The initial purchase quantities are to be determined; delivery schedule is stated on CDRL.

CLIN 0003 – 0007 and Optional CLINS 0008-0010 – All supplies hereunder shall be delivered F.O.B. Destination (CONUS or OCONUS) as further defined in SECTION B – SUPPLIES/ SERVICES AND PRICES/COSTS of this contract with delivery of 150 production TDN DDS-R systems as follows:

- Initial 30 systems delivered No Later Than 30 days after completion of SIT Testing
- Next 60 systems delivered No Later Than 60 days after completion of SIT Testing
- Remaining 60 systems delivered No Later Than 90 days after completion of SIT Testing

All deliveries shall be made F.O.B. destination and in accordance with the following schedule:

- 4 MCTSSA
Camp Pendleton, CA 92055
- 20 MCCES
29 Palms, CA
- 3 Communications School
Quantico, VA
- 33 9th Comm Bn, I MEF
Camp Pendleton, CA
- 33 8th Comm Bn, II MEF
Camp LeJeune, NC
- 29 7th Comm Bn, III MEF
Camp Hansen
Okinawa, Japan

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4 3D Marine Division
Kaneohe Bay, HI

24 MARFORRES
New Orleans, LA

Request for shipping instructions shall be submitted to MARCORSYSCOM Code PM CNS at least 30 days prior to start of delivery.

F-2 PERIOD OF PERFORMANCE:

The period of performance for this contract shall be from the Date of Award of Contract (DAC) through acceptance of last delivered system.

F-3 PLACE OF PERFORMANCE:

Contract performance shall take place at contractor's facility.

F-4 CLAUSES INCORPORATED BY REFERENCE:

FAR/DFARS REFERENCE

TITLE

52.242-15	Stop-Work Order (AUG 1989) <u>and</u> Alt I (APR 1984)
52.242-17	Government Delay of Work (Apr 1984)
52.247-34	F.O.B. Destination (Nov 1991)

DFARS 252.247-7023	Transportation Of Supplies By Sea (MAR 2002)
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F-5 OPTION EXERCISE PERIODS AND ORDERING ITEMS PERIODS

The Government reserves the right to exercise the options at the prices set forth in SECTION B of this contract. These options may be exercised at the sole discretion of the Government and only if the Government elects to do so. In the event the Government elects to exercise an Option, written notice will be sent to the Contractor from the Contracting Officer and shall be forwarded on or before the last working day of the estimated date shown below:

OPTION ITEMS

OPTION EXERCISE DATE

00011, 0012, 0013, and 0014

90 days after Date of Contract Award

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SECTION G – CONTRACT ADMINISTRATION DATA

G-1 CONTRACT ADMINISTRATION

Contract Administration for this contract will be determined upon contract award based on cognizant Contract Administration Office (CAO) of the successful offeror.

G-2 PAYING OFFICE

The paying office for this contract is:

To be determined after contract award.

If known, the Offeror may type the paying office DoDAAC and address assigned to its facilities in the space provided below.

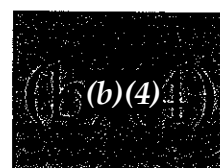
G-3 ACCOUNTING CLASSIFICATION REFERENCE NUMBER (ACRN):

The Accounting Classification Reference Number (ACRN) is the double letter prefix to the long line accounting classification citation number contained in the accounting data sheet attached to the contract, or listed below. It is used as a method for tracking expenditures against individual contract line items. In instances where multiple long line accounting classification numbers are applicable to single line items, each will be prefixed by a separate ACRN. Each line item, sub-line item, task and subtask listed in the schedule or SOW shall have an accounting classification reference number assigned at the time of award or upon issuance of the task or delivery order.

ACCOUNTING AND APPROPRIATION DATA:

AA 176 1109 4634 310 67854 067443 2D 4634B2 45006RC64336
Funding Document Number: M9545006RC64336

AB 176 1109 4634 310 67854 067443 2D 4634SD 00006RC64682
Funding Document Number: M9545006RC64682



Total: \$45,635,047.00

G-4 POST-AWARD ORIENTATION CONFERENCE

A Post Award Conference (PAC) shall be held at the contractor's facility within fifteen (15) calendar days after contract award. The purpose of this review is for the contractor to review and demonstrate to the Government the management procedures, provide progress assessments, review of technical and other specialty area status, and to establish schedule dates for near term critical meetings/actions. The contractor shall present their management plan, key personnel, and program implementation processes. Additionally, the contractor shall provide a list of all GFE required for engineering/testing as well as dates the GFE is required for Government evaluation. Concurrently Logistics and Manpower/Training IPTs will be established and discussions initiated.

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G-5 PURCHASING OFFICE REPRESENTATIVE

The Procuring Office Representative for this procurement is:

Mr. Stephen Riffe
Voice (703) 432-4280
Fax (703) 432-3549
Stephen.L.riffe@usmc.mil

and

Mr. William R. Waggoner
Voice (703) 432-4161
Fax (703) 432-3549
william.r.waggoner1@usmc.mil

FedEx or equivalent carrier address:

COMMANDING GENERAL
MARCORSYSCOM (CT-027)
ATTN: MR STEPHEN RIFFE
MATERIEL MANAGEMENT
2201A WILLIS STREET
QUANTICO, VA 22134-6050

COMMANDING GENERAL
MARCORSYSCOM (CT-027)
ATTN: MR. WILLIAM WAGGONER
MATERIEL MANAGEMENT
2201A WILLIS STREET
QUANTICO, VA 22134-6050

United States Postal Service address:

COMMANDING GENERAL
MARCORSYSCOM (CT-027)
ATTN: MR. STEPHEN RIFFE
2200 LESTER STREET
QUANTICO, VA 22134-6050

COMMANDING GENERAL
MARCORSYSCOM (CT-027)
ATTN: MR. WILLIAM WAGGONER
2200 LESTER STREET
QUANTICO, VA 22134-6050

G-6 ELECTRONIC INVOICING PROCEDURES (MARCORSYSCOM Feb 2006)

In compliance with DFARS 252.232-7003, "Electronic Submission of Payment Request (March 2003)", the United States Marine Corps (USMC) utilizes WAWF-RA to electronically process vendor request for payment. The contractor is required to utilize this system when processing invoices and receiving reports under this contract.

The contractor shall (i) ensure an Electronic Business Point of Contract (POC) is designated in Central Contractor Registration at <http://www.ccr.gov> and (ii) register to use WAWF-RA at the <https://wawf.eb.mil/> within ten (10) days after award of the contract or modification incorporating WAWF-RA into the contract. Step by step procedures to register are available at the <https://wawf.eb.mil/>.

The USMC WAWF-RA point of contact for this contract is William R. Waggoner and can be reached at (703) 432-4161 or via email at william.r.waggoner1@usmc.mil.

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The contractor is directed to use the Invoice and Receiving Report (Combo) format when processing invoices and receiving reports. For all requirements, the contractor shall use the Marine Corps Systems Command DODAAC (M67854) as the DODAAC for all shipping addresses, even if the ship-to address is other than the Marine Corps Systems Command.

DFAS-Columbus
P.O. Box 369022
Attn: Kansas-M67443
Columbus, Ohio 43236-9022

E-Mail: CCO-KC-VPIS@DFAS.MIL
PHONE: 1-800-756-4571 #2 then #4
WAWF: <https://wawf.cb.mil/>
VPIS: <https://www.dfas.mil/money/vendor>

Data entry information in WAWF:

Payment Office DoDAAC: **M67443**
Issue By DoDAAC: **M67854**
Admin Office DoDAAC: **M67854**
Ship to Supply: **M67854**
Service Acceptor DoDAAC: **M67854** Extension **PG12**
Contract Number: **M6785407C7010**

Before closing out of an invoice session in WAWF-RA, but after submitting your document or documents, the contractor will be prompted to send additional email notifications. The contractor shall click on "Send Additional Email Notifications" block on the page that appears. Add the primary point of contact's email address (provided above) in the first email address block and add the alternate point of contact's email address in the following block. This additional notification to the government is important to ensure the appropriate point of contact is aware that the invoice documents have been submitted into the WAWF-RA system.

Additional email notification of invoices:

COR / PO: richard.paradise@usmc.mil
Contracts: william.r.waggoner1@usmc.mil

NOTE: The POCs identified above are for WAWF issues only. Any other contracting questions/problems should be addressed to the POC identified in Section A of the contract.

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G-7 CLAUSES INCORPORATED IN FULL TEXT:

252.232-7003 ELECTRONIC SUBMISSION OF PAYMENT REQUESTS (JAN 2004)

(a) *Definitions.* As used in this clause—

(1) “Contract financing payment” and “invoice payment” have the meanings given in section 32.001 of the Federal Acquisition Regulation.

(2) “Electronic form” means any automated system that transmits information electronically from the initiating system to all affected systems. Facsimile, e-mail, and scanned documents are not acceptable electronic forms for submission of payment requests. However, scanned documents are acceptable when they are part of a submission of a payment request made using one of the electronic forms provided for in paragraph (b) of this clause.

(3) “Payment request” means any request for contract financing payment or invoice payment submitted by the Contractor under this contract.

(b) Except as provided in paragraph (c) of this clause, the Contractor shall submit payment requests using one of the following electronic forms:

(1) Wide Area WorkFlow-Receipt and Acceptance (WAWF-RA). Information regarding WAWF-RA is available on the Internet at <https://wawf.eb.mil>.

(2) Web Invoicing System (WInS). Information regarding WInS is available on the Internet at <https://ecweb.dfas.mil>.

(3) American National Standards Institute (ANSI) X.12 electronic data interchange (EDI) formats.

(i) Information regarding EDI formats is available on the Internet at <http://www.X12.org>.

(ii) EDI implementation guides are available on the Internet at <http://www.dfas.mil/ccedi>.

(4) Another electronic form authorized by the Contracting Officer.

(c) If the Contractor is unable to submit a payment request in electronic form, or DoD is unable to receive a payment request in electronic form, the Contractor shall submit the payment request using a method mutually agreed to by the Contractor, the Contracting Officer, the contract administration office, and the payment office.

(d) In addition to the requirements of this clause, the Contractor shall meet the requirements of the appropriate payment clauses in this contract when submitting payment requests.

(End of clause)

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SECTION H – SPECIAL CONTRACT REQUIREMENTS

H-1 CONSTRUCTIVE CHANGE ORDERS

No order, statement, or conduct of Government personnel who might visit the contractor's facility or in any other manner communicate with contractor personnel during the performance of this contract shall constitute a change under the "Changes" clause of this contract.

No understanding or agreement, contract modification, change order, or other matter deviating from or constituting an alteration or change of the terms of the contract shall be effective or binding upon the Government unless formalized by contractual documents executed by the Contracting Officer.

The Contracting Officer is the only person authorized to approve changes in any of the requirements of this contract and, notwithstanding provisions contained elsewhere in the contract, the said authority remains solely with the Contracting Officer. In the event that the contractor effects any change at the direction of any person other than the Contracting Officer, the change will be considered to have been made without authority at the contractor's expense, and no adjustment shall be made in the contract price or other contract terms and conditions as consideration for the aforementioned unauthorized change. Further, should the unauthorized change be to the Government's detriment, the contractor may be held financially responsible for its correction.

H-2 CENTRAL CONTRACTOR REGISTRATION (CCR)

Contractors must be registered in the Department of Defense (DoD) CCR database. Registration information is available at <http://www.ccr.gov>. The CCR database is DoD's primary repository for contractor information required for the conduct of business with DoD. This requirement does not apply to purchases made with a Government wide commercial purchase card.

H-3 CONTRACTOR NOTICE REGARDING LATE DELIVERY

In the event the Contractor for any reason anticipates or encounters difficulty in complying with the contract delivery schedule or in meeting any of the other requirements of the contract, it shall immediately notify the Contracting Officer in writing, with a copy to the cognizant Contract Administration Officer, if assigned, giving pertinent details. However, this data shall be considered informational only in character and receipt by the Government shall not be construed as a waiver by the Government of (a) any delivery schedule or date, or (b) compliance with any other contract requirement by the Contractor, or (c) any other rights or remedies provided to the Government by law or under this contract.

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H-4 INCORPORATION OF REPRESENTATIONS AND CERTIFICATIONS BY REFERENCE

All representations and certifications and other written statements made by the contractor in response to SECTION K at the request of the Contracting Officer, incident to the award of the contract, are hereby incorporated by reference with the same force and effect as if they were given in full text. The Offeror has completed the annual representations and certifications electronically via the Business Partner Network (BPN) web site at <http://orca.bpn.gov> and has submitted any changes pertaining to this specific solicitation to the Contracting Officer. These amended representation(s) and/or certifications, if any, are also incorporated in the offeror's proposal and are current, accurate, and complete as of the date of this contract.

H-5 RESPONSIBILITY IN SUBCONTRACTING

The contractor shall provide the technology processes, test procedures, data, drawings, and/or other information required to facilitate competition to the fullest extent feasible, and assure performance by selected subcontractors. The contractor will be fully responsible for assuring that all appropriate contractual provisions and clauses are passed down to its subcontractors, and that those provisions are enforced.

H-6 EXTENSION OF COMMERCIAL WARRANTY

The contractor shall extend to the Government the full coverage of any standard commercial warranty normally offered in a similar commercial sale, provided that such warranty is available at no additional cost to the Government. The Contractor shall provide a copy of the standard commercial warranty with the item. The standard commercial warranty period shall begin upon the final acceptance of the applicable material or software. Acceptance of the standard commercial warranty does not waive the Government's rights under the "Inspection" clause, nor does it limit the Government's rights with regard to other terms and conditions of the contract. In the event of a conflict, the terms and conditions of the contract shall take precedence over the standard commercial warranty.

H-7 GOVERNMENT FURNISHED PROPERTY

The Government will furnish the Government Furnished Material (GFM) or GFE identified in the contract upon written request from the contractor to the Government. The contractor shall submit the request at least thirty (30) days prior to the required delivery date. The contractor shall not request a Required Delivery Date (RDD) earlier than the date identified in the contract. Requests for GFE/GFM are subject to Government approval. GFE/GFM requests from the contractor to the government shall list required delivery dates of GFE/GFM to meet proposed delivery schedules. The contractor shall provide for accountability, security and storage for the GFE/GFM provided. The contractor shall inspect and inventory all GFE/GFM received and identify and report, in writing, any discrepancies or deficiencies within ten (10) days of receipt. The contractor shall provide a written request for disposition instructions for any items received which are inoperable or incorrect. The Government will forward an accountability agreement to the contractor for signature on an annual basis. The GFM listed in the contract will be consumed in the manufacture of the TDN DDS-Rs. The GFE identified in the contract will be provided to the contractor to support the development and test of the TDN DDS-R. The Management Control Activity, Marine Corps Logistics Base (Code 571-1/MCA), Albany, Georgia, is the control and coordination point for all Marine Corps GFE/GFM.

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H-8 GOVERNMENT FURNISHED INFORMATION

The Government will furnish the Government Furnished Information (GFI) identified in the contract upon written request from the contractor to the Marine Corps Systems Command (MARCORSYSCOM) contracting officer. The contractor shall notify the Government of any deficiencies in the received GFI. GFI to the contractor will be accompanied with a disclaimer statement that the Government does not warrant the accuracy, completeness or appropriateness of the GFI and that it is as INFORMATION ONLY.

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SECTION I – CONTRACT CLAUSES

I-1 CLAUSES INCORPORATED BY REFERENCE

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://www.arnet.gov/far/> or <http://farsite.hill.af.mil/>

FAR/DFARS

TITLE

52.202-1	Definitions (July 2004)
52.203-3	Gratuities (Apr 1984)
52.203-5	Covenant Against Contingent Fees (Apr 1984)
52.203-6	Restrictions on Subcontractor Sales to the Government (Jul 1995) Alternate I (Oct 1995).
52.203-7	Anti-Kickback Procedures (Jul 1995)
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity (Jan 1997)
52.203-10	Price or Fee Adjustment for Illegal or Improper Activity (Jan 1997)
52.203-12	Limitation on Payments to Influence Certain Federal Transactions (June 2003)
52.204-2	Security Requirements (Aug 1996)
52.204-3	Taxpayer Identification (Oct 1998)
52.204-4	Printed or Copied Double-Sided on Recycled Paper (Aug 2000)
52.204-6	Data Universal Numbering System (DUNS) Number (Oct 2003)
52.204-7	Central Contractor Registration (Oct 2003)
52.209-3	First Article Approval--Contractor Testing(Sep 1989) Alternate I (Jan 1997).
52.209-5	Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters (Dec 2001)
52.209-6	Protecting the Government's Interest when Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (Jan 2005)
52.215-14	Integrity of Unit Prices (Oct 1997) Alt I (Oct 1997)
52.215-15	Pension Adjustments and Asset Reversions (Oct 2004)
52.216-24	Limitation of Government Liability (Apr 1984)
52.216-25	Contract Definitization (Oct 1997). <i>Alternate I (Apr 1984).</i>
52.219-8	Utilization of Small Business Concerns (May 2004)
52.222-2	Payment of Overtime Premiums (Jul 1990)
52.222-3	Convict Labor (Jun 2003)
52.222-20	Walsh-Healey Public Contracts Act (Dec 1996)
52.222-21	Prohibition of Segregated Facilities (Feb 1999)
52.222-26	Equal Opportunity (Apr 2002)
52.222-35	Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era (Dec 2001)

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52.222-36	Affirmative Action for Workers with Disabilities (Jun 1998)
52.222-37	Employment Reports on Disabled Veterans and Veterans of the Vietnam Era (Dec 2001)
52.223-6	Drug-Free Workplace (May 2001)
52.225-8	Duty-Free Entry (Feb 2000)
52.225-13	Restrictions on Certain Foreign Purchases (Dec 2003)
52.227-2	Notice and Assistance Regarding Patent and Copyright Infringement (Aug 1996)
52.227-14	Rights in Data—General (Jun 1987)
52.228-7	Insurance—Liability to Third Persons (Mar 1996)
52.229-3	Federal, State, and Local Taxes (Apr 2003)
52.232-1	Payments (Apr 1984)
52.232-8	Discounts for Prompt Payment (Feb 2002)
52.232-9	Limitation on Withholding of Payments (Apr 1984)
52.232-11	Extras (Apr 1984)
52.232-17	Interest (Jun 1996)
52.232-23	Assignment of Claims (Jan 1986)
52.232-25	Prompt Payment (Oct 2003)
52.232-33	Payment By Electronic Funds Transfer--Central Contractor Registration (Oct 2003)
52.233-1	Disputes (Jul 2002)
52.233-3	Protest After Award (Aug 1996) Alt I (Jun 1985)
52.242-13	Bankruptcy (Jul 1995)
52.243-1	Changes – Fixed Price (Aug 1987) Alt II (Apr 1984)
52.243-7	Notification of Changes
52.244-2	Subcontracts (Aug 1998)
52.244-5	Competition in Subcontracting (Dec 1996)
52.245-18	Special Test Equipment (Feb 1993)
52.245-19	Government Property Furnished “As Is”(Apr 1984)
52.246-23	Limitation of Liability (Feb 1997)
52.246-25	Limitation of Liability--Services (Feb 1997)
52.248-1	Value Engineering (Feb 2000)
52.249-2	Termination for Convenience of the Government (Fixed Price) (May 2004)
52.249-8	Default (Fixed-Price Supply and Service) (Apr 1984)
52.249-14	Excusable Delays (Apr 1984)
52.251-1	Government Supply Sources (Apr 1984)
52.251-1	Computer Generated Forms (Jan 1991)

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252.201-7000	Contracting Officer's Representative (Dec 1991)
252.203-7001	Prohibition on Persons Convicted of Fraud or Other Defense-Contract Related Felonies (Dec 2004)
252.203-7002	Display of DoD Hotline Poster (Dec 1991)
252.204-7000	Disclosure of Information (Dec 1991)
252.204-7002	Payment for Sub-line Items Not Separately Priced (Dec 1991)
252.204-7003	Control of Government Personnel Work Product (Apr 1992)
252.204-7005	Oral Attestation of Security Responsibilities (Nov 2001)
252.205-7000	Provision of Information to Cooperative Agreement Holders (Dec 1991)
252.209-7000	Acquisition from Subcontractors Subject to the on-Site Inspection Under the Intermediate-Range Nuclear Forces (INF) Treaty (Nov 1995)
252.209-7002	Disclosure of Ownership or Control By a Foreign Government (Sep 1994)
252.209-7004	Subcontracting with Firms That Are Owned or Controlled By the Government of a Terrorist Country (Mar 1998)
252.211-7000	Acquisition Streamlining (Dec 1991)
252.223-7001	Hazard Warning Labels (Dec 1991)
252.223-7004	Drug-Free Work Force (Sep 1988)
252.225-7001	Buy American Act and Balance of Payments Program (Apr 2003)
252.225-7002	Qualifying Country Sources As Subcontractors (Apr 2003)
252.225-7012	Preference for Certain Domestic Commodities (Jun 2004)
252.225-7031	Secondary Arab Boycott of Israel (Apr 2003)
252.227-7013	Rights in Technical Data--Noncommercial Items (Nov 1995)
252.227-7014	Rights in Noncommercial Computer Software and Non-Commercial Computer Software Documentation (Jun 1995)
252.227-7016	Rights in Bid or Proposal Information (Jun 1995)
252.227-7019	Validation of Asserted Restrictions--Computer Software (Jun 1995)
252.227-7025	Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends (Jun 1995)
252.231-7000	Supplemental Cost Principles (Dec 1991)
252.232-7003	Electronic Submission of Payment Requests (Jan 2004)
252.235-7010	Acknowledgment of Support and Disclaimer (May 1995)
252.243-7001	Pricing of Contract Modifications (Dec 1991)
252.243-7002	Requests for Equitable Adjustments (Mar 1998)
252.245-7001	Reports of Government Property (May 1994)
252.246-7000	Material Inspection and Receiving Report (Mar 2003)

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I-2 CLAUSES INCORPORATED IN FULL TEXT

52.209-3 -- FIRST ARTICLE APPROVAL -- CONTRACTOR TESTING.

Provide below: (a) quantity of each item to be tested (b) Lot/Item number, (c) number of calendar days before beginning of first article test the Contractor shall notify the contracting officer in writing of the time and location of the testing so that the Government may witness the tests, (d) the number of calendar days after contract award the FAT Report shall be submitted and (e) address of the Government activity to receive the report. Identify in (f) below the number of calendar days after Government receives the test report that the Contracting Officer shall notify the Contractor, in writing of the conditional approval, approval, or disapproval of the first article.

- (a) 1 Unit(s)
- (b) 1 Lot/Item number
- (c) 15 Days before beginning first article test
- (d) 80 Days after contract award FAT Report shall be submitted
- (e) Commander
Marine Corps Systems Command
Attn: Major Richard A. Paradise, PM CNS
2200 Lester St.
Quantico, VA 22134-6050
- (f) 5 Number of calendar days for government review and contractor notification

FAR 52.215-19 -- NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997)

(a) The Contractor shall make the following notification in writing:

(1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.

(2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall—

- (1) Maintain current, accurate, and complete inventory records of assets and their costs;
- (2) Provide the ACO or designated representative ready access to the records upon request;
- (3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and
- (4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

(End of clause)

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252.211-7003 ITEM IDENTIFICATION AND VALUATION (JUN 2005)

(a) *Definitions.* As used in this clause—

“Automatic identification device” means a device, such as a reader or interrogator, used to retrieve data encoded on machine-readable media.

“Concatenated unique item identifier” means—

(1) For items that are serialized within the enterprise identifier, the linking together of the unique identifier data elements in order of the issuing agency code, enterprise identifier, and unique serial number within the enterprise identifier; or

(2) For items that are serialized within the original part, lot, or batch number, the linking together of the unique identifier data elements in order of the issuing agency code; enterprise identifier; original part, lot, or batch number; and serial number within the original part, lot, or batch number.

“Data qualifier” means a specified character (or string of characters) that immediately precedes a data field that defines the general category or intended use of the data that follows.

“DoD recognized unique identification equivalent” means a unique identification method that is in commercial use and has been recognized by DoD. All DoD recognized unique identification equivalents are listed at <http://www.acq.osd.mil/dpap/UID/equivalents.html>.

“DoD unique item identification” means a system of marking items delivered to DoD with unique item identifiers that have machine-readable data elements to distinguish an item from all other like and unlike items. For items that are serialized within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier and a unique serial number. For items that are serialized within the part, lot, or batch number within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier; the original part, lot, or batch number; and the serial number.

“Enterprise” means the entity (e.g., a manufacturer or vendor) responsible for assigning unique item identifiers to items.

“Enterprise identifier” means a code that is uniquely assigned to an enterprise by an issuing agency.

“Government’s unit acquisition cost” means—

(1) For fixed-price type line, subline, or exhibit line items, the unit price identified in the contract at the time of delivery;

(2) For cost-type or undefinitized line, subline, or exhibit line items, the Contractor’s estimated fully burdened unit cost to the Government at the time of delivery; and

(3) For items produced under a time-and-materials contract, the Contractor’s estimated fully burdened unit cost to the Government at the time of delivery.

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“Issuing agency” means an organization responsible for assigning a non-repeatable identifier to an enterprise (i.e., Dun & Bradstreet’s Data Universal Numbering System (DUNS) Number, Uniform Code Council (UCC) /EAN International (EAN) Company Prefix, or Defense Logistics Information System (DLIS) Commercial and Government Entity (CAGE) Code).

“Issuing agency code” means a code that designates the registration (or controlling) authority for the enterprise identifier.

“Item” means a single hardware article or a single unit formed by a grouping of subassemblies, components, or constituent parts.

“Lot or batch number” means an identifying number assigned by the enterprise to a designated group of items, usually referred to as either a lot or a batch, all of which were manufactured under identical conditions.

“Machine-readable” means an automatic identification technology media, such as bar codes, contact memory buttons, radio frequency identification, or optical memory cards.

“Original part number” means a combination of numbers or letters assigned by the enterprise at item creation to a class of items with the same form, fit, function, and interface.

“Parent item” means the item assembly, intermediate component, or subassembly that has an embedded item with a unique item identifier or DoD recognized unique identification equivalent.

“Serial number within the enterprise identifier” means a combination of numbers, letters, or symbols assigned by the enterprise to an item that provides for the differentiation of that item from any other like and unlike item and is never used again within the enterprise.

“Serial number within the part, lot, or batch number” means a combination of numbers or letters assigned by the enterprise to an item that provides for the differentiation of that item from any other like item within a part, lot, or batch number assignment.

“Serialization within the enterprise identifier” means each item produced is assigned a serial number that is unique among all the tangible items produced by the enterprise and is never used again. The enterprise is responsible for ensuring unique serialization within the enterprise identifier.

“Serialization within the part, lot, or batch number” means each item of a particular part, lot, or batch number is assigned a unique serial number within that part, lot, or batch number assignment. The enterprise is responsible for ensuring unique serialization within the part, lot, or batch number within the enterprise identifier.

“Unique item identifier” means a set of data elements marked on items that is globally unique and unambiguous.

“Unique item identifier type” means a designator to indicate which method of uniquely identifying a part has been used. The current list of accepted unique item identifier types is maintained at http://www.acq.osd.mil/dpap/UID/uid_types.html.

(b) The Contractor shall deliver all items under a contract line, subline, or exhibit line item.

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(c) *DoD unique item identification or DoD recognized unique identification equivalents.*

(1) The Contractor shall provide DoD unique item identification, or a DoD recognized unique identification equivalent, for—

- (i) All delivered items for which the Government's unit acquisition cost is \$5,000 or more; and
- (ii) The following items for which the Government's unit acquisition cost is less than \$5,000:

Contract Line,
subline, or
Exhibit Line Item Number

Item description:

(iii) Subassemblies, components, and parts embedded within delivered items as specified in Attachment Number ____.

(2) The concatenated unique item identifier and the component data elements of the DoD unique item identification or DoD recognized unique identification equivalent shall not change over the life of the item.

(3) *Data syntax and semantics of DoD unique item identification and DoD recognized unique identification equivalents.* The Contractor shall ensure that—

(i) The encoded data elements (except issuing agency code) of the unique item identifier are marked on the item using one of the following three types of data qualifiers, as determined by the Contractor:

(A) Data Identifiers (DIs) (Format 06) in accordance with ISO/IEC International Standard 15418, Information Technology – EAN/UCC Application Identifiers and ANSI MH 10 Data Identifiers and Maintenance.

(B) Application Identifiers (AIs) (Format 05), in accordance with ISO/IEC International Standard 15418, Information Technology – EAN/UCC Application Identifiers and ANSI MH 10 Data Identifiers and Maintenance.

(C) Text Element Identifiers (TEIs), in accordance with the DoD collaborative solution “DD” format for use until the solution is approved by ISO/IEC JTC1 SC 31. The “DD” format is described in Appendix D of the DoD Guide to Uniquely Identifying Items, available at <http://www.acq.osd.mil/dpap/UID/guides.htm>; and

(ii) The encoded data elements of the unique item identifier conform to ISO/IEC International Standard 15434, Information Technology – Syntax for High Capacity Automatic Data Capture Media.

(4) *DoD unique item identification and DoD recognized unique identification equivalents.*

(i) The Contractor shall—

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(A) Determine whether to serialize within the enterprise identifier or serialize within the part, lot, or batch number; and

(B) Place the data elements of the unique item identifier (enterprise identifier; serial number; and for serialization within the part, lot, or batch number only; original part, lot, or batch number) on items requiring marking by paragraph (c)(1) of this clause, based on the criteria provided in the version of MIL-STD-130, Identification Marking of U.S. Military Property, cited in the contract Schedule.

(ii) The issuing agency code—

(A) Shall not be placed on the item; and

(B) Shall be derived from the data qualifier for the enterprise identifier.

(d) For each item that requires unique item identification under paragraph (c)(1)(i) or (ii) of this clause, in addition to the information provided as part of the Material Inspection and Receiving Report specified elsewhere in this contract, the Contractor shall report at the time of delivery, either as part of, or associated with, the Material Inspection and Receiving Report, the following information:

- (1) Concatenated unique item identifier; or DoD recognized unique identification equivalent.
- (2) Unique item identifier type.
- (3) Issuing agency code (if concatenated unique item identifier is used).
- (4) Enterprise identifier (if concatenated unique item identifier is used).
- (5) Original part number.
- (6) Lot or batch number.
- (7) Current part number (if not the same as the original part number).
- (8) Current part number effective date.
- (9) Serial number.
- (10) Government's unit acquisition cost.

(e) For embedded DoD serially managed subassemblies, components, and parts that require unique item identification under paragraph (c)(1)(iii) of this clause, the Contractor shall report at the time of delivery, either as part of, or associated with the Material Inspection and Receiving Report specified elsewhere in this contract, the following information:

(1) Concatenated unique item identifier or DoD recognized unique identification equivalent of the parent item delivered under a contract line, subline, or exhibit line item that contains the embedded subassembly, component, or part.

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(2) Concatenated unique item identifier or DoD recognized unique identification equivalent of the embedded subassembly, component, or part.

(3) Unique item identifier type.**

(4) Issuing agency code (if concatenated unique item identifier is used).**

(5) Enterprise identifier (if concatenated unique item identifier is used).**

(6) Original part number.**

(7) Lot or batch number.**

(8) Current part number (if not the same as the original part number).**

(9) Current part number effective date.**

(10) Serial number.**

(11) Unit of measure.

(12) Description.

** Once per item.

(f) The Contractor shall submit the information required by paragraphs (d) and (e) of this clause in accordance with the data submission procedures at <http://www.acq.osd.mil/dpap/UID/DataSubmission.htm>.


(g) *Subcontracts.* If paragraph (c)(1) of this clause applies, the Contractor shall include this clause, including this paragraph (g), in all subcontracts issued under this contract.

(End of clause)

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SECTION J – LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

DOCUMENT TYPE	DESCRIPTION	PAGES	DATE
Exhibit A-S	Contract Data Requirements List	61	27-FEB-2006
Attachment 1	Statement of Work	39	18-APR-2006
Attachment 2	Performance Specification	97	19-MAY-2006
Attachment 3	List of Government Furnished Property	1	28-FEB-2006
Attachment 4	General Purpose TMDE Listing TM-10510-14/IG	191	01-JAN-2006
Attachment 5	LMI Data Products (DI-ALSS-81529)	1	18-NOV-1996
Attachment 6	Marine Corps Network Operation and Security Command (MCNOSC) Order 5239.1	20	15-NOV-2004
Attachment 7	Technical Manual Contract Requirements (TMCR) CINS-FY06-002	27	06-FEB-2006
Attachment 8	MTA/JTA TDNOC Learning Analysis Worksheet	27	28-MAR-2006

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE		PAGE OF PAGES	
						1	3
2. AMENDMENT/MODIFICATION NO. P00001		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO. N/A		5. PROJECT NO. (If applicable)	
6. ISSUED BY CODE COMMANDING GENERAL MARCORSYSCOM ATTN CODE (CT0271-WW) 2200 LESTER STREET QUANTICO VA 22134-5010 BUYER: WILLIAM R. WAGGONER (703) 432-4191		3. EFFECTIVE DATE M67854		7. ADMINISTERED BY (if other than item 6) CODE DCMA PHILADELPHIA 400 JOHN QUINCY ADAMS RD. TAUTON, MA 02780 ACO: Mary Hayes (508) 880-4217 E-mail: mary.haves@dcma.mil		S3915A	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) GENERAL DYNAMICS C4 SYSTEMS, INC. MR. MARK GILMORE 400 QUINCY ADAMS RD. TAUTON, MA 02780-1069 PHONE: (508) 880-4673 FAX: (508) 880-4316				(X)		9A. AMENDMENT OF SOLICITATION NO.	
						9B. DATED (SEE ITEM 11)	
				X		10A. MODIFICATION OF CONTRACT/ORDER NO. M67854-07-C-7010	
CODE 67032				FACILITY CODE		10B. DATED (SEE ITEM 13) 21 Nov 2006	
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS							
<p>() The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers () is extended, () is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:</p> <p>(a) By completing items 8 and 15, and returning ___ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.</p>							
12. Accounting and Appropriation Data (if required)							
N/A							
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14							
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.							
X							
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).							
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:							
D. OTHER (Specify type of modification and authority)							
E. IMPORTANT: Contractor (X) is not, () is required to sign this document and return ___ copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UIC section headings, including solicitation contract subject matter where feasible.)							
See Page 2.							
15A. NAME AND TITLE OF SIGNER (Type or print)				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
				JEFFREY T. CAMPBELL, CONTRACTING OFFICER UNITED STATES MARINE CORPS			
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA		16C. DATE SIGNED	
(Signature of person authorized to sign)				BY:  (Signature of Contracting Officer)		11/27/06	

SUMMARY OF CHANGES:

The purpose of this Administrative Modification P00001 is to change the Contract as follows:

- A. The Contract Administration Office (Block 24) is changed from:

CODE M67854

to

DCMA PHILADELPHIA (S3915A)

400 JOHN QUINCY ADAMS RD.

TAUTON, MA 02780

ACO: Mary Hayes (508) 880-4217

E-mail: mary.hayes@dcma.mil

- B. The "Payment Will Be Made By" organization (Block 25) is changed from:

DEFENSE FINANCE ACCOUNTING SERVICE

COLUMBUS CENTER

P.O. BOX 369022, ATTN: KANSAS

COLUMBUS, OH 43236-9022

to

DFAS – COLUMBUS CENTER (HQ0337)

DFAS-CO/NORTH ENTITLEMENT OPERATIONS

P.O. BOX 182266

COLUMBUS, OH 43218-2266

- C. Section G-6 (ELECTRONIC INVOICING PROCEDURES (MARCORSYSCOM Feb 2006) is changed to read as follows:

In compliance with DFARS 252.232-7003, "Electronic Submission of Payment Request (March 2003)", the United States Marine Corps (USMC) utilizes WAWF-RA to electronically process vendor request for payment. The contractor is required to utilize this system when processing invoices and receiving reports under this contract.

The contractor shall (i) ensure an Electronic Business Point of Contract (POC) is designated in Central Contractor Registration at <http://www.ccr.gov> and (ii) register to use WAWF-RA at the <https://wawf.cb.mil/> within ten (10) days after award of the contract or modification incorporating WAWF-RA into the contract. Step by step procedures to register are available at the <https://wawf.cb.mil/>.

The USMC WAWF-RA point of contact for this contract is William R. Waggoner and can be reached at (703) 432-4191 or via email at william.r.waggoner1@usmc.mil.

The contractor is directed to use the Invoice and Receiving Report (Combo) format when processing invoices and receiving reports. For all requirements, the contractor shall use the Marine Corps Systems Command DODAAC (M67854) as the DODAAC for all shipping addresses, even if the ship-to address is other than the Marine Corps Systems Command.

DFAS - COLUMBUS CENTER (HQ0337)
DFAS-CO/NORTH ENTITLEMENT OPERATIONS
P.O. BOX 182266
COLUMBUS, OH 43218-2266

E-Mail: CCO-KC-VPIS@DFAS.MIL
PHONE: 1-800-756-4571 #2 then #4
WAWF: <https://wawf.cb.mil/>
VPIS: <https://www.dfas.mil/money/vendor>

Data entry information in WAWF:

Payment Office DoDAAC: **HQ0337**
Issue By DoDAAC: M67854
Admin Office DoDAAC: **S3915A**
Ship to Supply: M67854
Service Acceptor DoDAAC: M67854 Extension PG12
Contract Number: M6785407C7010

Before closing out of an invoice session in WAWF-RA, but after submitting your document or documents, the contractor will be prompted to send additional email notifications. The contractor shall click on "Send Additional Email Notifications" block on the page that appears. Add the primary point of contact's email address (provided above) in the first email address block and add the alternate point of contact's email address in the following block. This additional notification to the government is important to ensure the appropriate point of contact is aware that the invoice documents have been submitted into the WAWF-RA system.

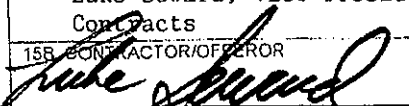
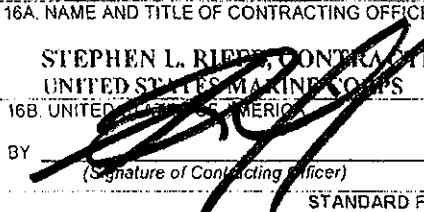
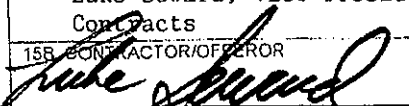
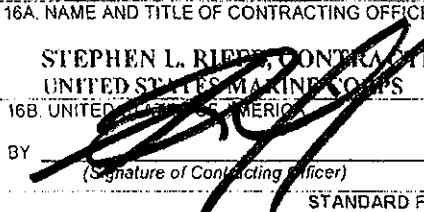
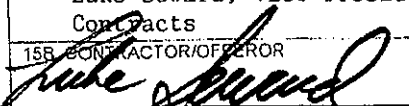
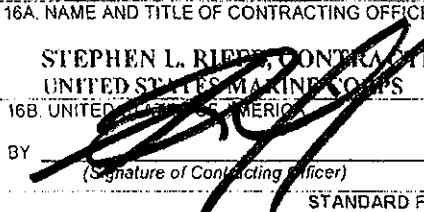
Additional email notification of invoices:

COR / PO: richard.paradise@usmc.mil
Contracts: william.r.waggoner1@usmc.mil

NOTE: The POCs identified above are for WAWF issues only. Any other contracting questions or problems should be addressed to the POC identified in Section A of the contract.

All other terms and conditions remain unchanged. Refer any questions regarding this modification to William Waggoner at (703) 432-4191 or via E-mail:
william.r.waggoner1@mcsc.usmc.mil

[END OF MODIFICATION]

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE		PAGE 1 OF 15 PAGES																			
2. AMENDMENT/MODIFICATION NO. P00002		3. EFFECTIVE DATE See Block 16C		4. REQUISITION/PURCHASE REQ. NO. N/A																			
5. PROJECT NO. (If applicable)		6. ISSUED BY CODE M67854		7. ADMINISTERED BY (if other than item 6) CODE S3915A																			
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) GENERAL DYNAMICS C4 SYSTEMS, INC. MR. MARK GILMORE 400 QUINCY ADAMS RD. TAUTON, MA 02780-1069 PHONE: (508) 880-4673 FAX: (508) 880-4316 CODE 67032		9A. AMENDMENT OF SOLICITATION NO.		9B. DATED (SEE ITEM 11)																			
10A. MODIFICATION OF CONTRACT/ORDER NO. M67854-07-C-7010		10B. DATED (SEE ITEM 13) 21 Nov 2006																					
<p style="text-align: center;">11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</p> <p>() The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers () is extended, () is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:</p> <p>(a) By completing items 8 and 15, and returning ___ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.</p>																							
12. Accounting and Appropriation Data (if required) See Schedule																							
<p style="text-align: center;">13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;"></td> <td>A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.</td> </tr> <tr> <td></td> <td>B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).</td> </tr> <tr> <td style="text-align: center;">X</td> <td>C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Mutual Agreement of the Parties: FAR 43.103(a)</td> </tr> <tr> <td></td> <td>D. OTHER (Specify type of modification and authority)</td> </tr> </table>							A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.		B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).	X	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Mutual Agreement of the Parties: FAR 43.103(a)		D. OTHER (Specify type of modification and authority)										
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E. IMPORTANT: Contractor (X) is not, () is required to sign this document and return ___ copies to the issuing office																							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UIC section headings, including solicitation/contract subject matter where feasible)																							
See Page 2.																							
<p>Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">15A. NAME AND TITLE OF SIGNER (Type or print) Luke Seward, Vice President Contracts</td> <td colspan="2">15B. UNITED STATES OF AMERICA</td> <td colspan="2">16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) STEPHEN L. RIEPP, CONTRACTING OFFICER UNITED STATES MARINE CORPS</td> </tr> <tr> <td colspan="2">15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)</td> <td colspan="2">15C. DATE SIGNED Feb. 1, 2007</td> <td colspan="2">16B. BY  (Signature of Contracting Officer)</td> </tr> <tr> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2">16C. DATE SIGNED FEB 02 2007</td> </tr> </table>						15A. NAME AND TITLE OF SIGNER (Type or print) Luke Seward, Vice President Contracts		15B. UNITED STATES OF AMERICA		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) STEPHEN L. RIEPP, CONTRACTING OFFICER UNITED STATES MARINE CORPS		15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)		15C. DATE SIGNED Feb. 1, 2007		16B. BY  (Signature of Contracting Officer)						16C. DATE SIGNED FEB 02 2007	
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15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)		15C. DATE SIGNED Feb. 1, 2007		16B. BY  (Signature of Contracting Officer)																			
				16C. DATE SIGNED FEB 02 2007																			

SUMMARY OF CHANGES:

The purpose of this Modification P00002 is to **A)** Incorporate the Not to Exceed limits in Section B – Supplies/Services and Prices/Costs of the contract; **B)** To establish and fund the new SubCLIN 0007AB to fund the Power Modules for the Data Storage Modules (DSM); **C)** To establish and fund the new SubCLIN 0009AC for the Peacetime Operations Spares Package for the DSMs; **D)** To exercise Option CLIN 0013 F) Increase the quantity under SubCLIN 0013AA, DSM CONUS Destination from quantity of 117 each to quantity of 150 each and delete SubCLIN 0013AB; **E)** Establish and fund the new CLIN 0015, Baseline Changes Non-Recurring Engineering (NRE); **F)** Establish and fund the new CLIN 0016, Configuration Module (CM) Non-Recurring Engineering (NRE), and SubCLIN 0016AA01 and SubCLIN 0016AA02; **G)** Establish and fund the new CLIN 0017, Data Storage Module (DSM) Non-Recurring Engineering (NRE); **H)** Revise funding information under Section G, Contract Administration Data; **I)** Revise overseas delivery packaging requirement in Section D – Packaging and Marking; **J)** Update the List of Government Furnished Property (Attachment 3); **K)** Make revisions to Section F – Deliveries or Performance; **L)** Add FAR Clause 52.232-16, PROGRESS PAYMENTS (APR 2003), under Section I-2 CLAUSES INCORPORATED BY REFERENCE; **M)** Add List of Authorized DDS-R Equipment to be Purchase for First Article Testing.(Attachment 9); **N)** Incorporate revisions to the TDN DDS-R Performance Specification and Statement of Work identified during the TDN DDS-R Post Ward Conference and Preliminary Design Review; and **O)** Include language for definitization of the Not to Exceed (NTE) limits.

A) Incorporate the following Not to Exceed (NTE) limits in Section B – Supplies/Services and Prices/Costs of the contract:

1. SLIN 0001AA is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
FROM:	0001AA ACRN: AA	TDN DDS-R First Article Test Suite	1 Each		
BY:					
TO:	0001AA ACRN: AA	TDN DDS-R First Article Test Suite	1 Each		

2. SLIN 0001AB is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT
FROM:	0001AB ACRN: AA	TDN DDS-R MCTSSA Test Suite	2 Each
BY:			
TO:	0001AB ACRN: AA	TDN DDS-R MCTSSA Test Suite	2 Each

(b)(4)

3. SLIN 0003AA is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
FROM:	0003AA ACRN: AA	CSM CONUS Destination	117 Each	(b)(4)	
BY:					
TO:	0003AA ACRN: AA	CSM CONUS Destination	117 Each		

4. SLIN 0003AB is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
FROM:	0003AB ACRN: AA	CSM OCONUS Destination	33 Each	(b)(4)	
BY:					
TO:	0003AB ACRN: AA	CSM OCONUS Destination	33 Each		

5. SLIN 0004AA is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
FROM:	0004AA ACRN: AA	ASM CONUS Destination	117 Each	(b)(4)	
BY:					
TO:	0004AA ACRN: AA	ASM CONUS Destination	117 Each		

6. SLIN 0004AB is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
FROM:	0004AB ACRN: AA	ASM OCONUS Destination	33 Each	(b)(4)	
BY:					
TO:	0004AB ACRN: AA	ASM OCONUS Destination	33 Each		

7. SLIN 0005AA is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNITPRICE	TOTALPRICE
FROM:	0005AA ACRN: AA	LSM CONUS Destination	117 Each	(b)(4)	
BY:					
TO:	0005AA ACRN: AA	LSM CONUS Destination	117 Each		

8. SLIN 0005AB is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
FROM:	0005AB ACRN: AA	LSM OCONUS Destination	33 Each	(b)(4)	
BY:					
TO:	0005AB ACRN: AA	LSM OCONUS Destination	33 Each		

9. SLIN 0006AA is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
FROM:	0006AA	LEM CONUS Destination	468 Each	(b)(4)	
		ACRN: AA	\$		
		ACRN: AB	\$		
BY:					
TO:	0006AA	LEM CONUS Destination	468 Each		
		ACRN: AA			
		ACRN: AB			

10. SLIN 0006AB is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
FROM:	0006AB ACRN: AA	LEM OCONUS Destination	132 Each	(b)(4)	
BY:					
TO:	0006AB ACRN: AA	LEM OCONUS Destination	132 Each		

11. SLIN 0007AA is revised as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
FROM:	0007AA ACRN: AA	Power Module: One or more power modules as required by the vendor's system design to provide power to modules in CLINs 0003, 0004 and 0005 and modules in Optional CLINs 0011, 0012, and 0013 where design constraints prohibit the integration of an UPS into the other module's design. (See Para. 3.4.3.3.2 of the DDS-R Performance Specification v3.5, dated 17 March 2006)	1 Lot	(b)(4)	
BY:			450		
TO:	0007AA ACRN: AA	Power Module: One or more power modules as required by the vendor's system design to provide power to modules in CLINs 0003, 0004 and 0005 and modules in Optional CLINs 0011, 0012, and 0013 where design constraints prohibit the integration of an UPS into the other module's design. (See Para. 3.4.3.3.2 of the DDS-R Performance Specification v3.5, dated 17 March 2006)	450 Each	(b)(4)	

B). New SLIN 0007AB for the Power Modules for the Data Storage Modules is established and funded as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
	0007AB ACRN: AB	Power Module: One or more power modules as required by the vendor's system design to provide power to modules in CLIN 0013, where design constraints prohibit the integration of an UPS into the other module's design. (See Para. 3.4.3.3.2 of the DDS-R Performance Specification v3.5, dated 17 March 2006)	150	(b)(4)	

C). New SLIN 0009AC for the Peacetime Operations Spares Package for the Data Storage Modules is established and funded as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
	0009AC: ACRN: AB	Peacetime Operations Spares Package (DSM)	1 Lot	(b)(4)	

D). Option CLIN 0013 Data Storage Modules, is exercised. The quantity for SLIN 0013AB, DSM OCONUS Destination is reduced by 33 units down to zero units and SLIN 0013AB is reserved. Similarly, the quantity for SLIN 0013AA, DSM CONUS Destination, is increased by 33 units from 117 units to 150 units as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
	CLIN 0013	Data Storage Modules (DSM)			
	0013AA ACRN: AB	DSM CONUS Destination	150 Each	(b)(4)	
	0013AB	RESERVED			

E. CLIN 0015, Baseline Changes NRE, is established and funded as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
	CLIN 0015	Baseline Changes Non-Recurring Engineering (NRE)			
	0015AA ACRN: AA	Baseline Changes Non-Recurring Engineering (NRE)	1 Lot NTE	(b)(4)	

F. CLIN 0016, Configuration Module (CM) Non-Recurring Engineering (NRE), is established and funded as follows:

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
	CLIN 0016	CM Non-Recurring Engineering (NRE)	1 Lot NTE	(b)(4)	
		ACRN: AA	\$	(b)(4)	
		ACRN: AB	\$	(b)(4)	

G). CLIN 0017, Data Storage Modules (DSM) Non-Recurring Engineering (NRE), is established and funded as follows

	ITEM(S)	SUPPLIES/SERVICES	QTY/UNIT	UNIT PRICE	TOTAL PRICE
	CLIN 0017	Data Storage Module (DSM) Non-Recurring Engineering (NRE)			
	0017AA ACRN: AA	DSM Non-Recurring Engineering (NRE)	1 Lot NTE	(b)(4)	

H). Under Section G, Contract Administration Data, the following changes are made:

- a) Subsection G-3, Accounting Classification Reference Number (ACRN) Funding
ACRN AB is increased by (b)(4) from (b)(4) to (b)(4)
follows:

FROM:

AA 176 1109 4634 310 67854 067443 2D 4634B2 45006RC64336
Funding Document Number: M9545006RC64336

AB 176 1109 4634 310 67854 067443 2D 4634SD 00006RC64682
Funding Document Number: M9545006RC64682

Total:

BY: \$ 13,086,886.67 (ACRN: AB only)

TO:

AA 176 1109 4634 310 67854 067443 2D 4634B2 45006RC64336
Funding Document Number: M9545006RC64336

AB 176 1109 4634 310 67854 067443 2D 4634SD 00006RC64682
Funding Document Number: M9545006RC64682

Total:

- b) Under Subsection G-3, Accounting Classification Reference Number (ACRN) the following summary is added.

CLIN	ACRN	Current Price	Increase (+/-)	Total
0001AA	AA			
0001AB	AA			
0002				
0003AA	AA			
0003AB	AA			
0004AA	AA			
0004AB	AA			
0005AA	AA			
0005AB	AA			
0006AA	AA			
0006AA	AB			
0006AB	AA			
0007AA	AA			
0007AB	AB			
0008AA	AA			
0008AB	AA			
0008AC	AA			
0008AD	AA			
0008AE	AA			
0009AA	AA			
0009AB	AA			
0009AC	AB			
0010AA	AA			
0010AB	AA			
0013AA	AB			
0015AA	AA			
0016AA	AA			
0016AA	AB			
0017AA	AA			
TOTAL:				

(b)(4)

I. Section D – Packaging and Marking, Subsection D-1 is revised as follows:

a. FROM:

“Any supplies ordered that may require delivery overseas shall be packaged and marked in accordance with MIL –STD-129N.”

b. “TO:

“Any supplies ordered that may require delivery overseas shall be packaged and marked in accordance with MIL –STD-129P.”

J. The List of Government Furnished Property (Attachment 3), dated February 28, 2006, is deleted in its entirety and replaced with the attached revised List of Government Furnished Property and Government Furnished Material (Revision 2), dated January 25, 2007.

K. Section F – Deliveries or Performance, is revised to incorporate the Revised DDS-R Summary Schedule, dated January 25, 2007 which becomes Attachment 10 to the contract..

L. Add Clause 52.232-16, PROGRESS PAYMENTS (APR 2003), under Section I-2 CLAUSES INCORPORATED BY REFERENCE.

M. The List of Authorized DDS-R Equipment to be Purchase prior to First Article Testing, dated January 26, 2007, is added as Attachment 9 to the contract.

N. Non-Recurring Engineering (NRE) costs associated with this modification are as a result of the preceding changes to the TDN DDS-R Performance Specification v.3.5, dated 19 May 2006, and to the TDN DDS-R Statement of Work v 2.1, dated 18 April 2006, identified during the TDN DDS-R Post Ward Conference and Preliminary Design Review, as follows:

**CHANGES UNDER THE TDN DDS-R PERFORMANCE SPECIFICATION V.3.5,
DATED 19 MAY 06 (ATTACHMENT 2):**

**Performance Specification Section 3.4.2 – Storage and Transport State – DDS-R0112
(CLIN 0005)**

From : “In this state, the DDS-R equipment shall be configured for shipment, transport or storage. All DDS-R equipment shall be transported within transit and storage cases.”

To: “In this state, the DDS-R equipment shall be configured for shipment, transport, or storage. All DDS-R equipment shall be transported within operational transit cases.”

Performance Specification Section 3.4.3.2.3 – Weight – DDS-R0125 (CLIN 0005)

From: “The weight of each populated DDS-R System transit case, when configured for transport, shall not exceed the two-man, 3-foot lift requirements of Military Standard (MIL-STD)-1472, paragraph 5.9.11.3 (174 pounds). Handles and grasp requirements shall use the guidance of MIL-STD-1472F, paragraph 5.9.11.3 and sub-paragraphs. Handles shall be provided on all 4 (vertical) sides of each transit case. The weight and lift requirements of each transit case shall be clearly labeled.

To: “The weight of each populated DDS-R System transit case, when configured for transport, shall not exceed:

a) The two-man, 3-foot lift requirements of Military Standard (MIL-STD)-1472, paragraph 5.9.11.3 (174 pounds) shall apply to the following modules:

- 1) ASM
- 2) CSM
- 3) PM
- 4) LEM
- 5) WSM V(2)
- 6) DSM

b) The three-man, 3-foot lift requirements of Military Standard (MIL-STD)-1472, paragraph 5.9.11.3 (239 pounds) shall apply to the following modules:

- 1) LSM
- 2) WSM V(1)

Performance Specification Section 3.2.3.1 – Communications Security Module (CSM) – DDS-R0076 (CLIN 0003)

From: “The CSM shall provide cryptologic devices for link and in-line network encryption and provide signal conversion. The CSM shall provide two KIV-7M encryption devices as described in section 3.2.2.5 and two INE encryption devices as described in section 3.2.2.6. Red and black signal interfaces shall be separated in accordance with Military Handbook (MIL-HDBK)-232 and National Security Telecommunications and Information Systems Security Advisory Memorandum (NSTISSAM) TEMPEST/2-95.”

To: “The CSM shall provide cryptologic devices for link and in-line network encryption and provide signal conversion. The CSM shall provide two KIV-7M encryption devices as described in section 3.2.2.5 and two INE encryption devices as described in section 3.2.2.6. The two INE encryption devices shall be integrated into the CSM utilizing a slide rail mounting system that facilitates easy removal for storage. Red and black signal interfaces shall be separated in accordance with Military Handbook (MIL-HDBK)-232 and National Security Telecommunications and Information Systems Security Advisory Memorandum (NSTISSAM) TEMPEST/2-95.”

**Performance Specification Section 3.2.3.1 – Communications Security Module (CSM)
– DDS-R0077 (CLIN 0003)**

From: “The CSM shall provide a Serial/IP Server as described in section 3.2.2.8.

To: “The CSM shall provide a Serial/IP Server as described in section 3.2.2.8. All serial IP ports shall be easily accessible from the rear of the module.”

**Performance Specification Section 3.2.3.1 – Communications Security Module (CSM)
– DDS-R0079 sub-requirement ‘a’ (CLIN 0003)**

From: “Four EIA RS 530 from IP router (DB 25 pin female connector),”

To: “RESERVED.”

Performance Specification Section 3.2.2.6 – Inline Network Encryption (INE) – DDS-R0068 (CLIN 0003)

From: “The DDS-R shall provide mounting and connectivity for two Inline Network Encryption (INE) devices, KG-175B. The INE devices and rack mounting system shall be provided as GFE. The use and configuration of cryptographic devices shall be in accordance with DOD Directive 5200.28.”

To: “The DDS-R shall provide mounting and connectivity for two Inline Network Encryption (INE) devices, KG-175B. The INE devices and rack mounting hardware shall be provided as GFM. The use and configuration of cryptographic devices shall be in accordance with DoD Directive 5200.28.”

Performance Specification Section 3.2.3.5 – Local Area Network (LAN) Services Module (LSM) – DDS-R0094 (CLIN 0005)

From: “The LSM shall provide a SEP with eight EIA RS 530 interfaces (DB 25 pin female connector), one T1/PRI interface in accordance with ANSI T1.403.01 and ANSI T1.619a, and a minimum 14 SC fiber interfaces with SC to ST adaptor cables.”

To: “The LSM shall provide a SEP with eight EIA RS 530 interfaces (DB 25 pin female connector), one T1/PRI interface in accordance with ANSI T1.403.01 and ANSI T1.619a, and a minimum of 14 LC fiber interfaces with LC to SC adapters.”

Performance Specification Section 3.2.2.2.2 – External Ethernet Switches – DDS-R0046 (CLIN 0006)

From: “Each Ethernet Switch shall provide at least two SFP interfaces that support one 1000BaseSX multimode fiber and one 1000BaseLX single mode fiber uplink connections to the DDS-R.”

To: "Each Ethernet Switch shall provide at least two SFP interfaces that support one 1000BaseSX multimode fiber and one 1000BaseLX single mode fiber uplink connections to the DDS-R. Two LC to SC adapters shall be provided."

Performance Specification Section 3.2.2.3 – Servers – DDS-R0053, sub-requirement 'a' (CLIN 0004)

From: "Dual 3.4 GHz Processors/1MB Cache, 800MHz FSB,"

To: "Two dual-core 3.0 GHz Processors/1 MB Cache, 800 MHz FSB."

Performance Specification Section 3.5.3.1 – Nameplates and Product Marking – DDS-R0187 (CLIN 0007)

From: "Nameplates shall be located such that they are visible during normal operational use."

To: "Nameplates shall be located such that they are visible during normal operational use, with the exception of the Power Module (PM)."

Performance Specification Section 3.2.3 – System Modules – (CLIN 0001)

From: "Modules may contain an integrated UPS as described in section 3.4.3.3.2 provided that module size and weight restrictions are met."

To: "Modules may contain an integrated UPS as described in section 3.4.3.3.2 provided that module size and weight restrictions are met. Configuration Modules, ancillary items, and a storage case, will be provided as GFM for system verification and testing purposes in accordance with 4.7.2 of the performance specification. GFM Configuration Models and ancillary items shall be packed in its storage case and shipped with each system (one per system)."

CHANGES UNDER THE TDN DDS-R SOW V2.1, DATED, APR 2006

Statement of Work Section 3.17.1 – Software Development – (CLIN 0004)

From: "Software Development. The contractor shall utilize existing TDN COTS and NDI software which will be provided as GFE. The contractor shall be responsible for providing all required software/hardware drivers. GFE software cannot be altered."

To: "Software Development. The contractor shall utilize existing TDN COTS and NDI software which will be provided as GFE. The contractor shall be responsible for providing all required software/hardware drivers. GFE software cannot be altered. A gold disk containing the DDS-R software baseline shall be provided GFE. The contractor shall load, replicate, manage, store, and ship the GFE software with each system."

Statement of Work Section 3.17.3 – System/Subsystem Specification – (CLIN 0001 for FAT and SIT, and CLINs 0003 through 0007 for PAT)

From: “System/Subsystem Specification. The contractor shall provide a System/Subsystem Specification (SSS). The SSS shall specify the requirements for a system or subsystem and the verification methods to be used to ensure that each requirement has been met. The SSS shall be used as the basis for design and qualification testing of a system or subsystem.

DI-IPSC-81431A, System/Subsystem Specification (SSS)”

To: “System/Subsystem Design Description. The contractor shall provide a System/Subsystem Design Description (SSDD). The SSDD shall describe the system or subsystem wide design and the architectural design of a system or subsystem.

DI-IPSC-81432A, System/Subsystem Specification (SSS)”

Statement of Work Section 3.4.1.1 – Preliminary Design Review – (CLIN 0001 for FAT and SIT, and CLINs 0003 through 0007 for PAT)

From: “Preliminary Design Review. The Preliminary Design Review (PDR) shall be held in conjunction with the PAC. The PDR shall be used to resolve any issues in the Performance Specification, however it will not be used as an opportunity to impose additional requirements. The PDR shall include equipment, hardware and software configuration items and related support equipment. The contractor shall show and/or demonstrate that evaluations of materials, lead times, tooling, fabrication techniques, assembly methods, test equipment, skills, processes and inspection techniques have been accomplished for equipment, hardware and software configuration items and related support equipment, and the producibility objectives have been achieved. The reviews will evaluate the progress, technical adequacy, and risk resolution (on a technical, cost and schedule basis) of the design and will assess the technical risk associated with the selected manufacturing (assembly) methods (processes). The PDR also shall identify all single source, sole source and diminishing source(s). Upon successful completion of the review, a baseline for system architectural design shall be established and placed under configuration management.”

To: “Preliminary Design Review. The Preliminary Design Review (PDR) shall be held in conjunction with the PAC. The PDR shall be used to resolve any issues in the Performance Specification, to include verification methods and procedures outlined in Section 4 of the Performance Specification, however it will not be used as an opportunity to impose additional requirements. The PDR shall include equipment, hardware and software configuration items and related support equipment. The contractor shall show and/or demonstrate that evaluations of materials, lead times, tooling, fabrication techniques, assembly methods, test equipment, skills, processes and inspection techniques have been accomplished for equipment, hardware and software configuration items and related support equipment, and the producibility objectives have been achieved. The reviews will evaluate the progress, technical adequacy, and risk resolution (on a technical, cost and schedule

LIST OF COMPANIES
SUBMITTING PROPOSALS
FOR THE TDN DDS-R
(Contract M67854-07-C-7010)

1. General Dynamics C4 Systems (Awardee)
400 John Qunicy Admas Road
Taunton, MA 02780
2. Omega Systems, Inc.
22601 North 19th Avenue
Suite 116
Phoenix, AZ 85027-1324

SOURCE SELECTION SENSITIVE

Attachment 2

MARCORSYSCOM-PS-XX-XXX

**PERFORMANCE SPECIFICATION
FOR THE
DATA DISTRIBUTION SYSTEM REPLACEMENT**



**Prepared by:
Marine Corps Systems Command**

(Version 3.5 – 17 March 2006)

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DDS-R PURCHASE DESCRIPTION

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1.0 SCOPE

1.1 Identification.

This specification establishes the technical and functional requirements baseline for the transit case based Data Distribution System Replacement (DDS-R). The DDS-R supports Marine Air-Ground Task Force (MAGTF) command and control communications mission objectives. The DDS-R provides Internet Protocol (IP) based data routing, information processing and storage, and network extension capabilities for deployed Marine Corps forces.

1.2 System Overview

The DDS-R will provide a flexible and modular Local Area Network (LAN) capability to provide services to the Marine Corps Tactical Data Systems (TDSs) and other DDS-Rs. The DDS-R provides a Marine Corps standard file server supporting typical LAN services such as file sharing and electronic mail (email). A DDS-R will have the switching, processing, and storage capacity, software, and flexibility to support operations at a single security level. A DDS-R can operate from the SENSITIVE BUT UNCLASSIFIED (SBU) up to the TOP SECRET (TS)/SENSITIVE COMPARTMENTED INFORMATION (SCI) level and will contain an integral Inline Network Encryption (INE) device capable to support tunneling. Components of the DDS-R will be integrated by function into transit and storage cases for unit transport.

1.3 Acquisition Strategy

The DDS-R acquisition will be accomplished using commercial off-the-shelf (COTS) and government-off-the-shelf (GOTS) non-developmental items (NDI). Unmodified COTS and GOTS will be used to the maximum possible extent. The system integrator will be responsible for development of a DDS-R system operations and maintenance manual, which provides an integrated view of the equipment and interoperation of all components of the DDS-R system. The system integrator is responsible for system performance, interoperability, and integrity, and will assemble the necessary components to meet the functional and serviceability requirements.

SOURCE SELECTION SENSITIVE

2.0 SPECIFICATIONS, STANDARDS, & PUBLICATIONS.

2.1 Military/Federal Standards – Mandatory

<u>Publication Number</u>	<u>Title</u>	<u>Date</u>
FED-STD-595B	Color Samples	12/1996
FIPS Pub 197	Advanced Encryption Standard (AES)	11/26/2001
MIL-STD-129P	Military Marking for Shipment & Storage	10/29/2004
MIL-STD-461E	Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment	08/20/1999
MIL-STD-810F	Environmental Engineering Considerations and Laboratory Tests	08/30/2002

2.2 Military/Federal Standards – Guidance Only

<u>Publication Number</u>	<u>Title</u>	<u>Date</u>
MIL-STD-882D	Standard Practice for System Safety	02/10/2000
MIL-STD-1472F	Human Engineering	12/05/2003
MIL-STD-1474D	Noise Limits	08/29/1997

2.3 Other Documents

<u>Publication Number</u>	<u>Title</u>	<u>Date</u>
29 CFR 1910	OSHA General Industry Regulations	02/2005
ANSI T1.403.01-1999	Occupational Safety & Health Standards Telecommunications - Network and Customer Installation Interfaces - Integrated Services Digital Network (ISDN) Primary Rate Layer 1 Metallic Interface Specification	1999
ANSI T1.619a-1994 (R1999)	Integrated Services Digital Network (ISDN) Multi-Level Precedence and Preemption (MLPP) Service Capability (MLPP Service Domain and Cause Value Changes). Supplements ANSI T1.619-1992	07/12/1994 (R1999)
A-A-56032D	Ink, Marking, Epoxy Based	03/21/2003
CDRH 21 CFR1040.10	US Food & Drug Administration, Center for Device and Radiological Health, Code of Federal Regulations Performance Standard for Light Emitting Products– Laser Products	04/01/2005

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<u>Publication Number</u>	<u>Title</u>	<u>Date</u>
CDRH 21 CFR1040.11	US Food & Drug Administration, Center for Device and Radiological Health, Code of Federal Regulations Performance Standard for Light Emitting Products – Specific Purpose Laser Products	04/01/2005
CJCSI 6212.01C	Interoperability and Supportability of National Security Systems and Information Technology Systems	11/20/2003
CJCSM 6231	Manual for Employing Joint Tactical Communications Systems, Vols 1-7	06/20/2003
DISR	DOD IT Standards Registry (DISR) Baseline Release 05-2.0	09/06/2005
DOD CIO Memo	Internet Protocol Version 6 (IPv6)	06/09/2003
DOD CIO Memo	Internet Protocol Version 6 (IPv6)	09/29/2003
DOD GSCR	Department of Defense Voice Networks Generic Switching Center Requirements (GSCR)	09/2004, Inc Change 1, 10/29/2004
DODD 4650.5	Positioning and Navigation Systems Administration and Planning	06/02/2003
EIA-RS-310-D	Cabinets, Racks, Panels, and Associated Equipment	01/01/1992
ICD 002	TRI-TAC System Orderwire	05/02/1979
IEEE 802.3u	IEEE Standards for Local and Metropolitan Area Networks: Supplement to Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications Media Access Control (MAC) Parameters, Physical Layer, Medium Attachment Units, and Repeater for 100 Mb/s Operation, Type 100BASE-T (Clauses 21-30)	06/14/1995
IEEE 802.3z	Supplement to IEEE 802.3: Standard includes Parameters, Physical Layer, Repeater, and Management Parameters for 1000 Mb/s Operation, Type 1000BASE-X	06/25/1998
IEEE 802.3ab	Information technology - telecommunications and information exchange between systems - local and metropolitan area networks - specific requirements. Supplement to Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications - Physical Layer Parameters and Specifications for 1000 Mb/s Operation Over 4-Pair of Category 5 Balanced Copper Cabling, Type 1000BASE-T	06/26/1999
IEEE 802.3i	Supplement to IEEE 802.3: Standards for 10 Mb/s Unshielded Twisted Pair (UTP) MAU, Type 10BASE-T	09/28/1990

SOURCE SELECTION SENSITIVE

<u>Publication Number</u>	<u>Title</u>	<u>Date</u>
IEEE Std 802.3af	IEEE Standard for Information technology— Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific requirements CSMA/CD Access Method and Physical Layer Specifications Amendment: Data Terminal Equipment (DTE) Power via Media Dependent Interface (MDI)	06/18/2003
IEEE 802.1Q	IEEE Standards for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks	12/08/1998
MCHS Buyers Guide	MCHS Buyers Guide	Most Current Version
MCNOSC Order 5239.1	MCNOSC Information Assurance Program	11/15/2004
MIL-HDBK-232	Red/Black Engineering-Installation Guidelines	03/20/1987
MIL-HDBK-419A	Grounding, Bonding and Shielding for Electronic Equipments and Facilities	12/29/1987
MIL-HDBK-454A	General Guidelines for Electronic Equipment	11/03/2000
MIL-HDBK-783	Chemical and Biological (CB) Contamination Avoidance and Decontamination	10/15/1990
NAS 411	Hazardous Materials Management Program; Aerospace Industries Standard – National Aerospace Standard	04/29/1994
NFPA 70	National Electrical Code	09/01/2005
NSTISSAM TEMPEST/2- 95	Red/Black Installation Guidance	12/12/1995
RFC 0791	Internet Protocol	09/01/1981
RFC 0827	Exterior Gateway Protocol (EGP)	10/01/1982
RFC 1245	Open Shortest Path First (OSPF) Protocol Analysis	07/01/1991
RFC 1256	ICMP Router Discovery Messages	09/01/1991
RFC 1305	Network Time Protocol (Ver. 3) Specification, Implementation and Analysis	03/1992
RFC 1332	The PPP Internet Protocol Control Protocol (IPCP)	05/1992
RFC 1570	PPP LCP Extensions	01/1994
RFC 1584	Multicast Extensions to OSPF	03/1994
RFC 1738	Uniform Resource Locators (URL)	12/1994
RFC 1771	A Border Gateway Protocol-4 (BGP-4)	03/1995
RFC 1772	Application of the BGP In The Internet	03/1995
RFC 1785	TFTP Option Negotiation Analysis	03/1995
RFC 1812	Requirements for IP Version 4 Routers	06/1995
RFC 1989	PPP Link Quality Monitoring	08/1996
RFC 1990	The PPP Multilink Protocol (MP)	08/1996
RFC 1994	PPP Challenge Handshake Authentication Protocol (CHAP)	08/1996
RFC 2347	TFTP Option Extension	05/1998

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<u>Publication Number</u>	<u>Title</u>	<u>Date</u>
RFC 2348	TFTP Blocksize Option	05/1998
RFC 2349	TFTP Timeout Interval and Transfer Size Options	05/1998
RFC 2453	RIP Version 2	11/1998
RFC 2616	Hypertext Transfer Protocol -- HTTP/1.1	06/1999
RFC 2822	Internet Message Format	04/2001
RFC 2858	Multiprotocol Extensions for BGP-4	06/2000
RFC 3095	RObust Header Compression (ROHC): Framework and four profiles: RTP, UDP, ESP, and uncompressed	07/2001
RFC 3241	RObust Header Compression (ROHC) Over PPP	04/2002
RFC 3261	SIP: Session Initiation Protocol	06/2002
RFC 3265	Session Initiation Protocol (SIP)-Specific Event Notification	06/2002
RFC 3550	RTP: A Transport Protocol for Real-Time Applications	07/2003
STD 33/RFC 1350	Trivial FTP (TFTP), Revision 2	07/1992
STD 51/RFC 1661/RFC 1662	Point-to-Point Protocol (PPP)	07/1994
STD 54/RFC2328	Open Shortest Path First Routing Version 2	04/1998
STD 6/RFC 768	User Datagram Protocol	08/28/1980
STD 62/RFC3416	Version 2 of the Protocol Operations for the Simple Network Management Protocol (SNMP)	12/2002
STD 7/RFC 793	Transmission Control Protocol	09/1981
STD 8/RFC 854/RFC 855	TELNET Protocol	05/1983
STD 9/RFC 959	File Transfer Protocol with the following FTP commands mandated for reception: Store unique (STOU), Abort (ABOR), and Passive (PASV).	10/1985
TIA-530-A	High Speed 25-Position Interface for Data Terminal Equipment and Data Circuit- Terminating Equipment, Including Alternative 26-Position Connector (ANSI/TIA/EIA-530-A- 92) (R98) (R2003)	06/01/1992
DDS-R-SD-0007-RCC0	System Description for the Tactical Data Network	05/08/98
UL 60950	Safety of Information Technology Equipment	04/01/2003

3.0 REQUIREMENTS

3.1 System Definition

The Data Distribution System Replacement (DDS-R) will provide an Internet Protocol (IP) based data networking capability for communications support to organizations organic to a MAGTAF. The transit cased DDS-R will provide extension of the Defense Information System Network (DISN) Secret Internet Protocol Router Network (SIPRNet) and Non-secure Internet Protocol Router Network (NIPRNet) as well as a Coalition networking capability. The DDS-R will provide Marine Corps maneuver elements with a modular and scaleable IP data transport capability that will replace, supplement and be used with existing legacy data systems.

DDS-R0001-DDS-Rs shall be capable of being interconnected with other DDS-Rs.

DDS-R0002-DDS-Rs shall be capable of being connected to legacy AN/TSQ 222 Tactical Data Network (TDN Gateway) and AN/TSQ-228(V) Data Distribution Systems (all versions) (DDS) to be part of a MAGTF's backbone or in-theater transport network.

DDS-R0003-The DDS-R shall be designed to operate within a joint operational area network as defined in the Chairman of the Joint Chiefs of Staff Manual (CJCSM) 6231 Volumes 1-7 in the context of the current and planned MAGTF Command, Control, Communications, Computers and Intelligence (C4I) architecture as described in Paragraph 1.4 of the System Description for the Tactical Data Network (TDN).

DDS-R0004-DDS-R shall provide an Ethernet and Transmission Control Protocol/Internet Protocol (TCP/IP) based data routing/switching, information processing, storage, and network extension capability for deployed Marine Corps forces.

DDS-R0005-The DDS-R with its associated equipment (ancillary items, technical manuals, etc.) shall be transportable in no more than six transit case service modules, determined by function, to include the Wide Area Network (WAN) Services Module (WSM), the LAN Services Module (LSM), the Application Service Module (ASM), the Data Storage Module (DSM), the Communications Security Module (CSM), and the LAN Extension Module (LEM).

DDS-R0006-The DDS-R shall have Power Modules (PMs) available for use with any service module that does not include an integrated Uninterruptible Power Supply (UPS).

3.1.1 Mission, Threat, and MAGTF Communications Architecture

3.1.1.1 Mission

The Marine Corps continues to provide multi-mission forces that serve the needs of the Nation. These forces are organized into MAGTFs that are capable of conducting operations across the spectrum of conflict. Additionally, they must be capable of provisioning complementary

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capabilities and enabling operations in support of Joint, Combined and Coalition forces. In order to accomplish the assigned mission, the commander of the MAGTF must be capable of communicating with higher, adjacent and subordinate units. This communications system must be capable of providing robust, reliable, scalable IP transport of voice, video and data communications and data network management capabilities.

The system is currently supported by large capacity multi-channel radios and cable systems capable of supporting multiplexed and single-channel circuits. Single-channel radios are used to extend individual circuits to levels within the MAGTF not supported by multi-channel radio systems. These transmission paths tie together data switches, tactical telephone switches and message terminals to insure the MAGTF commander's C2 requirements (intelligence, fire-support coordination, logistics, aviation command and control, manpower and maneuver) are satisfied. The MAGTF commander must be capable of receiving, storing and disseminating digital information across the area of operations throughout his span of control and between his organization and higher and adjacent headquarters. Furthermore, the requirement for expedient information exchange among MAGTF Commanders is critical, but often difficult to accomplish.

The current TDN system consists of Gateways (TDN Gateway) and Data Distribution Systems (TDN DDS). Together they provide the data communications infrastructure to the MAGTF Commander in the form of an integrated data network. This network is the data communications backbone for the MAGTF Tactical Data Systems (TDS) and Tactical Defense Message System (TDMS). At the Major Subordinate Command level and above, the TDN DDS augments and extends Defense Information System Network (DISN) services and the data communications capabilities of the TDN Gateway and the Joint Enhanced Core Communications System (JECCS) by providing a modular, scalable data communications subscriber and DISN services extension capability. At the regimental level, the TDN DDS provides the primary data communications capability as the Wide Area Network (WAN) and Local Area Network (LAN) interface to DISN services, networked TDSs and subscribers of the tactical data network. The TDN DDS will be able to provide a source of stable data time/date timing synchronization capability to connected TDSs, subscribers and data networking equipment. At all MAGTF levels, the TDN DDS will extend and distribute IP based data subscriber services. The modular, scalable design will allow units to implement the system according to mission needs. Operational requirements may dictate that the TDN DDS interface to Strategic, Joint, Combined, Coalition or other MAGTF communications assets independent of the TDN Gateway or JECCS.

The TDN DDS's is deployed at Marine Expeditionary Force (MEF), Major Support Commands (MSC), and units down to the battalion/squadron levels. The TDN DDSs will interconnect the United States Marine Corps (USMC) TDSs and subscribers to the network and provide the mechanisms for data exchange with the other strategic systems and services, TDN subscribers and external systems.

3.1.1.2 Threat

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The primary threat is that of physical destruction of the TDN DDS or the destruction of power generators, which may result in loss of data. The threat posed by opposing forces directly impacts the planning for a subsequent deployment of the TDN.

Threats to Marine Corps C2 capabilities, of which the TDN DDS is an integral part, include electronic, stand off weapons such as rockets, artillery air delivered ordinance, as well as by nuclear, biological and chemical weapons. Specific threats to TDN DDS are no greater than those to any other major C2 systems in the Marine Corps inventory and therefore will be afforded the same level of physical security and protection. The TDN DDS will have the capability of interfacing with a variety of communications media, both tactical and strategic. To avoid the exploitation of intercepted communications signals, the TDN DDS will employ transmission security (TRANSEC), link security and IP packet security equipment to provide encryption for trunks and circuits transiting a node that are not within the physically secure perimeter.

The capabilities of potential enemies are described in the Marine Tactical Command and Control System (MTACCS) System Threat Assessment Report (STAR). MAGTF Command and Control (C2) nodes will continue to be the primary targets of the majority of adversaries that Marine Forces may encounter in future tactical operations.

3.1.1.3 MAGTF Communications Architecture

The TDN DDS is designed to be operated within the context and constructs of current and planned MAGTF C4I architecture. The following paragraphs provide a high-level overview of these architectures from the perspective of a layered set of capabilities and from a network topology perspective.

3.1.1.3.1 Layered View

As shown in Figure 3.1, the MAGTF C4I communications architecture may be viewed as a set of layered capabilities and systems, with lower layers providing services to higher layers.

The bottom layer consists of those physical transmission systems (multi-channel radio, single-channel radio, metallic and fiber optic cable) used to establish the communications links among geographically dispersed MAGTF command elements. The multi-channel radio and cable systems are based on digital transmission technology and are designed to carry any form of digital traffic (digitized data, voice, video, messages, imagery, etc.). The single-channel radio systems are digital as well, but are designed primarily for voice traffic, with low-speed data capability. Currently fielded Marine Corps transmission systems in this layer include AN/TSC-85C/93C Ground Mobile Forces (GMF) Super High Frequency (SHF) Satellite Communication (SATCOM) terminals, AN/TSC-152 Lightweight Multi-band Satellite Terminals (LMST), AN/TSC-154 MILSTAR Satellite terminals, AN/TRC-170 SHF troposcatter terminals, AN/MRC-142 UHF multi-channel terminals, the Fiber Optic Cable System (AN/GSC-54 fiber optic modems, MD-1272 fiber optic modems and CX-13295 (TFOCA I) multi-mode fiber optic cable), single-channel UHF SATCOM radios, SINGARS family of VHF radios, and a variety of

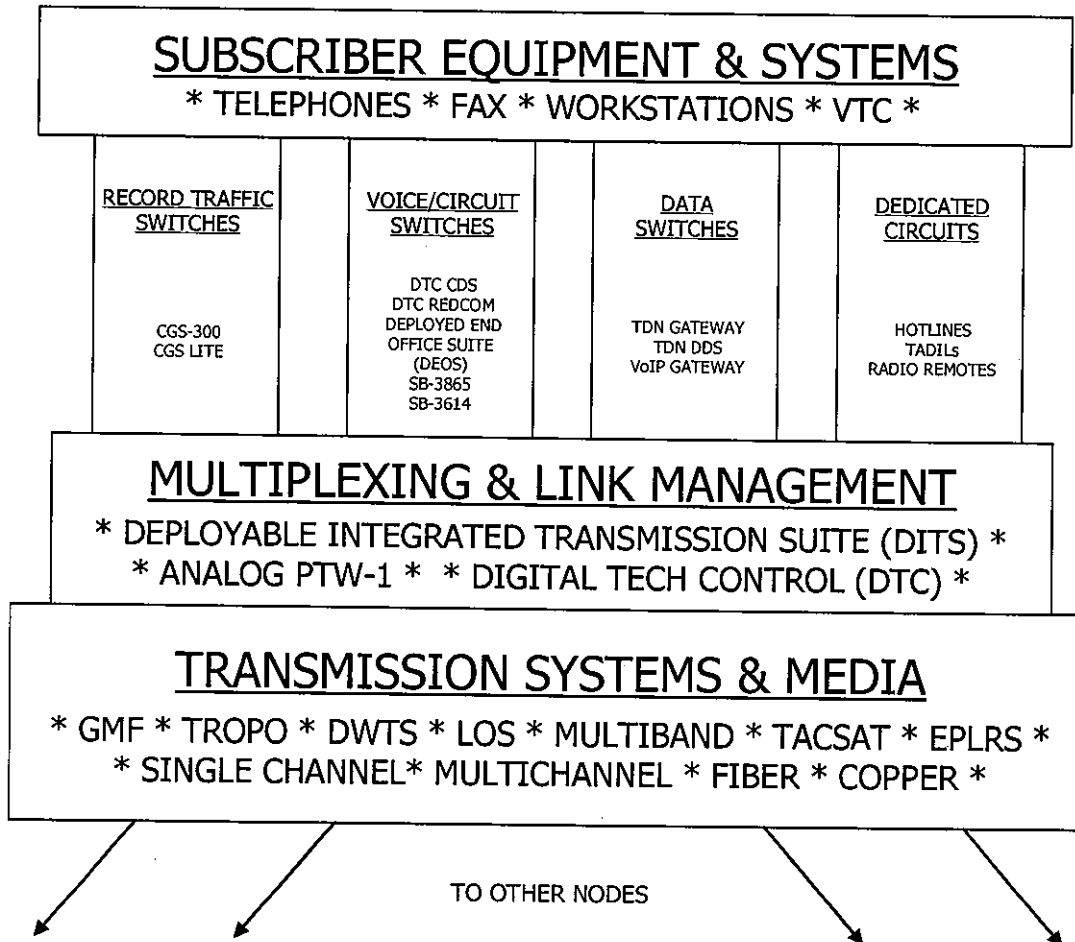


Figure 3.1 Communications Node

other UHF, VHF and HF single-channel radios as well as recently fielded EPLRS network radios.

Directly above this layer are those systems used to manage these long-haul transmission links and interconnect them with the local command post circuits from either subscriber equipment or switching systems. This layer multiplexes individual circuits, trunks, and groups into transmission links. It has the capabilities required to add, drop and insert digital circuits into multiplexed digital groups; provide a source of stable timing (Plesiochronous/Independent Nodal Timing/Stratum I) to connected equipment; condition analog circuits, and perform analog to digital, 2-wire to 4-wire, and signaling conversions. It also contains the monitoring, testing, and patching equipment required by technical controllers to monitor, troubleshoot and restore faulty

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circuits and trunks. Currently fielded Marine Corps systems in this layer include the DTC facility, the JECCS, and the multiplexers organic to existing multi-channel transmission systems.

At the next layer up are the systems that switch voice, video and data traffic. These switching systems are designed to efficiently interconnect subscriber equipment within a command post or at distant locations.

Figure 3.2 shows the current MAGTAF C4I communications architecture and types of transmission links interconnecting systems from a digital network topology perspective.

The TDN system provides a robust, reliable packet switching capability. The TDN Gateway and DDS nodes will be interconnected with one another via the transmission systems described above to form an inter-network of Ethernet WANs/LANS and EPLRS radio data networks connected to one another and to strategic networks such as NIPRNET and SIPRNET. The inter-network will allow attached subscriber equipment to exchange IP datagrams with other subscriber equipment worldwide. In addition, TDN Gateway and DDSs will host a Tactical Defense Message System (TDMS) message transfer and directory system for the exchange of record traffic and unofficial electronic mail. The TDMS replaces the record traffic system based on AUTODIN and tactical message terminals/switches such as the CGS-300, AN/MS-63 and AN/TYC-39. Although the TDN system will have stand alone capability, the TDN system will normally be deployed with the DTC, JECCS or TSM and will primarily utilize these systems for access to DISN services and communications.

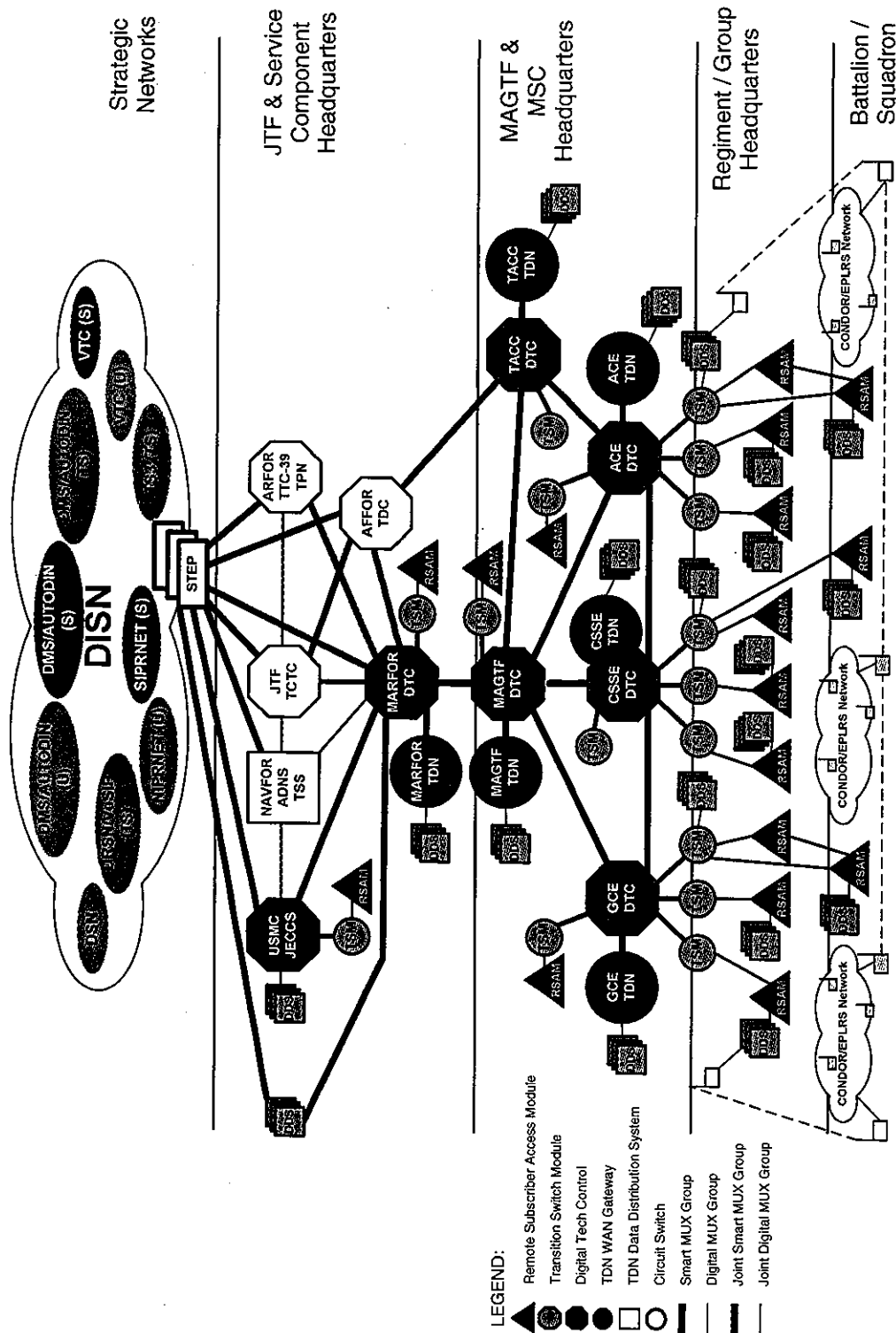


Figure 3.2 Current MAGTAF C4I Digital Backbone

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3.1.2 Interoperability

DDS-R0007-Equipment, systems, and networks that the DDS-R shall be electrically and physically interoperable with include, but is not limited to, the following:

- a. AN/GSC-54 Fiber Optic Converter Set
- b. AN/MRC-142 Ultra-High Frequency (UHF) Multichannel Terminals
- c. AN/TRC-170 Tropospheric Scatter Terminal
- d. AN/TSC-85B/93B Ground Mobile Forces (GMF) Super High Frequency (SHF) Satellite Communications (SATCOM) Terminal
- e. AN/TSQ-154 SMART-T MILSTAR Satellite Terminal
- f. AN/TSQ-190(V2) TROJAN SPIRIT
- g. AN/TSQ-222 Tactical Data Network Gateway
- h. AN/TSQ-226 TROJAN SPIRIT LITE
- i. AN/TSQ-227 System Control Group Tactical (Digital Technical Control DTC)
- j. AN/TSQ-228(V) Data Distribution System (all versions)
- k. AN/TSQ-231 Joint Enhanced Core Communications System (JECCS)
- l. CV-2048/8448 Modem
- m. CV-HTU-16M/CVFOM
- n. MD 1272 (Fiber Optic Modem)
- o. Enhanced Position Location Reporting System (EPLRS Ethernet)
- p. Transition Switch Module (TSM)
- q. USC 65(V1/V2) Lightweight Multiband Satellite Terminal (LMST)
- r. Defense Information System Network (DISN) Non-secure Internet Protocol Router Network (NIPRNet)
- s. DISN Secret Internet Protocol Router Network (SIPRNet)

3.1.2.1 DDS-R Connectivity

DDS-R0008-The DDS-R supports connectivity with several equipment systems. The DDS-R shall provide for the internal and external connectivity shown in Figures 3.3 and 3.4. Figure 3.3 shows the complete DDS-R with all service modules. Figure 3.4 shows a single notional DDS-R modular connection concept. These Figures provide a reference for the DDS-R interconnectivity by interface type to a piece of equipment or external system. These figures are not intended to show requirements for simultaneous connectivity nor the quantity of interfaces required.

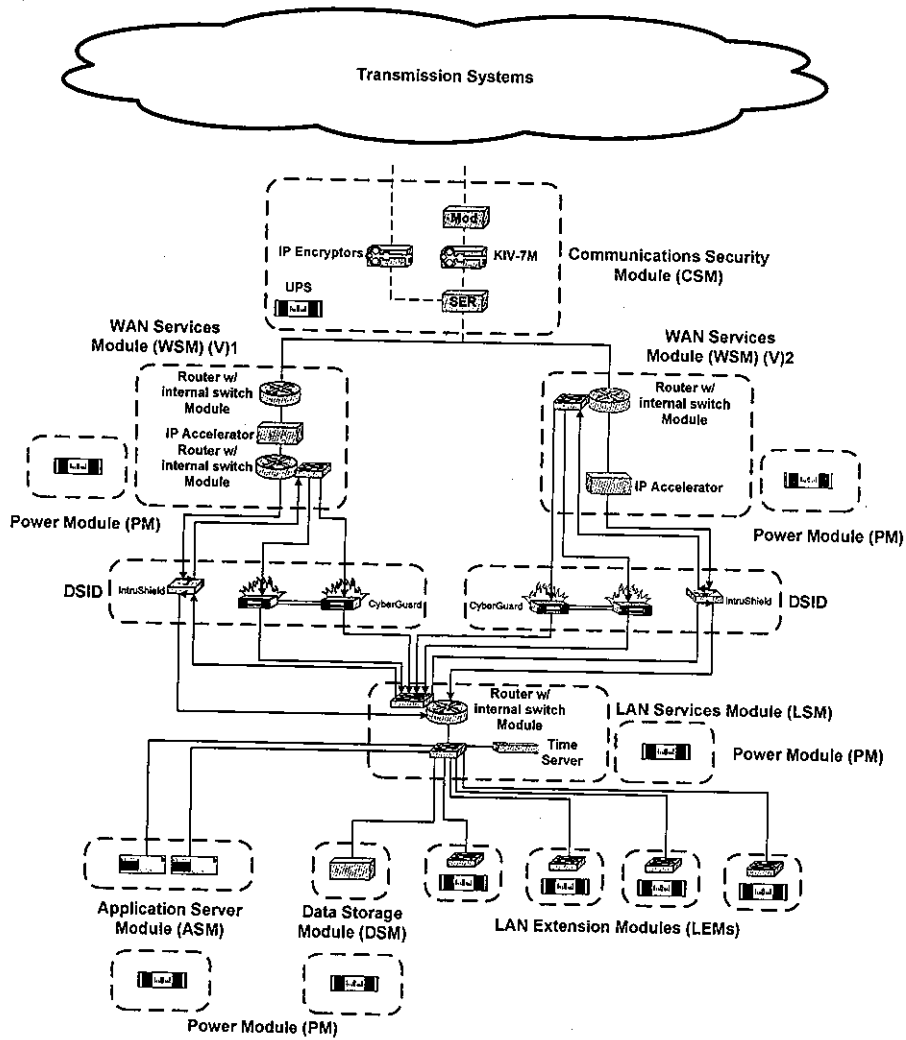


Figure 3.3 DDS-R Interconnectivity Concept

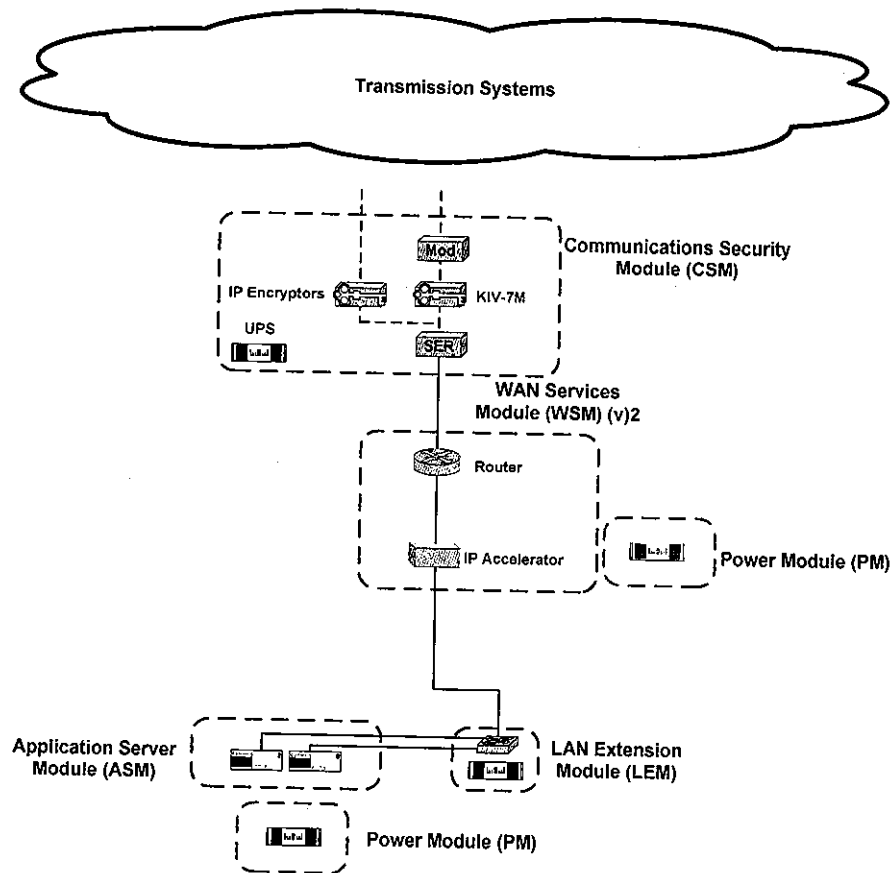


Figure 3.4 DDS-R Modular Interconnection Concept

3.1.3 DDS-R System Functions

DDS-R0009-The DDS-R shall be a modular, scalable system and provide service functions and power to include: Wide Area Network (WAN) Services, Local Area Network (LAN) Services, Application Servers, Data Storage, Communications Security and LAN Extension.

DDS-R0010-Each service function shall be contained in a single transit case.

DDS-R0011-The WAN Services Module (WSM) shall come in two variants.

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DDS-R0012-The DDS-R shall be IPv6 compliant as defined in the Department of Defense (DOD) Information Technology (IT) Standards Registry (DISR) Baseline Release 05-2.0, DOD Chief Information Officer (CIO) Memo Internet Protocol Version 6 (IPv6), dated 09 June 2003, and DOD CIO Memo IPv6, dated 29 September 2003.

3.2 Functional Characteristics

3.2.1 System

DDS-R0013-The DDS-R shall provide data transfer, subscriber access, and host support to users and TDSs. The DDS-R shall comply with the DISR Baseline Release 05-2.0 RFCs as applicable. Systems shall comply, at a minimum, with the following RFCs as applicable: RFC 0791, RFC 0827, RFC 1245, RFC 1256, RFC 1305, RFC 1332, RFC 1570, RFC 1584, RFC 1723, RFC 1738, RFC 1771, RFC 1772, RFC 1785, RFC 1812, RFC 1989, RFC 1990, RFC 1994, RFC 2347, RFC 2348, RFC 2349, RFC 2616, RFC 2822, RFC 2858, RFC 3095, RFC 3241, RFC 3261, RFC 3265, RFC 3550, STD 33/RFC 1350, STD 51/RFC 1661/RFC 1662, STD 54/RFC2328, STD 6/RFC 768, STD 62/RFC3416, STD 7/RFC 793, STD 8/RFC 854/RFC 855, and STD 9/RFC 959

3.2.1.1 Data Transfer and Switching

DDS-R0014-The DDS-R shall provide the capability to share files and route digital messages to/from network subscribers.

DDS-R0015-The DDS-R shall provide network services to hosts. The DDS-R shall provide services to Marine Corps TDSs. A list of Marine Corps TDSs that shall derive services from the DDS-R includes but is not limited to the following:

- a. Advanced Field Artillery Tactical Data System (AFATDS),
- b. Advanced Tactical Air Command Center (ATACC),
- c. Asset Tracking Logistics and Supply System (ATLASS)
- d. Improved Direct Air Support Central (IDASC),
- e. Intelligence Analysis System (IAS),
- f. MAGTF Tactical Warfare Simulation (MTWS),
- g. Marine Combat Service Support Command and Control System (MCSSC2),
- h. Marine Integrated Logistics System (MILOGS),
- i. Marine Integrated Personnel System (MIPS),
- j. System Planning Engineering Evaluation Device (SPEED), and
- k. Tactical Combat Operations (TCO).

3.2.1.2 Subscriber and Network Access

DDS-R0016-The DDS-R shall provide subscriber and network access via IEEE 802.3 u, i, z, or ab.

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3.2.2 Installed Hardware

DDS-R0017-The DDS-R shall be configurable to support data enclaves from the SENSITIVE BUT UNCLASSIFIED (SBU) up to the TOP SECRET (TS)/SENSITIVE COMPARTMENTED INFORMATION (SCI) level.

DDS-R0018-The default configuration of the DDS-R shall be for SENSITIVE BUT UNCLASSIFIED data communications.

3.2.2.1 Internet Protocol Router

DDS-R0019-The router(s) shall be Simple Network Management Protocol (SNMP) v3 manageable.

DDS-R0020-The router shall contain:

- a. hot swappable interface devices,
- b. redundant power supplies,
- c. scaleable routing protocols,
- d. maximum Dynamic Random Access Memory (DRAM) and Flash memory capacity.

DDS-R0021-DDS-R router(s) shall be capable of uploading or downloading configuration data via Secure Shell (ssh) and Trivial File Transfer Protocol (TFTP).

DDS-R0022-The router(s) shall be IPv4/v6 compliant.

DDS-R0023-The router(s) shall support, but is not limited to, the following packet encapsulation protocols:

- a. High-Level Data Link Control (HDLC)
- b. Synchronous Data Link Control (SDLC)
- c. Integrated Services Digital Network (ISDN)
- d. Point to Point Protocol (PPP)
- e. Ethernet IEEE 802.3
- f. Synchronous Serial

DDS-R0024-The router(s) shall support, but is not limited to, the following network protocols:

- a. Internet Protocol v4/v6
- b. International Organization of Standards (ISO) Connectionless Network Services (CLNS)
- c. ISO Connection Mode Network Services (CMNS)
- d. SNMP
- e. Telnet
- f. Secure Shell (ssh)
- g. Hypertext Transfer Protocol (HTTP)/ Hypertext Transfer Protocol Secure (HTTPS)

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DDS-R0025- The router(s) shall support, but is not limited to, the following bridging methods:

- a. Transparent
- b. Source Route Bridging (SRB)
- c. Remote Source Route Bridging (RSRB)
- d. Source Route/Translational Bridging (SR/TLB)

DDS-R0026- The router(s) shall include, but is not limited to, support for:

- a. Virtual Private Network (VPN)
- b. Virtual LAN (VLAN) in accordance with IEEE 802.1Q.

DDS-R0027- The router(s) shall support, but is not limited to, the following interior and exterior IP Routing Protocols:

- a. Open Shortest Path First (OSPF) v2
- b. Enhanced Interior Gateway Routing Protocol (EIGRP)
- c. Routing Information Protocol (RIP) v2
- d. Intermediate Systems to Intermediate Systems (IS-IS)
- e. ICMP Router Discovery Protocol (IRDP)
- f. Border Gateway Protocol (BGP)-4

DDS-R0028- The routing protocols shall be supportable by current networking standards employed within the Marine Corps and the Defense Information Systems Agency (DISA).

DDS-R0029- The router(s) shall support, but is not limited to, the following network media/interfaces:

- a. Asynchronous Serial
- b. Channelized T1
- c. RJ48/45 Twisted Pair
- d. High Speed Serial Interface (HSSI)
- e. ISDN Primary Rate Interface (PRI)
- f. Synchronous Serial
- g. Electronic Industries Association (EIA) 232
- h. EIA 530 in accordance with Telecommunication Industries Association (TIA)-530-A
- i. G.703

DDS-R0030- The router(s) shall support Class of Service (COS) and Quality of Service (QOS) in accordance with DOD Generic Switching Center Requirements (GSCR) Appendix 3.

DDS-R0031- The router(s) shall, at a minimum, have:

- a. two Gigabit Ethernet Ports. The ports must be auto sensing for 10/100/1000BaseT rates,

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- b. eight serial ports supporting selectable rates up to 8 mbps, configurable for either host or trunk access. The serial trunk ports shall interface and operate with Communications Security (COMSEC) equipment,
- c. 24 port 10/100 Ethernet switch with Industry Standard Power over Ethernet in accordance with IEEE Std 802.3af,
- d. two Small Form-factor Pluggable (SFP) fiber ports, one 1000BaseLX single mode and one 1000BaseSX multimode interfaces,
- e. four network module slots,
- f. the capability to process at least 450 kilo packets per second (kpps),
- g. The capability to support Advanced Encryption Standard (AES) in accordance with Federal Information Processing Standards (FIPS) Pub 197.

Comment [ME1]: Change based on question #2 from GD for clarification.

DDS-R0032-The router serial ports shall support a KIV-7M interface using a DB 25-pin connector and TIA 530 signal interface in accordance with TIA-530-A.

DDS-R0033-All router serial ports shall be extended to a signal entry panel for inter-connection to other modules, e.g., to the CSM for encryption and/or modulation.

DDS-R0034-All router SFP fiber optic modules shall be extended to a signal entry panel for connection to other modules.

3.2.2.2 Ethernet Switches

DDS-R0035-The Ethernet switches shall be employed locally (internal) to the DDS-R and remotely (external) as stand-alone to where DDS-R subscribers are located up to four different locations. The Ethernet Switches shall provide a minimum of 48 auto-sensing 10/100/1000BaseT switched ports each. The DDS-R will support up to 240 subscribers at a minimum of five service points.

DDS-R0036-Ethernet Switches shall provide connectivity between different types of LAN media.

DDS-R0037-The Ethernet Switches shall support cut-through switching and store-and-forward.

DDS-R0038-The Ethernet Switches shall support full-duplex transmissions and multicast.

DDS-R0039-The Ethernet Switches shall support VLAN in accordance with IEEE 802.1Q and Layer 3 routing capability.

Comment [ME2]: Change based on Omega question #3 "Routing-DDSr" for clarification.

DDS-R0040-The Ethernet Switches shall support:

- a. SNMP v3
- b. Telnet
- c. ssh

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DDS-R0041-The Ethernet Switches shall support the following media types:

- a. 10Base-T
- b. 100Base-TX
- c. 100Base-FX
- d. 1000BaseT
- e. 1000BaseSX
- f. 1000BaseLX

3.2.2.2.1 Internal Ethernet Switches

DDS-R0042-The Ethernet Switch shall provide a minimum of 48 switched ports. The switch shall support industry standard power over Ethernet in accordance with IEEE Std 802.3af.

DDS-R0043-The Ethernet Switch(s) shall provide a minimum of 12 SFP interfaces. The interfaces shall support at least eight 1000BaseSX multimode fiber and at least four 1000BaseLX single mode fiber interfaces.

Comment [ME3]: Change based on GD question #3 for clarification.

3.2.2.2.2 External Ethernet Switches

DDS-R0044-A minimum of four Ethernet Switches shall be provided with each DDS-R to provide user services to remote locations.

DDS-R0045-External Ethernet Switches shall support a minimum total of 192 hosts.

DDS-R0046-Each Ethernet Switch shall provide at least two SFP interfaces that support one 1000BaseSX multimode fiber and one 1000BaseLX single mode fiber uplink connections to the DDS-R.

Comment [ME4]: Change based on GD question #4 for clarification.

DDS-R0047-Subscriber ports on the Ethernet Switches shall be auto-sensing 10/100/1000Base-T and provide industry standard power over Ethernet in accordance with IEEE Std 802.3af.

DDS-R0048-Ethernet Switches shall be stackable.

DDS-R0049-Stacked Ethernet Switches shall be SNMP v3 manageable as a single unit.

3.2.2.3 Servers

DDS-R0050-The servers shall be selected from the approved Marine Common Hardware Suite (MCHS) Buyers Guide. If no suitable server can be identified from the MCHS Buyers Guide that meets the form factor, weight, and environmental requirements of the DDS-R contained elsewhere in this specification, then the production integrator may propose a more suitable server.

DDS-R0051-The DDS-R shall provide two servers.

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DDS-R0052-The server shall support the interface requirements of the selected DDS-R hardware.

DDS-R0053-The server shall, at a minimum, include:

- a. Dual 3.4 GHz Processors/1MB Cache, 800MHz FSB,
- b. minimum 4 Gigabyte (GB) RAM capacity,
- c. three 120 GB (minimum) hard drives,
- d. RAID 1/RAID 5,
- e. 16x Double-Layer Multi-Format Digital Versatile Disc (DVD) Writer (DVD±R±RW/CD-R/RW),
- f. one 3.5 inch High Density Floppy Disk Drive,
- g. four USB 2.0 ports, accessible from the front of the server,
- h. 19 inch rack mountable, 24 inches deep or less, no more than 2U in height,
- i. Secure Integrated IP Keyboard-Video-Mouse (KVM),
- j. Integrated Server Management,
- k. embedded dual Gigabit Network Interface Card (NIC)
- l. three additional spare 120 GB hard drives as required (objective).

DDS-R0054-The server shall allow for hot swappable redundant power, hot swappable redundant fans, and hot swappable hard drives.

DDS-R0055-The processor Random Access Memory (RAM) shall support all other requirements of this specification.

DDS-R0056-The server shall be SNMP v3 manageable.

DDS-R0057-The hard drive(s) shall have 50% reserve capacity (Threshold) 75% (Objective) after all other requirements of this specification have been met.

3.2.2.4 Storage Backup System

DDS-R0058-The DDS-R shall provide storage external to the servers.

DDS-R0059-The storage backup system shall provide for system backups to include operating system, applications, and data and for storage and disaster recovery. The device shall include the software required to perform full system backups and restores, and the ability to perform selective backup and restore. The system shall provide the capability to perform block level backups once an initial full backup has been completed. The system shall provide the capability to restore a single file, directory, or volume to any point in time.

DDS-R0060-The storage backup system shall provide a Storage Area Network (SAN)/Network Attached Storage (NAS) system providing 4 Tera Bytes (Threshold) and 8 Tera Bytes (Objective) capacity.

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DDS-R0061-The storage backup system shall provide a minimum of two integrated full duplex I/O 10/100/1000 Ethernet ports and a fiber channel port.

DDS-R0062-The storage backup system shall provide redundant, hot swappable power supplies and redundant processors.

DDS-R0063-The storage backup system shall provide the maximum memory capacity.

DDS-R0064-The storage backup system shall support all file systems and protocols supported by the servers and user workstations.

DDS-R0065-The storage backup system shall support distributed architecture backup and restoration.

DDS-R0066-The storage backup system shall provide full system restoration in one hour (Threshold) 30 minutes (Objective) or less. Full system refers to servers, routers, and switches.

3.2.2.5 KIV-7M Encryption Device

DDS-R0067-The DDS-R shall provide mounting and connectivity for two KIV-7M Encryption Devices in support of four router serial ports. The KIV-7Ms and rack mounting system shall be provided as Government Furnished Equipment (GFE). The use and configuration of cryptographic devices shall be in accordance with DOD Directive 5200.28.

Comment [ME5]: changes made in response to GD question #6 for clarification.

3.2.2.6 Inline Network Encryption (INE)

DDS-R0068-The DDS-R shall provide mounting and connectivity for two Inline Network Encryption (INE) devices, KG-175B. The INE devices and rack mounting system shall be provided as GFE. The use and configuration of cryptographic devices shall be in accordance with DOD Directive 5200.28.

DDS-R0069-deleted

Comment [ME6]: Changed based on GD question #7 for clarification.

3.2.2.7 Link Acceleration

DDS-R0070-The DDS-R shall provide for transparent acceleration of TCP sessions. The accelerator, sometimes called a performance enhancing proxy, shall utilize an open standards based transport protocol (i.e. Space Communications Protocol Standards SCPS).

3.2.2.8 Serial/IP Server

DDS-R0071-The DDS-R shall provide a Serial/IP server for configuration control of the routers, switches, servers, storage devices, encryption devices, and signal converters. The Serial/IP server shall be 19" rack mountable. It shall be 1U is size and provide 16 ports. The Serial/IP server shall be capable of interfacing with a laptop for control of connected devices.

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3.2.2.9 Signal Entrance Panel (SEP)

DDS-R0072-Signal entrance panel(s) (SEPs) shall provide the user with the capability of terminating external/internal interfaces. Quick disconnect tactical interfaces, i.e., CX-11230 and CX-13295, Tactical Fiber Optics connections, shall be provided on the SEPs for signal/group lines that interconnect function(s) and/or provide modular expansion of different function(s). Lightning and Electromagnetic Pulse (EMP) protection shall be provided on all non-fiber optic SEP interfaces. The SEP shall provide a ground terminal lug. Signal cable shields, e.g., CX-11230, shall be connected internally to the SEP ground terminal lug. Each interface on the SEP shall be labeled.

Comment [ME7]: Change based on GC question #8 for clarification.

DDS-R0073-Cabling and connections on the SEP shall be configured to minimize the number of cables and set-up time required to connect the DDS-R to external interfaces. All interface connections shall have weatherproof captive covers. The SEP shall have bridal rings for strain relief of tactical field wiring. Interfaces shall be industry or MIL standard.

3.2.2.10 Signal Converter

DDS-R0074-A minimum of four (4) independent modems shall be provided converting NRZ to Conditioned Diphas (CDI) unbalanced output signals interoperable with CV-2048/8448, GSC-54, CVFOM, and the MD-1272/G. Support for orderwire functions is not required. The modems shall provide the ability for the user to select a CDI unbalanced output in accordance with ICD 002 (operating from 72kbps – 4.608Mbps) or a fiber optic output (operating from 72kbps – 8.192Mbps). This requirement may be accomplished using a single modem for both interfaces. The programming, maintenance or restoral ("hot swap") of any failed modem shall not affect the operation or maintenance of any remaining modems. The physical interfaces for the Non-Return to Zero (NRZ) (DCE) side of the modem shall be brought to a SEP. The physical interfaces for the CDI output shall be CX-11230. The physical interface for the Fiber Optic output shall be CX-13295. These physical interfaces shall appear on a SEP.

The modems shall support the following timing capabilities:

- a. Port: reference timing to Data Terminal Equipment (DTE) Terminal Timing
- b. Network: reference timing to Receive Timing
- c. Internal: reference timing to an internal oscillator
- d. External: reference timing to an external Clock Input

3.2.2.11 Network Time Server

DDS-R0075-The DDS-R shall provide a network time server supporting the network time protocol in accordance with Request For Comment (RFC) 1305. The network time server shall provide Stratum 1 operation via Global Positioning System (GPS) satellites in accordance with DODD 4650.5 and provide nanosecond time accuracy to Universal Time Constant (UTC). The network time server shall be IP v4/v6 compliant. Management shall be either through remote login utilizing ssh or HTTPS or utilizing SNMP v3 compliant. A front panel display and keypad shall be provided to enable configuration of the network time server locally.

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3.2.3 System Modules

Modules may contain an integrated UPS as described in section 3.4.3.3.2 provided that module size and weight restrictions are met.

3.2.3.1 Communications Security Module (CSM)

DDS-R0076-The CSM shall provide cryptologic devices for link and in-line network encryption and provide signal conversion. The CSM shall provide two KIV-7M encryption devices as described in section 3.2.2.5 and two INE encryption devices as described in section 3.2.2.6. Red and black signal interfaces shall be separated in accordance with Military Handbook (MIL-HDBK)-232 and National Security Telecommunications and Information Systems Security Advisory Memorandum (NSTISSAM) TEMPEST/2-95.

DDS-R0077-The CSM shall provide a Serial/IP server as described in section 3.2.2.8.

DDS-R0078-The CSM shall provide four Signal converters as described in section 3.2.2.10.

DDS-R0079-The CSM shall provide an SEP for encrypted signals to include the following interfaces:

- a. four EIA RS 530 from IP router (DB 25 pin female connector),
- b. four RJ 45, two from INE and two from KIV-7M,
- c. four EIA RS 530 from KIV-7M.

Comment [ME8]: Change made based on GD question #9 for clarification.

DDS-R0080-The CSM shall provide a SEP for unencrypted and/or black signals to include the following interfaces:

- a. eight EIA RS 530 (four to KIV-7M and four to signal converters),
- b. four RJ 45,
- c. four CX 11230,
- d. two DB 9,
- e. four CX 13295 Tactical Fiber Optic Cable Assembly (TFOCA) Fiber.

Comment [ME9]: change made based on GD question #10 for clarification.

3.2.3.2 Wide Area Network (WAN) Services Module (WSM)

DDS-R0081-The WSM shall have two variants.

3.2.3.2.1 Wide Area Network (WAN) Services Module (WSM) Version (V) 1

DDS-R0082-The WSM (V)1 shall provide a Tier 1/1 router as described in section 3.2.2.1. All Ethernet interfaces and console ports shall be easily accessible for connecting Category (CAT) 5 cable.

DDS-R0083-The WSM (V)1 shall provide a Tier 1/2 router as described in section 3.2.2.1. All Ethernet interfaces and console ports shall be easily accessible for connecting CAT 5 cable.

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DDS-R0084-The WSM (V)1 shall provide a Link Accelerator as described in section 3.2.2.7.

DDS-R0085-The WSM (V)1 shall provide a SEP with 16 EIA RS 530 interfaces (DB 25 pin female connector) and four Subscription Channel (SC) fiber interfaces with SC to Straight Tip (ST) adaptor cables.

3.2.3.2.2 Wide Area Network (WAN) Services Module (WSM) Version (V) 2

DDS-R0086-The WSM (V)2 shall provide a Tier 1/2 router as described in section 3.2.2.1. All Ethernet interfaces and console ports shall be easily accessible for connecting CAT 5 cable.

DDS-R0087-The WSM (V)2 shall provide a Link Accelerator as described in section 3.2.2.7.

DDS-R0088-The WSM (V)2 shall provide a SEP with eight EIA RS 530 interfaces (DB 25 pin female connector) and two SC fiber interfaces with SC to ST adaptor cables.

3.2.3.3 Data Storage Module (DSM)

DDS-R0089-The DSM shall provide data storage devices as described in section 3.2.2.4.

3.2.3.4 Application Server Module (ASM)

DDS-R0090-The ASM shall provide two rack mountable servers as described in sections 3.2.2.3.

3.2.3.5 Local Area Network (LAN) Services Module (LSM)

DDS-R0091-The LSM shall provide a Tier 2/1 router as described in section 3.2.2.1. In addition, this router shall provide a minimum of one ANSI 619a PRI interface with the Digital Signal Processor (DSP) capability to utilize all available channels. This router shall also provide a module that provides demand-pull caching and intelligent content services with a minimum 80 GB hard disk. The router shall provide an embedded call management capability to enable IP telephony for up to 240 users.

DDS-R0092-The LSM shall contain an internal Ethernet switch(s) as described in section 3.2.2.2.

DDS-R0093-The LSM shall contain a time server as described in section 3.2.2.11.

DDS-R0094-The LSM shall provide a SEP with eight EIA RS 530 interfaces (DB 25 pin female connector), one T1/PRI interface in accordance with ANSI T1.403.01 and ANSI T1.619a, and a minimum 14 SC fiber interfaces with SC to ST adaptor cables.

3.2.3.6 Local Area Network (LAN) Extension Module (LEM)

DDS-R0095-The LEM shall contain an external Ethernet switch as described in section 3.2.2.2.

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DDS-R0096-The LEM shall contain an integrated UPS as described in upcoming section 3.4.3.3.2.

3.2.3.7 Power Module (PM)

DDS-R0097-The PM shall contain an UPS as described in upcoming section 3.4.3.3.2.

3.2.4 System Certification

DDS-R0098-The DDS-R shall be certified as jointly interoperable (Joint Interoperability Test Center - JITC certification) in accordance with the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6212.01B and DOD GSCR. Specifically, upon completion of DDS-R certification testing, the DDS-R shall be certified as a tactical data system and tested in accordance with the interoperability requirements in DDS-R PS paragraph 3.1.2. Upon completion of DDS-R certification testing, the DDS-R shall also be certified to connect directly to the DISN as a tactical data system providing connectivity to the SIPRNet and the NIPRNet. This capability shall include, at a minimum, connectivity via a Standardized Tactical Entry Point, DISA Teleport, DISA Service Delivery Node and Commercial Teleport.

3.3 Software Requirements

DDS-R0099-Software utilized by the DDS-R shall be:

- a. Commercial Off The Shelf (COTS)
- b. Government Furnished Equipment (GFE)
- c. Government-Off-The-Shelf (GOTS)

DDS-R0100-The DDS-R servers shall be capable of supporting a Microsoft® Windows®2003 Enterprise Server or newer Operating System which is part of the Marine Corp software baseline.

DDS-R0101-All software in router and switch equipment shall be either:

- a. self-contained within that equipment
- b. installed via download from a host on the network
- c. installed from removable media

DDS-R0102-Equipment with software shall be field upgradeable via download or media.

3.3.1 Network Security

DDS-R0103-The DDS-R shall comply with current Marine Corps Enterprise Network network security policies and procedures as defined in Marine Corps Network Operations and Security Command (MCNOSC) Order 5239.1.

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3.3.2 Configuration

DDS-R0104-All configuration data required to operate each piece of configurable equipment shall be:

- a. self-contained,
- b. downloadable via the network,
- c. downloadable via media,
- d. entered manually by the DDS-R operator via remote login,
- e. or entered manually by the DDS-R operator via serial interface

DDS-R0105-Configurable equipment within DDS-R shall automatically initiate a self-test on power-up.

DDS-R0106-Configuration software parameters in embedded computers shall be modifiable over the network by designated operators to meet mission-specific requirements.

DDS-R0107-Configuration data from routers and switches shall be uploadable to the DDS-R server(s) or storage system.

3.3.3 Server Shutdown

DDS-R0108-The DDS-R shall provide the capability to manually initiate a server shutdown at any time.

DDS-R0109-The DDS-R shall provide the capability to initiate a server shutdown following loss of primary power to the server's UPS either manually or by UPS notification.

3.4 System Characteristics

DDS-R0110-The DDS-R shall be implemented incorporating all threshold functions at a minimum. A modular approach shall be employed in the DDS-R functions. Readily available commercial or type classified military cable shall be used to connect the system to the maximum extent possible.

3.4.1 Operational State

DDS-R0111-All equipment within a DDS-R shall be set up for operation locally. The encryption devices of the security function shall be initialized and/or keyed through a key management scheme appropriate to the device being used.

3.4.2 Storage and Transport State

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DDS-R0112-In this state, the DDS-R equipment shall be configured for shipment, transport or storage. All DDS-R equipment shall be transported within transit and storage cases.

3.4.3 Physical Characteristics

3.4.3.1 Transportation & Storage

3.4.3.1.1 Transport

DDS-R0113-The DDS-R system shall be capable of being stored and transported, under the conditions specified herein, without damage or degradation. Deployable DDS-R components shall be configured to be transportable via standard military air and standard military and commercial, land, rail, and sea modes.

The DDS-R system in the transport and storage mode shall be transportable as secured cargo by:

- a. **DDS-R0114**-fixed and rotary wing aircraft,
- b. **DDS-R0115**-road vehicles over cross-country terrain,
- c. **DDS-R0116**-rail, landing craft and sealift.

DDS-R0117-The equipment shall be packaged to permit on and off loading in all of the transport modes without the need for special equipment.

3.4.3.1.2 Storage

DDS-R0118-The system shall not incur damage when stored without power, heat, and air conditioning for a period of 30 days, subject to the environmental conditions contained in this purchase description. Batteries shall be easily accessible so they may be removed for separate storage or for testing, replacement, and recharging. Any special considerations for long term storage (up to 1 year) shall be identified.

3.4.3.2 Transit Case Requirements

DDS-R0119-The DDS-R system transit cases shall provide protection for DDS-R equipment during storage and transport.

DDS-R0120-The DDS-R system components and other ancillary equipment deployed in transit cases shall be operable from within the transit cases, via front and rear removable covers.

3.4.3.2.1 Cooling

DDS-R0121-Transit cases and equipment placement shall provide adequate cooling and/or ventilation (e.g., fans) to protect the system components from overheating during operation. Fans incorporated into transit case assemblies, if any, shall be thermostatically controlled.

DDS-R0122-Cooling air filters, if employed, shall be easily removable and cleanable for reuse.

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3.4.3.2.2 COMSEC/TRANSEC

DDS-R0123-Transit cases that contain encryption equipment shall be appropriately labeled as COMSEC configuration items.

DDS-R0124-Cases containing Communications Security (COMSEC)/Controlled Cryptographic Item shall be lockable using a suitable combination padlock. Padlocks shall be provided for any transit case that requires them.

3.4.3.2.3 Weight

DDS-R0125-The weight of each populated DDS-R System transit case, when configured for transport, shall not exceed the two-man, 3-foot lift requirements of Military Standard (MIL-STD)-1472, paragraph 5.9.11.3 (174 pounds). Handles and grasp requirements shall use the guidance of MIL-STD-1472F, paragraph 5.9.11.3 and sub-paragraphs. Handles shall be provided on all 4 (vertical) sides of each transit case. The weight and lift requirements of each transit case shall be clearly labeled.

3.4.3.2.4 Dimensions

DDS-R0126-All transit cases shall fit through ship's hatches of 66 inches by 26 inches. Handles shall be located to permit the transit cases to be carried through ship's hatches.

3.4.3.2.5 Construction

DDS-R0127-Transit cases shall be constructed so that a water-tight seal is maintained by removable covers. Transit cases shall have low profile, nesting-type feet for stacking purposes, both top and bottom. Stacking limitations, if any, shall be clearly labeled on each transit case. External latches shall be provided for latching cases for storage purposes. All transit cases shall be provided with one or more automatic pressure relief valves. The construction and mounting of the DDS-R system components in the transit cases shall provide ready access to all displays, indicators, mechanisms, and controls required for system operation. The center of gravity for each case shall be centrally located but below the center of case vertically.

3.4.3.2.6 Rack Mount

DDS-R0128-All rack-mountable DDS-R equipment shall be installed in EIA-standard 19-inch (48.26 centimeters) electronic equipment rack(s) in accordance with EIA-RS310D. 19-Inch racks shall be easily extendable and removable from the transit cases.

3.4.3.2.7 Paint and Finish

DDS-R0129-All exterior surfaces of the transit cases shall be lusterless green, color 34094, in accordance with FED-STD-595B.

DDS-R0130-All exterior surfaces shall be able to be stenciled in accordance with A-A-56032.

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DDS-R0131-The external portion of the transit cases shall be capable of decontamination using Marine Corps standard Nuclear, Biological, and Chemical (NBC) decontamination procedures and equipment. MIL-HDBK-783 and MIL-STD-810F, Test Method 504 may be used as guidance on contamination avoidance and decontamination procedures.

DDS-R0132-The internal portion of the transit cases shall allow the use of non-corrosive decontaminates wiped on the outside portions of individual components. MIL-HDBK-783 may be used as guidance.

3.4.3.2.8 Power Entrance Panel (PEP)

DDS-R0133-A PEP shall be provided in each transit case containing rack-mounted equipment without and integrated UPS.

DDS-R0134-PEPs shall provide:

- a. one single-phase power-in connection
- b. a ground terminal lug with two washers and a wing nut

3.4.3.2.9 Power Cables

DDS-R0135-Power cable assemblies and connectors shall be keyed to prevent improper connection.

DDS-R0136-A 25-foot power cable(s) shall be provided for connection of the primary UPS to the power source.

DDS-R0137-A 10-foot power cable with National Electrical Manufacturers Association 5-15 connector shall be provided with each case requiring power to the primary UPS if housed separately.

3.4.3.2.10 Transit Case Wiring

DDS-R0138-All interconnecting wiring for all components and accessories shall be contained in the cases with mounting devices (i.e., wire ties, aluminum cable mounts). Industry standard cabling shall be used to the maximum extent possible (proprietary wiring is to be avoided).

DDS-R0139-All access areas shall be free of any wiring.

DDS-R0140-Cabling between all components within the case(s) and the signal entry panel (SEPs) shall be provided with mating connectors.

DDS-R0141-SEPs shall have bridal rings for cable strain relief.

DDS-R0142-All connectors exposed to the weather shall have captive waterproof covers.

Comment [ME10]: change made due to GD question #15 for clarification.

SOURCE SELECTION SENSITIVE

DDS-R0143-Cable strain relief and service loops shall be provided for rack-mounted equipment to:

- a. permit operation of equipment in the fully extended position
- b. enable removal/replacement of equipment for maintenance

3.4.3.3 Electrical and Power Requirements

3.4.3.3.1 Normal Power

DDS-R0144-The DDS-R System shall operate on standard, nominal domestic or international commercial power: 120 or 240 Volts Alternating Current, single phase, 3-wire, 50/60 Hertz (Hz), plus or minus 10 percent for voltage and plus or minus 5 percent for frequency. The DDS-R system shall operate on commercial power or current and future United States Marine Corps mobile tactical generators found in the inventory. The system will be designed to accept power via an existing camp power grid as part of a Mobile Electronic Power Distribution System. Adapters for international power sources, if needed, shall be provided.

3.4.3.3.2 Uninterruptible Power

DDS-R0145-The DDS-R System shall provide power conditioning and continuation equipment such as Uninterruptible Power Supplies (UPS). An UPS is used for orderly shutdown of mission critical equipment if power is lost and shall provide a minimum of 15 minutes (threshold) and 30 minutes (objective) of power for equipment shutdown. The system shall automatically notify operators when a switch to UPS power occurs. UPS subsystems shall be SNMP v3 manageable and rack mounted. UPS components shall be 1U units tall (Threshold) in the modules with an integrated UPS, 2U units tall (Threshold) in the power module with an Objective of 1U. The 1U UPS shall have a minimum of four outlets. The 2U shall have a minimum of four outlets. The UPS shall have a battery that is hot swappable. All alternating current (AC) outlets shall be surge protected with battery backup.

3.4.4 System Quality Factors

3.4.4.1 Reliability

DDS-R0146-The DDS-R system shall have an Mean Time Between Failure (MTBF) of at least 720 hours.

3.4.4.2 Maintainability

3.4.4.2.1 Organizational Level Mean Time To Repair

DDS-R0147-The DDS-R organizational level Mean Time To Repair (MTTR) shall not exceed 60 minutes for any component in the DDS-R.

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3.4.4.2.2 Intermediate Level Mean Time To Repair

DDS-R0148-The DDS-R Intermediate MTTR shall not exceed 90 minutes for any component in the DDS-R.

3.4.4.2.3 Mean Time to Perform Preventive Maintenance

DDS-R0149-The Mean Time To Perform Preventive Maintenance shall not exceed 30 minutes for the DDS-R.

3.4.5 Environmental Conditions

DDS-R0150-The DDS-R system may be employed worldwide and may be exposed to all types of weather conditions: hot and dry deserts, hot and humid tropics, and cold polar environments. The DDS-R shall have the capability to deploy within as well as outside the Continental United States. The DDS-R shall be capable of operation, storage, and transport in a wide variety of environmental conditions. In the operating mode, DDS-R equipment will be located in user provided facilities (i.e. buildings, shelters, tents, etc.) that may or may not be environmentally controlled. The DDS-R equipment shall meet all the performance requirements cited within this purchase description under the environmental conditions specified and shall suffer no physical damage, failure, deterioration, or change in tolerance limits which could in any manner prevent it from meeting the operational service or maintenance requirements. Unless otherwise specified, these requirements will apply to the operational and storage/transport modes and shall include the packaging, as well as all equipment inside.

3.4.5.1 Altitude

DDS-R0151-The DDS-R shall not be damaged when transported between 100 feet Below Mean Sea Level (BMSL) and 40,000 feet Above Mean Sea Level (AMSL) at rates of altitude change up to 2000 feet/minute. The DDS-R, in its operational configuration, shall meet full performance requirements while being operated at elevations from 100 feet BMSL to 10,000 feet AMSL.

3.4.5.2 Temperature

DDS-R0152-The DDS-R shall operate normally within the threshold temperature range of 0 to 40 degrees C (+32 to +104 degrees F) with an objective temperature range of -30 degrees C to +49 degrees C (-22 to +120 degrees F). The system shall withstand storage and transportation in temperature extremes from -30 to +50 degrees C (-22 to 122 degrees F). At temperatures up to 38°C (100°F) and at altitudes up to 914 meters (3000 feet), the DDS-R shall withstand the addition of solar radiation at a rate of 1120 Watts/square meter (355 British Thermal Unit (BTU)/square foot/hour) in both the operational and storage/transport configurations. For elevations from 914 meters to 3048 meters (3000 feet to 10,000 feet), solar radiation shall be assumed to increase at a rate of 43 W/sq. m per 1000 meters (4 BTU/sq. ft./hr per 1000 feet) with maximum temperature decreasing at the rate of 6.5°C per 1000 meters (3.6°F per 1000 feet). Above 38°C, the DDS-R will be assumed to be protected against direct solar radiation in both the operational and storage/transport configurations.

Comment [ME11]: Change made based on GD question #18 for clarification.

SOURCE SELECTION SENSITIVE

3.4.5.3 Humidity

DDS-R0153-In the operating mode, The DDS-R equipment shall operate when exposed to relative humidity up to 100% non-condensing. In the storage/transport configuration, the DDS-R shall withstand exposure to relative humidity up to 100%, including condensation.

3.4.5.4 Sand and Dust

DDS-R0154-The DDS-R shall, in its operational configuration, withstand exposure to settling dust and shall sustain no dust penetration that affects operational service requirements. The DDS-R shall, in its transport configuration, shall withstand exposure to blowing sand (15 miles per hour (mph) in any direction) and shall sustain no dust penetration that affects operational service requirements. Use of filters is acceptable. Filters shall comply with 3.2.5.2.1.

3.4.5.5 Salt Fog

DDS-R0155-The DDS-R shall, during operation and while in storage/transport conditions, withstand exposure to salt fog environments such as those found in coastal areas or aboard ships. The DDS-R shall be capable of extended operation or storage when exposed to a coastal environment or aboard ships.

3.4.5.6 Fungus

DDS-R0156-The DDS-R shall provide no nutrients in material, coating or production residuals that support fungal growth. MIL-HDBK-454A, Guideline 4, Table 4-I and MIL-STD-810F, Table 508.5-I may be used as guidance on fungal growth conditions and nutrients.

3.4.5.7 Shock and Vibration

DDS-R0157-The DDS-R, in its storage/transport configuration, shall withstand the shock and vibrations associated with standard military air and standard military and commercial, land, rail, and sea transport modes. Vehicular transportation requirements include, but are not limited to, transport by High-Mobility Multipurpose Wheeled Vehicle or two-wheeled trailer over improved highways and unpaved roads at speeds up to 55 mph, and over cross country terrain at speeds of 15 mph. The DDS-R, in its storage/transport configuration, shall withstand, without functional degradation, transport induced shocks and drop shocks associated with handling, loading and unloading.

3.4.5.8 Ice and Snow

DDS-R0158-DDS-R, in its stored configuration, shall withstand a snow load of 40 pounds per square foot on any surface.

3.4.5.9 Acoustic Noise

SOURCE SELECTION SENSITIVE

DDS-R0159-Any element of the DDS-R system shall operate at an acoustic noise level not to exceed 65 Decibel(s). The acoustic noise level during temporary noise conditions such as equipment alarms and printing shall not be considered as part of the normal operational state.

3.4.5.10 Rain & Immersion

DDS-R0160-The DDS-R system transit cases shall be watertight in the transport mode, to withstand wind-driven rain and/or direct immersion. The DDS-R will not be required to operate while immersed or standing unprotected in precipitation.

3.4.5.11 Lightning

DDS-R0161-The DDS-R, in its operational configuration, shall contain protection devices sufficient to protect personnel and equipment from lightning induced threats.

DDS-R0162-The DDS-R shall be capable of withstanding surge currents due to direct strikes on external cables or a triggering structure other than the DDS-R. The direct strike characteristics are a maximum current of 20 kilo amperes (kA) reached within 1.0 microseconds and decaying to one-half of the peak amplitude within 40 microseconds. It is expected that external cables will be damaged by direct strikes, but no other DDS-R equipment shall be damaged.

DDS-R0163-The DDS-R power input leads shall be capable of withstanding an indirect lightning strike. It can be assumed that the indirect strike is no closer than 262 feet (80 meters), with a maximum current of 12 kilo amperes kA reached within 8.0 microseconds and decaying to one-half of the peak amplitude within 10 microseconds.

DDS-R0164-All wireline circuits terminating on the DDS-R shall be provided external primary lightning protection. The external lightning protection shall be at least 15 wireline feet away from the DDS-R SEPs.

DDS-R0165-Lightning protection devices and safety procedures shall be incorporated into training material and technical manuals.

3.4.6 Deployment Requirements

DDS-R0166-The DDS-R shall be deployable by a two-man crew. No special tools or heavy lift devices shall be required.

3.4.6.1 Setup

DDS-R0167-The DDS-R system shall be set-up from the transport state to the operational state and ready to accept power within 30 minutes when performed under normal conditions. Once power has been applied, the system shall be fully operational in no more than 1 hour.

DDS-R0168-The DDS-R system shall be capable of being set-up from the transport state to the operational state by a crew outfitted in Mission Oriented Protective Posture (MOPP) protective clothing (up to level IV) or cold weather clothing.

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Setup time assumes that electrical power is available. Setup time does not include the time needed to unload the transit cases from the transport vehicle. Setup time does not include the time needed to establish an earth ground system or to drive ground anchors.

3.4.6.2 Teardown

DDS-R0169-The DDS-R system shall be disassembled from the operational state to the transport state (including shut-down of the system) within 15 minutes when performed under normal conditions.

DDS-R0170-The DDS-R system shall be capable of being disassembled from the operational state to the transport state by a crew outfitted in MOPP protective clothing (up to level IV) or cold weather clothing.

Tear down time does not include the time needed to load the transit cases onto the transport vehicle. Tear down time does not include removal of the earth ground system or ground anchors.

3.5 Design and Construction

DDS-R0171-The contractor shall maintain quality assurance standards in design, construction, and workmanship that maximize the operational capability and effective life of the equipment and prevent injury or harm to personnel.

3.5.1 Material, Parts, and Processes

DDS-R0172-The contractor shall ensure that selected parts enable the system to meet or exceed its reliability and environmental requirements. The contractor shall use materials and processes that are common in manufacturing and based on nationally or internationally recognized standards. The DDS-R contractor is responsible for compliance with applicable local, state and Federal environmental regulations in effect during the manufacturing and assembly processes of this system.

3.5.1.1 Connectors

DDS-R0173-In order to prevent incorrect assembly that may cause damage, connectors shall be:

- a. keyed
- b. marked

3.5.1.2 Fastener Hardware

DDS-R0174-Equipment to be assembled or disassembled in the field shall be secured with corrosion-resistant captive hardware. Small hardware (bolts, washers, nuts, etc.) shall be captive wherever practical.

SOURCE SELECTION SENSITIVE

3.5.1.3 Tolerances

DDS-R0175-The design, selection, and fabrication of all selected components and Line Replaceable Units (LRUs) shall be such that the cumulative effect of manufacturing tolerances, deflections and distortions due to repeated assembly and disassembly, operating environments, and other conditions specified herein, shall not prevent the performance requirements from being met. The tolerance requirements shall be met without the need for adjustments or special procedures.

3.5.1.4 Corrosion Control

DDS-R0176-All external parts and materials subject to corrosion shall be coated with anti-corrosion compounds and/or fabricated from non corrosive materials. The selection of COTS components should consider protective coatings (if any) that may be utilized during the manufacturing of circuit card assemblies (CCA).

3.5.1.5 Equipment Electrical Grounding Scheme

DDS-R0177-The DDS-R equipment grounds shall be electrically connected to a locally available earth grounding point in accordance with National Fire Protection Association (NFPA) 70 and MIL-HDBK-419A. Each electrical bond shall be less than 2.5 milliohms.

3.5.1.6 Transit Case Electrical Grounding Scheme

DDS-R0178-All SEPs shall have a ground terminal lug. All PEPs shall have a ground terminal lug. Signal cable shields shall be connected internally to the SEP ground terminal lug. All equipment inside a transit case shall have power grounds bussed internally to the PEP ground terminal lug. A 10 foot braided ground strap shall be provided with each transit case assembly.

3.5.1.7 Electrostatic Discharge

DDS-R0179-Electrostatic Discharge (ESD) protection shall be provided for ESD sensitive items (i.e., integrated circuits, semiconductor devices, circuit cards, and electronic equipment). ESD sensitive items shall have ESD warning labels affixed to protective packaging and equipment.

3.5.1.8 Environmental Safety & Health (ES&H)

DDS-R0180-The DDS-R equipment shall comply with the ES&H provisions of MIL-STD-882 and NAS 411. System integration and power distribution shall comply with NFPA 70. The DDS-R equipment shall not require the use of any Class I or II Ozone Depleting Substances for operation and/or maintenance. ES&H risks shall be minimized during the design, production, operation and maintenance, support and disposal of the system. Normal handling of the equipment and all maintenance procedures shall not be hazardous to operators or maintenance personnel. Equipment shall be designed such that maintenance can be conducted safely in accordance with NFPA 70, and 29 Code of Federal Regulations (CFR) 1910.

SOURCE SELECTION SENSITIVE

3.5.2 Electromagnetic Interference / Electromagnetic Compatibility

DDS-R0181-Individual DDS-R components shall, as a minimum, comply with electrical emission limits for computing devices pursuant to the appropriate sections of Part 15 of Federal Communications Commission Rules for Class A operation.

DDS-R0182-The DDS-R shall not cause Electromagnetic Interference (EMI) with other C4I systems. To control the electrical emissions and susceptibility characteristics of the DDS-R, the installation of its subsystems and associated interfaces shall conform with the following MIL-STD-461E performance requirements for Ground-based installation: CE102, CS101, CS114, CS115, CS116, RE102, RS103.

3.5.3 Identification and Marking

DDS-R0183-The contractor shall identify manufactured and assembled items in accordance with MIL-STD-129P. -The contractor may reference the US DOD Radio Frequency Identification Policy dated 30 July 2004 at: (http://www.acq.osd.mil/log/rfid/rfid_policy.htm).

3.5.3.1 Nameplates and Product Marking

DDS-R0184-The DDS-R shall have a nameplate on each transit case detailing the following:

- a. nomenclature
- b. configuration item identification
- c. model number
- d. serial number
- e. stock number (NSN)
- f. manufacturer identification
- g. contract number
- h. technical manual number
- i. paint characteristics
- j. weight
- k. center of gravity location
- l. case orientation for all transit case covers (front, back, top)
- m. case number of total cases

DDS-R0185-A nameplate shall be affixed to each component with the following information:

- a. nomenclature
- b. configuration item identification
- c. model number
- d. NSN
- e. manufacturer identification
- f. contract number
- g. technical manual number
- h. serial number

SOURCE SELECTION SENSITIVE

DDS-R0186-Warranted items shall be identified by serial number or barcode labeling (as required) to the LRU. This means of equipment identification will be entered into the Warranty Management system to ensure the traceability of DDS-R warranted items.

DDS-R0187-Nameplates shall be located such that they are visible during normal operational use.

DDS-R0188-All nameplates and markings shall be legible and permanent.

DDS-R0189-All nameplates shall be capable of withstanding the environmental tests specified for the system.

DDS-R0190-All nameplates shall be capable of withstanding the cleaning procedures specified for the system.

DDS-R0191-Classified items shall be marked in a conspicuous manner to provide notice that the item(s) are subject to security restrictions.

DDS-R0192-Foil nameplates shall not be used.

DDS-R0193-Cables shall bear a unique identification permanently affixed to cables near each connector that signifies the equipment/assembly with plug/jack they interconnect. The cable label at the end of the cable, at a minimum shall have the following information: ref-des, W number, cable part number, and cage number.

DDS-R0194-Nameplates that identify the purpose of a connection shall be provided near each connector on all:

- a. SEPs
- b. PEPs

DDS-R0195-deleted

Comment [ME12]: Deleted based on GD questions #22 for clarification.

DDS-R0196-The installed removable Hard Disk Drives (HDDs) in a standard configuration DDS-R shall be permanently marked, in accordance with DOD and Marine Corps guidance, to the appropriate classification level (i.e. For Unclassified Data Processing Only).

DDS-R0197-The spare removable HDDs in a standard configuration DDS-R shall be permanently marked, in accordance with DOD and Marine Corps guidance, to the appropriate classification level (i.e. For Secret Data Processing Only).

3.5.4 Workmanship

DDS-R0198-Workmanship shall conform to best commercial practices.

3.5.5 Interchangeability

DDS-R0199-LRUs and CCAs of one DDS-R System shall be interchangeable by form, fit, and function with the corresponding LRU and CCA of any other DDS-R System.

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3.5.6 Safety

3.5.6.1 Electrical Design

DDS-R0200-The system shall comply with best commercial practices and standards, to include NFPA 70 (National Electrical Code) and UL 60950 (Safety of Information Technology Equipment) for the electrical design of system components. The system shall not present uncontrolled hazards during operation, maintenance, or disposal of equipment.

3.5.6.2 Radio Frequency and X-radiation Safety

DDS-R0201-Equipment emitting radio frequency radiation (including antennas) shall be shielded, located or operated as to avoid exposing personnel to hazards.

3.5.6.3 Equipment Safety

DDS-R0202-The design shall include the following provisions:

- a. **DDS-R0203**-Equipment weighing greater than 37 pounds shall contain a warning label informing personnel of the exact weight and the recommended number of personnel required for safe lifting, using the guidelines of MIL-STD-1472F, Table XVII, Design Weight Limits. Warning labels shall be in accordance with 29 CFR 1910 Occupational Safety and Health Standards for Safety labeling.
- b. **DDS-R0204**-The equipment design shall have all exposed edges and corners rounded to prevent cuts or punctures. The design shall minimize the chances of pinching and crushing hazards.
- c. **DDS-R0205**-Fiber-optic interfaces shall comply with the safety design requirements of International Electrotechnical Commission 60825 and Center for Device and Radiological Health 21 CFR parts 1040.10 and 1040.11.

3.5.6.4 Chemical Safety

DDS-R0206-The design shall include the following provisions:

- a. **DDS-R0207**-Battery enclosures shall be of such construction that in the event of battery venting, electrolyte will not be expelled in either liquid or droplet form.
- b. **DDS-R0208**-If a battery is used which releases explosive gases (i.e., hydrogen), the battery box design shall be such that it insures no leakage of the gas into the main equipment or into other sources of ignition. Battery box venting shall be provided to minimize the explosive gas concentration in the battery box.
- c. **DDS-R0209**-Materials of components which may produce toxic effects during any phase of the system life cycle or treatment substances listed in the Toxic Substance List

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(published by National Institute of Occupational Safety and Health (NIOSH)) that are proposed for use, shall first be evaluated to determine if a less hazardous and viable alternative exists. If the item is still to be used, all personnel exposures to the substance will be less than the Lowest Published Toxic Dose and Lowest Published Toxic Concentration as published in the NIOSH Registry. Where the Registry specified unacceptable level of exposure based upon industrial standards, such level of exposure should be used as the qualifying acceptable amount. In the event that the Dose and Concentrations listed the Registry is less than the acceptable level of exposure based upon industrial standards, the lesser of the two amounts should be used as the qualifying acceptable amount. Where a Threshold Limit Value (TLV) is published in the Registry for a specific substance, then under no conditions should personnel exposure exceed the TLV.

- d. **DDS-R0210**-The system shall not contain items which are comprised of or require the use of Class I Ozone Depleting Substances following delivery to the Government.

3.5.7 Human Engineering

DDS-R0211-The DDS-R shall be designed using MIL-STD-1472, Human Engineering Design Criteria for Military Systems, Equipment, and Facilities, and MIL-STD-1474, Noise Limits as a guide.

3.5.8 Nuclear, Biological, and Chemical (NBC) Survivability

DDS-R0212-The DDS-R system, in its storage/transport configuration, shall be capable of withstanding both chemically and biologically active environments. MIL-HDBK-783 and MIL-STD-810F, Test Method 504 may be used as guidance on contamination avoidance and decontamination procedures.

DDS-R0213-The DDS-R system and components shall be capable of operation and maintenance by personnel wearing full NBC contaminant protective clothing (MOPP IV level).

4.0 VERIFICATION

A test and evaluation program shall be established for the DDS-R that encompasses hardware, software, and system-level tests and inspections. The objective of the program shall be to verify that the DDS-R meets all design, functional, and physical requirements of Section 3 of this specification.

4.1 System Definition

DDS-R0001-This requirement shall be verified by analysis.
DDS-R0002-This requirement shall be verified by analysis.
DDS-R0003-This requirement shall be verified by analysis.
DDS-R0004-This requirement shall be verified by analysis.
DDS-R0005-This requirement shall be verified by analysis.
DDS-R0006-This requirement shall be verified by analysis.

4.1.1 Mission, Threat, and MAGTF Communications Architecture N/A

4.1.1.1 Mission N/A

4.1.1.2 Threat N/A

4.1.1.3 MAGTF Communications Architecture N/A

4.1.1.3.1 Layered View N/A

4.1.1.3.2 Network Topology N/A

4.1.1.3.3 Current Digital Backbone N/A

4.1.1.3.4 Planned Digital Backbone N/A

4.1.2 Interoperability

DDS-R0007-This requirement shall be verified by analysis.

4.1.2.1 DDS-R Connectivity

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DDS-R0008-This requirement shall be verified by analysis.

4.1.3 DDS-R System Functions

DDS-R0009-This requirement shall be verified by analysis.

DDS-R0010-This requirement shall be verified by analysis.

DDS-R0011-This requirement shall be verified by analysis.

DDS-R0012-This requirement shall be verified by analysis.

4.2 Functional Characteristics

4.2.1 System

DDS-R0013-This requirement shall be verified by analysis.

4.2.1.1 Data Transfer and Switching

DDS-R0014-This requirement shall be verified by analysis.

DDS-R0015-This requirement shall be verified by analysis.

4.2.1.2 Subscriber and Network Access

DDS-R0016-This requirement shall be verified by analysis.

4.2.2 Installed Hardware

DDS-R0017-This requirement shall be verified by analysis.

DDS-R0018-This requirement shall be verified by analysis.

4.2.2.1 Internet Protocol Router

DDS-R0019-This requirement shall be verified by analysis.

DDS-R0020-This requirement shall be verified by analysis.

DDS-R0021-This requirement shall be verified by analysis.

DDS-R0022-This requirement shall be verified by analysis.

DDS-R0023-This requirement shall be verified by analysis.

DDS-R0024-This requirement shall be verified by analysis.

DDS-R0025-This requirement shall be verified by analysis.

DDS-R0026-This requirement shall be verified by analysis.

DDS-R0027-This requirement shall be verified by analysis.

DDS-R0028-This requirement shall be verified by analysis.

DDS-R0029-This requirement shall be verified by analysis.

DDS-R0030-This requirement shall be verified by analysis.

DDS-R0031-This requirement shall be verified by analysis.

DDS-R0032-This requirement shall be verified by analysis.

DDS-R0033-This requirement shall be verified by analysis.

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DDS-R0034-This requirement shall be verified by analysis.

4.2.2.2 Ethernet Switches

DDS-R0035-This requirement shall be verified by analysis.

DDS-R0036-This requirement shall be verified by analysis.

DDS-R0037-This requirement shall be verified by analysis.

DDS-R0038-This requirement shall be verified by analysis.

DDS-R0039-This requirement shall be verified by analysis.

DDS-R0040-This requirement shall be verified by analysis.

DDS-R0041-This requirement shall be verified by analysis.

4.2.2.2.1 Internal Ethernet Switches

DDS-R0042-This requirement shall be verified by analysis.

DDS-R0043-This requirement shall be verified by analysis.

4.2.2.2.2 External Ethernet Switches

DDS-R0044-This requirement shall be verified by analysis.

DDS-R0045-This requirement shall be verified by analysis.

DDS-R0046-This requirement shall be verified by analysis.

DDS-R0047-This requirement shall be verified by analysis.

DDS-R0048-This requirement shall be verified by analysis.

DDS-R0049-This requirement shall be verified by analysis.

4.2.2.3 Servers

DDS-R0050-This requirement shall be verified by analysis.

DDS-R0051-This requirement shall be verified by analysis.

DDS-R0052-This requirement shall be verified by analysis.

DDS-R0053-This requirement shall be verified by analysis.

DDS-R0054-This requirement shall be verified by analysis.

DDS-R0055-This requirement shall be verified by analysis.

DDS-R0056-This requirement shall be verified by analysis.

DDS-R0057-This requirement shall be verified by analysis.

4.2.2.4 Storage Backup System

DDS-R0058-This requirement shall be verified by analysis.

DDS-R0059-This requirement shall be verified by analysis.

DDS-R0060-This requirement shall be verified by analysis.

DDS-R0061-This requirement shall be verified by analysis.

DDS-R0062-This requirement shall be verified by analysis.

DDS-R0063-This requirement shall be verified by analysis.

DDS-R0064-This requirement shall be verified by analysis.

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DDS-R0065-This requirement shall be verified by analysis.
DDS-R0066-This requirement shall be verified by analysis.

4.2.2.5 KIV-7M Encryption Device

DDS-R0067-This requirement shall be verified by analysis.

4.2.2.6 Inline Network Encryption (INE)

DDS-R0068-This requirement shall be verified by analysis.
DDS-R0069-This requirement shall be verified by analysis.

4.2.2.7 Link Acceleration

DDS-R0070-This requirement shall be verified by analysis.

4.2.2.8 Serial/IP Server

DDS-R0071-This requirement shall be verified by analysis.

4.2.2.9 Signal Entrance Panel (SEP)

DDS-R0072-This requirement shall be verified by analysis.
DDS-R0073-This requirement shall be verified by analysis.

4.2.2.10 Signal Converter

DDS-R0074-This requirement shall be verified by analysis.

4.2.2.11 Network Time Server

DDS-R0075-This requirement shall be verified by analysis.

4.2.3 System Modules
N/A

4.2.3.1 Communications Security Module (CSM)

DDS-R0076-This requirement shall be verified by analysis.
DDS-R0077-This requirement shall be verified by analysis.
DDS-R0078-This requirement shall be verified by analysis.
DDS-R0079-This requirement shall be verified by analysis.
DDS-R0080-This requirement shall be verified by analysis.

4.2.3.2 Wide Area Network (WAN) Services Module (WSM)

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DDS-R0081-This requirement shall be verified by analysis.

4.2.3.2.1 Wide Area Network (WAN) Services Module (WSM) Version (V) 1

DDS-R0082-This requirement shall be verified by analysis.

DDS-R0083-This requirement shall be verified by analysis.

DDS-R0084-This requirement shall be verified by analysis.

DDS-R0085-This requirement shall be verified by analysis.

4.2.3.2.2 Wide Area Network (WAN) Services Module (WSM) Version (V) 2

DDS-R0086-This requirement shall be verified by analysis.

DDS-R0087-This requirement shall be verified by analysis.

DDS-R0088-This requirement shall be verified by analysis.

4.2.3.3 Data Storage Module (DSM)

DDS-R0089-This requirement shall be verified by analysis.

4.2.3.4 Application Server Module (ASM)

DDS-R0090-This requirement shall be verified by analysis.

4.2.3.5 Local Area Network (LAN) Services Module (LSM)

DDS-R0091-This requirement shall be verified by analysis.

DDS-R0092-This requirement shall be verified by analysis.

DDS-R0093-This requirement shall be verified by analysis.

DDS-R0094-This requirement shall be verified by analysis.

4.2.3.6 Local Area Network (LAN) Extension Module (LEM)

DDS-R0095-This requirement shall be verified by analysis.

DDS-R0096-This requirement shall be verified by analysis.

4.2.3.7 Power Module (PM)

DDS-R0097-This requirement shall be verified by analysis.

4.2.4 System Certification

DDS-R0098-This requirement shall be verified by analysis.

4.3 Software Requirements

DDS-R0099-This requirement shall be verified by analysis.

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DDS-R0100-This requirement shall be verified by analysis.

DDS-R0101-This requirement shall be verified by analysis.

DDS-R0102-This requirement shall be verified by analysis.

4.3.1 Network Security

DDS-R0103-This requirement shall be verified by analysis.

4.3.2 Configuration

DDS-R0104-This requirement shall be verified by analysis.

DDS-R0105-This requirement shall be verified by analysis.

DDS-R0106-This requirement shall be verified by analysis.

DDS-R0107-This requirement shall be verified by analysis.

4.3.3 Server Shutdown

DDS-R0108-This requirement shall be verified by analysis.

DDS-R0109- This requirement shall be verified by analysis.

4.4 System Characteristics

DDS-R0110-This requirement shall be verified by examination.

4.4.1 Operational State

DDS-R0111-This requirement shall be verified by demonstration.

4.4.2 Storage and Transport State

DDS-R0112-This requirement shall be verified by demonstration.

4.4.3 Physical Characteristics

N/A

4.4.3.1 Transportation and Storage

N/A

4.4.3.1.1 Transport

DDS-R0113-This requirement shall be verified by analysis.

- a. **DDS-R0114**-This requirement shall be verified by analysis for C-130 and CH-53 environments.

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- b. **DDS-R0115**-This requirement shall be verified by analysis of DDS-R0120 test data using the vibration profiles of MIL-STD-810F, Test Method 514.5 as guidance.
- c. **DDS-R0116**-This requirement shall be verified by analysis for a Landing Craft Air Cushion (LCAC) environment.

DDS-R0117-This requirement shall be verified by analysis.

4.4.3.1.2 Storage

DDS-R0118-A demonstration shall be performed to ensure compliance with the storage requirements of paragraph 3.2.5.1.2. The DDS-R shall be stored without power, heat, and air conditioning for a period of 30 days. Batteries will be removed before the storage period to prevent corrosion.

4.4.3.2 Transit Case Requirements

DDS-R0119-This requirement shall be verified by analysis.

DDS-R0120-This requirement shall be verified by demonstration.

4.4.3.2.1 Cooling

DDS-R0121-This requirement shall be verified by test per paragraph 4.2.7.2.

DDS-R0122-This requirement shall be verified by demonstration.

4.4.3.2.2 COMSEC/TRANSEC

DDS-R0123-This requirement shall be verified by examination.

DDS-R0124-This requirement shall be verified by examination.

4.4.3.2.3 Weight

DDS-R0125-This requirement shall be verified by both examination and test. The weight of each transit case assembly will be measured and recorded (test) with the remaining aspects of this requirement verified by examination.

4.4.3.2.4 Dimensions

DDS-R0126-This requirement shall be verified by examination.

4.4.3.2.5 Construction

DDS-R0127-This requirement shall be verified by examination and analysis. An analysis will be provided for the center of gravity of each case. The remaining aspects of this requirement shall be verified by examination.

4.4.3.2.6 Rack Mount

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DDS-R0128- This requirement shall be verified by examination.

4.4.3.2.7 Paint and Finish

DDS-R0129- This requirement shall be verified by examination.

DDS-R0130- This requirement shall be verified by examination.

DDS-R0131- This requirement shall be verified by analysis.

DDS-R0132- This requirement shall be verified by demonstration.

4.4.3.2.8 Power Entrance Panel

DDS-R0133- This requirement shall be verified by examination.

DDS-R0134- This requirement shall be verified by examination.

4.4.3.2.9 Power Cables

DDS-R0135- This requirement shall be verified by examination.

DDS-R0136- This requirement shall be verified by examination.

DDS-R0137- This requirement shall be verified by examination.

4.4.3.2.10 Transit Case Wiring

DDS-R0138- This requirement shall be verified by examination.

DDS-R0139- This requirement shall be verified by examination.

DDS-R0140- This requirement shall be verified by examination.

DDS-R0141- This requirement shall be verified by examination.

DDS-R0142- This requirement shall be verified by examination.

DDS-R0143- This requirement shall be verified by examination.

4.4.3.3 Electrical and Power Requirements

N/A

4.4.3.3.1 Normal Power

DDS-R0144- This requirement shall be verified by test.

4.4.3.3.2 Uninterruptable Power

DDS-R0145- This requirement shall be verified by both demonstration and test. Testing shall be used to verify the threshold backup time requirement and that the operator(s) is notified when a switch to UPS power occurs. The remaining aspects of this requirement shall be verified by demonstration.

4.4.4 System Quality Factors

N/A

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4.4.4.1 Reliability

DDS-R0146-The DDS-R system Mean Time Between Failures shall be verified by analysis.

4.4.4.2 Maintainability

N/A

4.4.4.2.1 Organizational Level Mean Time To Repair

DDS-R0147-The Organizational Mean Time To Repair for corrective maintenance shall be verified by analysis.

4.4.4.2.2 Intermediate Level Mean Time To Repair

DDS-R0148-The Intermediate Mean Time To Repair for corrective maintenance shall be verified by analysis.

4.4.4.2.3 Mean Time To Perform Preventive Maintenance

DDS-R0149-The Mean Time to Perform Preventive Maintenance shall be verified by analysis.

4.4.5 Environmental Conditions

DDS-R0150-The DDS-R shall be tested to ensure compliance with the deployment requirements of Paragraph 3.2.7.

4.4.5.1 Altitude

DDS-R0151-Operating, storage and transport altitude requirements for the DDS-R shall be verified by analysis. Pressure equalization shall be verified by examination of the transit case pressure relief valves.

4.4.5.2 Temperature

DDS-R0152-Operating temperature requirements shall be tested in accordance with MIL-STD-810F, Method 501.4, Procedure II and Method 502.4, Procedure II. Storage and transport temperature requirements shall be tested in accordance with MIL-STD-810F, Method 501.4, Procedure I and Method 502.4, Procedure I. The high temperature test shall use the parameters in Table 501.4-I (Basic Hot), tailored in accordance with paragraph 3.2.7.2.

4.4.5.3 Humidity

DDS-R0153-An analysis of the transit case designs and their components shall be performed to verify compliance with the requirements of paragraph 3.2.7.3, for both the operational and storage/transport configurations.

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4.4.5.4 Sand and Dust

DDS-R0154-The blowing sand requirement shall be tested in accordance with MIL-STD-810F, Test Method 510.4, Procedure II. The settling dust requirement shall be tested in accordance with MIL-STD-810F, Test Method 510.4, Procedure III.

4.4.5.5 Salt Fog

DDS-R0155-An analysis of the transit case design and materials shall be performed to verify compliance with the requirements of paragraph 3.2.7.5.

4.4.5.6 Fungus

DDS-R0156-An analysis shall be performed to verify compliance with the requirements of paragraph 3.2.7.6.

4.4.5.7 Shock and Vibration

DDS-R0157-Tests shall be performed on the DDS-R to verify compliance with the vibration requirements associated with transport and defined in paragraph 3.2.7.7. Each DDS-R fully loaded transit case in its transport configuration shall be subjected to the Shaker Table Test described by Method 514.5, Procedure I, Table 514.5C-VII of MIL-STD-810F using the composite two-wheeled trailer vibration spectrum for 30 minutes per axis. Cargo netting or strapping may be used in the Shaker Table test only to prevent the test item from "bouncing" off the test table. In addition, each DDS-R fully loaded transit case in its transport configuration shall be subject to the Transit Drop Test described by Method 516.5, Procedure IV of MIL-STD-810F. Drop height shall be in accordance with Table 516.5-VI of Method 516.5. Operational tests shall be performed both before and after these tests, and there shall be no evidence of functional degradation or physical damage which would preclude the system from performing as specified.

Comment [ME13]: Change made based on GD question #19 for clarification.

4.4.5.8 Ice and Snow

DDS-R0158-An analysis shall be performed to verify compliance with the requirements specified in Paragraph 3.2.7.8.

4.4.5.9 Acoustic Noise

DDS-R0159-A test shall be performed in accordance with MIL-STD-1474D, Steady State Noise Category F, to verify compliance of the requirements of paragraph 3.2.7.9.

Comment [ME14]: Change made based on GD question #20 for clarification.

4.4.5.10 Rain & Immersion

DDS-R0160-The ability of the transit cases to withstand wind-driven rain in the storage/transport configuration shall be tested in accordance with MIL-STD-810F, Test Method 506.4, Procedure

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II. In addition, after being placed in three feet of water for 30 minutes while in the transport mode, the transit cases shall not have any:

- a. physical damage nor
- b. evidence of water penetration

4.4.5.11 Lightning

DDS-R0161-This requirement shall be verified by analysis.

DDS-R0162-This requirement shall be verified by analysis.

DDS-R0163-This requirement shall be verified by analysis.

DDS-R0164-This requirement shall be verified by analysis.

DDS-R0165-This requirement shall be verified by analysis.

4.4.6 Deployment Requirements

DDS-R0166-This requirement shall be verified by demonstration.

4.4.6.1 Setup

DDS-R0167-This requirement shall be verified by demonstration.

DDS-R0168-This requirement shall be verified by demonstration.

4.4.6.2 Teardown

DDS-R0169-This requirement shall be verified by demonstration.

DDS-R0170-This requirement shall be verified by demonstration.

4.5 Design and Construction

DDS-R0171-This requirement shall be verified by examination.

4.5.1 Material, Parts, and Processes

DDS-R0172-This requirement shall be verified by examination.

4.5.1.1 Connectors

DDS-R0173-This requirement shall be verified by examination.

4.5.1.2 Fastener Hardware

DDS-R0174-This requirement shall be verified by examination.

4.5.1.3 Tolerance

DDS-R0175-This requirement shall be verified by analysis.

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4.5.1.4 Corrosion Control

DDS-R0176-This requirement shall be verified by examination. Evidence of contact of dissimilar metals, such as galvanic corrosion, shall be examined.

4.5.1.5 Equipment Electrical Grounding Scheme

DDS-R0177-This requirement shall be verified by examination.

4.5.1.6 Transit Case Electrical Grounding Scheme

DDS-R0178-This requirement shall be verified by examination.

4.5.1.7 Electrostatic Discharge

DDS-R0179-This requirement shall be verified by examination.

4.5.1.8 Environmental Safety & Health (ES&H)

DDS-R0180-This requirement shall be verified by examination.

4.5.2 Electromagnetic Interference / Electromagnetic Compatibility

DDS-R0181-This requirement shall be verified by examination.

DDS-R0182-DDS-R EMI requirements of paragraph 3.3.2 shall be tested in accordance with MIL-STD-461E.

4.5.3 Identification and Marking

DDS-R0183-This requirement shall be verified by examination.

4.5.3.1 Nameplates and Product Marking

DDS-R0184-This requirement shall be verified by examination.

DDS-R0185-This requirement shall be verified by examination.

DDS-R0186-This requirement shall be verified by examination.

DDS-R0187-This requirement shall be verified by demonstration.

DDS-R0188-This requirement shall be verified by examination.

DDS-R0189-This requirement shall be verified by analysis.

DDS-R0190-This requirement shall be verified by analysis.

DDS-R0191-This requirement shall be verified by examination.

DDS-R0192-This requirement shall be verified by examination.

DDS-R0193-This requirement shall be verified by examination.

DDS-R0194-This requirement shall be verified by examination.

DDS-R0195-This requirement shall be verified by examination.

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DDS-R0196-This requirement shall be verified by examination.
DDS-R0197-This requirement shall be verified by examination.

4.5.4 Workmanship

The transit cases shall be examined for defects. All welding shall be inspected prior to application of paint finish.

DDS-R0198-This requirement shall be verified by examination.

4.5.5 Interchangeability

DDS-R0199-This requirement shall be verified by analysis.

4.5.6 Safety N/A

4.5.6.1 Electrical Design

DDS-R0200-This requirement shall be verified by analysis.

4.5.6.2 Radio Frequency and X-radiation Safety

DDS-R0201-This requirement shall be verified by analysis.

4.5.6.3 Equipment Safety

DDS-R0202-N/A

- a. **DDS-R0203**-This requirement shall be verified by examination.
- b. **DDS-R0204**-This requirement shall be verified by examination.
- c. **DDS-R0205**-This requirement shall be verified by examination.

4.5.6.4 Chemical Safety

DDS-R0206-N/A

- a. **DDS-R0207**-This requirement shall be verified by analysis.
- b. **DDS-R0208**-This requirement shall be verified by analysis.
- c. **DDS-R0209**-This requirement shall be verified by examination.
- d. **DDS-R0210**-This requirement shall be verified by examination.

4.5.7 Human Engineering

DDS-R0211-This requirement shall be verified by examination. Human performance and engineering demonstrations shall ensure the transit case design, layout, and equipment arrangement are in compliance with the human engineering requirements of paragraph 3.3.7, using MIL-STD-1472 as a guide, and life support parameters specified herein.

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4.5.8 Nuclear, Biological and Chemical Safety

DDS-R0212-This requirement shall be verified by analysis.

DDS-R0213-This requirement shall be verified by demonstration.

4.6 Methods of Verification

All system performance and integration design requirements for the DDS-R, as detailed in Section 3 of this document, shall be verified by Analysis, Demonstration, Examination, or Test. These verification methods are defined as follows:

- Analysis:** Verification by analysis involves proving that an item meets specified requirements by a technical evaluation of equations, charts, graphs, circuit diagrams and/or representative data. Through reviews of applicable and adequate documentation, it will be proven that the requirements have been met. Each specified piece of equipment will be identified and any specified quantities will be verified.
- Demonstration:** Verification that a specification requirement is met by observation of the operation or movement of the item. Non-developmental items, COTS, and GFM are considered as demonstration methods only since their implicit design has been adequately tested. Test procedures will be developed to ensure that each individual item operates as specified. Those equipment determined to be defective will be replaced.
- Examination:** Verification by inspection, physical manipulation, gauging, measurement, or counting involves a visual examination of the item, reviewing descriptive documentation, and comparing characteristics with a predetermined standard to determine conformance to requirements. Each specified piece of equipment will be identified and any specified quantities will be verified.
- Test:** Through functional and electrical means, the systematic operation of the item under required conditions, with instrumentation of the item and/or the recording/evaluation of quantitative and qualitative data will be used to prove that the requirements have been met.

4.7 Classes of Verification

The system test program shall provide incremental integrated testing that will require components to be individually tested, and then integrated with other tested components for the next level of testing. The integration and testing process continues until the total system is tested. Each test and test level shall constitute a step in providing successful system test and performance.

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The DDS-R contractor shall be responsible for the preparation, conduct and data reduction of all tests necessary to verify compliance with requirements set forth in Paragraph 3. Test Plans and Test Procedures and Descriptions shall be developed by the contractor in accordance with the Statement of Work (SOW). The Government reserves the right to observe any of the verifications set forth herein. The Government reserves the right to perform any verifications where the Government deems such verifications necessary. Table [1] correlates the Section 3 requirements with the Section 4 verification method(s) used to ensure compliance based on the class of verification being conducted.

Comment [ME15]: Change made due to GD questions #26 and #27 for clarification.

4.7.1 Design Verification Design Verification

Design verification shall assess the contractor's design for requirements allocation, human factors, and security issues. The contractor's allocated design based on transit case layouts; weight, center of gravity, power, and thermal analyses; test plans; and software requirements specification shall be evaluated. The design of the Server shall also be evaluated at various stages of development to verify that all technical requirements are being adequately addressed, design issues are being resolved, and all contractual obligations are being met. The contractor's design of the DDS-R shall be subject to Government review and approval. Verifications identified in Table [1] shall be conducted as described in the table.

Comment [ME16]: Change made due to GD questions #26 and #27 for clarification.

4.7.2 Testing

4.7.2.1 First Article Test.

The purpose of First Article Test (FAT) is to verify the DDS-R meets the requirements of this specification and ensure the design is ready for production. The contractor shall develop and implement First Article Test (FAT) procedures to demonstrate the adequacy and suitability of the contractor's production processes and procedures for achieving the requirements in the Performance Specification. The results of the test shall demonstrate the manufacturing and production techniques employed do not negatively impact established requirements. Verifications identified in Table [1] shall be conducted as described in the table. The Government shall be notified of this test(s) fifteen (15) days in advance.

Comment [ME17]: Change made due to GD questions #26 and #27 for clarification.

4.7.2.2 System Integration/Qualification Test.

SIT verifies that the DDS-Rs function as a system in accordance with this specification. The contractor shall develop and implement System Integration/Qualification Test (SIT) procedures to demonstrate the adequacy and suitability of the contractor's integration processes and procedures for achieving the performance inherent in the design. The results of the test shall demonstrate the techniques and processes employed do not degrade the design and meet all requirements in the Performance Specification. Government personnel will conduct the SIT at the MCTSSA Systems Integration Environment. The contractor shall make available (2) complete systems to MCTSSA for SIT.

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4.7.2.3 Interoperability Testing.

The contractor shall provide support for interoperability testing by the Joint Interoperability Test Command (JITC), Fort Huachuca, AZ IAW paragraph 3.9.2. to ensure that the TDN DDS-R is interoperable with the systems specified in the system Performance Specification.

4.7.2.4 Hardware Verification

Hardware verification shall be performed by the contractor in accordance with the contractor's Quality Program as delineated in the contractor SOW and the requirements of section 3.

4.7.2.5 Software Verification

Software verification shall be performed by the contractor in accordance with the guidance of MIL-STD-498 as delineated in the contractor SOW and the requirements of section 3.

4.7.3 Production Acceptance

Production Acceptance verifies the physical, environmental, and functional requirements of the production units meet the DDS-R Software requirements. Production Acceptance shall be conducted at the contractor's facility. Verifications identified in Table 1 shall be conducted as described in the table.

Comment [ME18]: Change made due to GD questions #26 and #27 for clarification.

4.7.4 Special Tests and Examinations

After successful completion of FAT, the DDS-R First Articles shall be submitted by the contractor for evaluation by the Marine Corps operational test agency. The DDS-R will be subjected to an additional series of tests conducted at the operational fielding sites. These tests will be conducted by the Government.

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TABLE 1 Requirements Traceability Matrix

Requirement	System Specification	Verification Results					Verification Results				
		1	2	3	4	5	6	7	8	9	10
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) (NO. CCC 114) CHANGE 6 1.c.(2)(c)1 TDN Configuration; Server 1.c.(2)(d); 4.b.(1)(a) 1.c.(2)(c)1; 4.b.(1)(b)1	System Specification									Met	Met with Exception (MWE)
										Met	Met with Exception (MWE): 26
										Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
NSTRG000000 Rev A 26 March 2004											
	3.1 DDS-R0001 - System Definition	FAT									
	3.1 DDS-R0002 - System Definition	FAT									
	3.1 DDS-R0003 - System Definition	FAT									
	3.1 DDS-R0004 - System Definition	FAT									
	3.1 DDS-R0005 - System Definition	FAT									
	3.1 DDS-R0006 - System Definition	FAT									
	3.1.2 DDS-R0007 - Interoperability	FAT									
	3.1.2.1 DDS-R008 - DDS-R Connectivity	FAT									

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
Sub OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) NO GCC 11-19 CHANGE 6	MSTR00TES Rev A 26 March 2004	Met Met with Exception (MWE) Not Yet Evaluated (NYE)	Met Met with Exception (MWE) Not Yet Evaluated (NYE)
1.b.; 4.a.; 4.b.(4)(b)	3.1.3 DDS-R0009 - DDS-R System Functions	FAT	
1.c.(2)(c) TDN Configuration; Server	3.1.3 DDS-R0010 - DDS-R System Functions	FAT	
4.b.(1)(c); 4.c.(1)	3.1.3 DDS-R0011 - DDS-R System Functions	FAT	
	3.1.3 DDS-R0012 - DDS-R System Functions	FAT	
	3.2.1 DDS-R0013 - System Transfer and Switching	FAT	
	3.2.1.1 DDS-R 0014 - Data Transfer and Switching	FAT	
	3.2.1.2 DDS-R 0016 - Subscriber and Network Access	FAT	
4.g.(5)(b) Security Needs; Information	3.2.2 DDS-R 0017 - Installed Hardware	FAT	

Requirement	System Specification	Verification Results	Verification Results
		Met	Met with Exception (MWE)
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SIDE OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE LOGICAL DATA NETWORK (LDN) (NO. CCC) (REV. CHANGE 6)			
4.b.(3)(a) Network Management; Network Performance	MSJROFFENSE Rev. A-26 March 2004	Verification	Verification
	3.2.2 DDS-R 0018 - Installed Hardware	FAT	
	3.2.2.1 DDS-R 0019 - Internet Protocol Router	FAT	
	3.2.2.1 DDS-R 0020 - Internet Protocol Router	FAT	
	3.2.2.1 DDS-R 0021 - Internet Protocol Router	FAT	
	3.2.2.1 DDS-R 0022 - Internet Protocol Router	FAT	
	3.2.2.1 DDS-R 0023 - Internet Protocol Router	FAT	
	3.2.2.1 DDS-R 0024 - Internet Protocol Router	FAT	
	3.2.2.1 DDS-R 0025 - Internet Protocol Router	FAT	
Appendix A			

SOURCE SELECTION SENSITIVE

[illegible]

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results
SIN OPERATIONAL REQUIREMENTS DOCUMENT(ORD) FOR THE TACTICAL DATA NETWORK (TDN)(NO CCC IN L4) CHANGE0	VSTRGOPS SPS Rev A-26 March 2009	Met
1.c.(2)(c)5b TDN Configuration; Server	3.2.2.1 DDS-R 0034 - Internet Protocol Router	Met with Exception (MWE): 26
	3.2.2.2 DDS-R 0035 - Ethernet Switches	Not Yet Evaluated (NYE): 33
	3.2.2.2 DDS-R 0036 - Ethernet Switches	
	3.2.2.2 DDS-R 0037 - Ethernet Switches	
	3.2.2.2 DDS-R 0038 - Ethernet Switches	
	3.2.2.2 DDS-R 0039 - Ethernet Switches	
	3.2.2.2 DDS-R 0040 - Ethernet Switches	
4.b.(3)(a) Network Management; Network Performance	3.2.2.2 DDS-R 0041 - Ethernet Switches	

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Requirement	System Specification	Verification Results	Verification Results
		Met	Met with Exception (MWE)
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUBOPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) (NO SEC) (CHANGE 6)			
	MSTRCOTS Rev A 26 March 2004	Verification	Verification
		A	A
		B	B
		C	C
		D	D
		E	E
		F	F
		G	G
		H	H
		I	I
		J	J
		K	K
		L	L
		M	M
		N	N
		O	O
		P	P
		Q	Q
		R	R
		S	S
		T	T
		U	U
		V	V
		W	W
		X	X
		Y	Y
		Z	Z
		AA	AA
		AB	AB
		AC	AC
		AD	AD
		AE	AE
		AF	AF
		AG	AG
		AH	AH
		AI	AI
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		AO	AO
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		BA	BA
		BB	BB
		BC	BC
		BD	BD
		BE	BE
		BF	BF
		BG	BG
		BH	BH
		BI	BI
		BJ	BJ
		AK	AK
		AL	AL
		AM	AM
		AN	AN
		AO	AO
		AP	AP
		AQ	AQ
		AR	AR
		AS	AS
		AT	AT
		AU	AU
		AV	AV
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		AX	AX
		AY	AY
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		AL	AL
		AM	AM
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		AO	AO
		AP	AP
		AQ	AQ
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		AU	AU
		AV	AV
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		AX	AX
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		AL	AL
		AM	AM
		AN	AN
		AO	AO
		AP	AP
		AQ	AQ
		AR	AR
		AS	AS
		AT	AT
		AU	AU
		AV	AV
		AW	AW
		AX	AX
		AY	AY
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		BJ	BJ
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		AL	AL
		AM	AM
		AN	AN
		AO	AO
		AP	AP
		AQ	AQ
		AR	AR
		AS	AS
		AT	AT
		AU	AU
		AV	AV
		AW	AW
		AX	AX
		AY	AY
		AZ	AZ
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		BD	BD
		BE	BE
		BF	BF
		BG	BG
		BH	BH
		BI	BI
		BJ	BJ
		AK	AK
		AL	AL
		AM	AM
		AN	AN
		AO	AO
		AP	AP
		AQ	AQ
		AR	AR
		AS	AS
		AT	AT
		AU	AU
		AV	AV
		AW	AW

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
		Met	Met
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) NO. 000 NP-99 CHANGE 6			
	MSTRCOPS Rev A-26 March 2004	Verification	Verification
		A	A
	3.2.2.3 DDS-R 0051 - Servers	FAT	
	3.2.2.3 DDS-R 0052 - Servers	FAT	
	3.2.2.3 DDS-R 0053 - Servers	FAT	
	3.2.2.3 DDS-R 0054 - Servers	FAT	
	3.2.2.3 DDS-R 0055 - Servers	FAT	
	3.2.2.3 DDS-R 0056 - Servers	FAT	
	3.2.2.3 DDS-R 0057 - Servers	FAT	
	3.2.2.4 DDS-R 0058 - Storage Backup System	FAT	
	3.2.2.4 DDS-R 0059 - Storage Backup System	FAT	
4.b.(3)(a) Network Management; Network Performance			
4.b.(3)(b) Network Management; Backup and Restoration			
4.c.(3) Data Storage			

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Met	Not Met	Not Yet Evaluated (NYE)
1.c.(2)(c)3; 4.b(1)(c)	3.2.2.4 DDS-R 0060 - Storage Backup System	FAT			
	3.2.2.4 DDS-R 0061 - Storage Backup System	FAT			
	3.2.2.4 DDS-R 0062 - Storage Backup System	FAT			
	3.2.2.4 DDS-R 0063 - Storage Backup System	FAT			
	3.2.2.4 DDS-R 0064 - Storage Backup System	FAT			
	3.2.2.4 DDS-R 0065 - Storage Backup System	FAT			
	3.2.2.4 DDS-R 0066 - Storage Backup System	FAT			
	3.2.2.5 DDS-R 0067 - KIV-7M Encryption Device	FAT			
	3.2.2.6 DDS-R 0068 - Inline Network Encryption	FAT			

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
		Met	Met
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SHIP OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) NO CCC (PLAN) CHANGE 6	MSR CODES Rev A 26 March 2004	Verification	
		A	B
	3.2.2.6 DDS-R 0069 - Inline Network Encryption	FAT	
	3.2.2.7 DDS-R 0070 - Link Acceleration	FAT	
	3.2.2.8 DDS-R 0071 - Serial/IP Server	FAT	
	3.2.2.9 DDS-R 0072 - Signal Entrance Panel	FAT	
	3.2.2.9 DDS-R 0073 - Signal Entrance Panel	FAT	
	3.2.2.10 DDS-R 0074 - Signal Converter	FAT	
	3.2.2.11 DDS-R 0075 - Network Time Server	FAT	
	3.2.3.1 DDS-R 0076 - Communications Security Module	FAT	

Requirement	System Specification	Verification Results	Verification Results
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) (NO. CCC) (REQ) CHANGE 6			
	MSTRCOPS Rev A-26 March 2004		
	3.2.3.1 DDS-R 0077 - Communications Security Module	FAT	
	3.2.3.1 DDS-R 0078 - Communications Security Module	FAT	
	3.2.3.1 DDS-R 0079 - Communications Security Module	FAT	
	3.2.3.1 DDS-R 0080 - Communications Security Module	FAT	
	3.2.3.2 DDS-R 0081 - Wide Area Network Services Module	FAT	
	3.2.3.2.1 DDS-R 0082 - Wide Area Network Services Module Version (V)1	FAT	

Requirement	System Specification	Verification Results						Verification Results	Verification Results
		A	B	C	D	E	F		
SUBJ: OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) NO. 000 DATED 01-10-00 CHANGE 6	System Specification	Met with Exception (MWE): 26						Met with Exception (MWE)	
		Not Yet Evaluated (NYE): 33						Not Yet Evaluated (NYE)	
	MSTRGCHESPS Rev A-26 March 2004	3.2.3.2.1 DDS-R 0083 - Wide Area Network Services Module Version (V)1	FAT						
		3.2.3.2.1 DDS-R 0084 - Wide Area Network Services Module Version (V)1	FAT						
		3.2.3.2.1 DDS-R 0085 - Wide Area Network Services Module Version (V)1	FAT						
		3.2.3.2.2 DDS-R 0086 - Wide Area Network Services Module Version (V)2	FAT						
		3.2.3.2.2 DDS-R 0087 - Wide Area Network Services Module Version (V)2	FAT						
		3.2.3.2.2 DDS-R 0088 - Wide Area Network Services Module Version (V)2	FAT						

Requirement	System Specification	Verification Results	Verification Results
		Met	Met with Exception (MWE)
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUBJ OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORKS (TDN) (NO CCC BLED) CHANGE 6			
	MSRCSBSES Rev A 26 March 2004	Verification	Verification
	3.2.3.3 DDS-R 0089 - Data Storage Module	FAT	
	3.2.3.4 DDS-R 0090 - Application Server Module	FAT	
	3.2.3.5 DDS-R 0091 - Local Area Network Services Module	FAT	
	3.2.3.5 DDS-R 0092 - Local Area Network Services Module	FAT	
	3.2.3.5 DDS-R 0093 - Local Area Network Services Module	FAT	
	3.2.3.5 DDS-R 0094 - Local Area Network Services Module	FAT	
	3.2.3.6 DDS-R 0095 - Local Area Network Extension Module	FAT	

Requirement	System Specification	Verification Results	Verification Results
		Met	Met with Exception (MWE)
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB-OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) (NO-CCC) (NO-CHANGE)			
4.e.(5)(a); 4.e.(5)(b)	MSRCHSERS Rev A 26 March 2004	Verification	Verification
6.c. Standardization, Interoperability, and Commonality	3.2.3.6 DDS-R 0096 - Local Area Network Extension Module	FAT	
5.b.; 5.d.(2); 5.e. Integrated Logistics Support (ILS)	3.2.3.7 DDS-R 0097 - Power Module	FAT	
	3.2.4 DDS-R 0098 - System Certification	FAT	
	3.3 DDS-R 0099 - Software Requirements	FAT	
	3.3 DDS-R 0100 - Software Requirements	FAT	
	3.3 DDS-R 0101 - Software Requirements	FAT	
	3.3 DDS-R 0102 - Software Requirements	FAT	
4.b.(3)(c); 5.d.(2)	3.3.1 DDS-R 0103 - Network Security	FAT	

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
		Met	Met with Exception (MWE)
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) (NO. CCC H. D) CHANGE 6			
5.b. Support Equipment	MSR008SPS Rev A-26 March 2004	Verification	Verification
	3.3.2 DDS-R 0104 - Configuration	FAT	
	3.3.2 DDS-R 0105 - Configuration	FAT	
	3.3.2 DDS-R 0106 - Configuration	FAT	
	3.3.2 DDS-R 0107 - Configuration	FAT	
	3.3.3 DDS-R 0108 - Server Shutdown	FAT	
	3.3.3 DDS-R 0109 - Server Shutdown	FAT	
4.e.(5)(a); 4.e.(5)(b); 4.e.(5)(c)	3.4 DDS-R0110 - System Characteristics	FAT	
4.e. The performance capabilities and characteristics (both wartime and peacetime) are as follows:			
1.e.2.(c) Server	3.4.1 DDS-R0111 - Operational State	FAT	

Requirement	System Specification	Verification Results					Verification Results				
		A	B	C	D	E	A	B	C	D	E
SUBJ: OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) (NO CCC ELD) CHANGE 6	MSR CODES SPS Rev A-26 March 2004	Verification					Verification				
		Met with Exception (MWE): 26					Met with Exception (MWE): 26				
4.f.2.(a) Combat Support Requirements; Mobility Requirements	CSR	Not Yet Evaluated (NVE): 33					Not Yet Evaluated (NVE): 33				
		FAT					FAT				
4.e.5 Operation	3.4.2 DDS-R0112 - Storage & Transport State										
	3.4.3.1.1 DDS-R0113 - Transport										
	3.4.3.1.1.a DDS-R0114 - Fixed & Rotary Wing Aircraft										
	3.4.3.1.1.b DDS-R0115 - Vehicular Transport over Cross Country Terrain										
	3.4.3.1.1.c DDS-R0116 - rail, landing craft & sealift										
	3.4.3.1.1 DDS-R0117 - No Special Equipment Needs										
	3.4.3.1.2 DDS-R0118 - Storage										
	3.4.3.2 DDS-R0119 - Transit Case Requirements										

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results	Verification Results
4.e.5(a)-(c) Operation in Garrison, field and shipboard	MSRCOFESIS Rev A 26 March 2009	FAT	FAT	
4.g.5(a) Security Needs; Communications		FAT	FAT	
4.e.(2) Weight		FAT	FAT	

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) NO. CCC H-49, CHANGE 6			
4.e.(1)-(5) Performance Capabilities and Characteristics	MSR CODES Rev A 26 March 2004	Verification	Verification
	3.4.3.2.5 DDS-R0127-Construction	FAT	
	3.4.3.2.6 DDS-R0128-Rack Mount	FAT	
	3.4.3.2.7 DDS-R0129-Paint & Finish	FAT & PAT I	
	3.4.3.2.7 DDS-R0130-Paint & Finish	FAT	
	3.4.3.2.7 DDS-R0131-Paint & Finish	FAT	
	3.4.3.2.7 DDS-R0132-Paint & Finish	FAT	
	3.4.3.2.8 DDS-R0133-Power Entrance Panel	FAT	
	3.4.3.2.8 DDS-R0134-Power Entrance Panel	FAT	
	3.4.3.2.9 DDS-R0135-Power Cables	X	

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
		Met	Met with Exception (MWE)
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATANETWORK (DDN) (NO CCC) (L1) CHANGE 6			
	MSRCSSES Rev A-26 March 2004	Verification	Verification
	3.4.3.2.9 DDS-R0136-Power Cables	FAT, PAT 1 & PAT 2	
	3.4.3.2.9 DDS-R0137-Power Cables	FAT, PAT 1 & PAT 2	
	3.4.3.2.10 DDS-R0138-Transit Case Wiring	FAT	
	3.4.3.2.10 DDS-R0139-Transit Case Wiring	FAT	
	3.4.3.2.10 DDS-R0140-Transit Case Wiring	FAT	
	3.4.3.2.10 DDS-R0141-Transit Case Wiring	FAT	
	3.4.3.2.10 DDS-R0142-Transit Case Wiring	FAT	

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Validation Results	Validation Results
		Met	Met
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) (NO CCC R119) CHANGE 6			
	MSR@ESENSE Rev A-26 March 2009		
	3.4.3.2.10 DDS-R0143-Transit Case Wiring	FAT	
4.e.5.(a)-(c) Operation in Garrison, field and shipboard	3.4.3.3.1 DDS-R0144-Electrical & Power Requirements; Normal Power	FAT	
	3.4.3.3.2 DDS-R0145-Electrical & Power Requirements; Uninterruptible Power	FAT	
4.e.(6) Reliability	3.4.4.1 DDS-R0146-Reliability	FAT	
	3.4.4.2.1 DDS-R0147-Organizational Level Mean Time to Repair	FAT	
4.f.1.e.(2) Maintenance Concept; Mean Time to Repair	3.4.4.2.2 DDS-R0148-Intermediate Level Mean Time to Repair	FAT	

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
		Met	Met with Exception (MWE)
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
MSTRGCHSENS Rev A-26 March 2004			
4.f.1.(d) Preventive Maintenance	3.4.4.2.3 DDS-R0149-Mean Time to Perform Preventive Maintenance	FAT	
4.e.(1) Temperature	3.4.5 DDS-R0150-Environmental Conditions		FAT
4.g.3.(a) Natural Environmental Factors; Altitude	3.4.5.1 DDS-R0151-Altitude	FAT	
4.e.(1) Temperature	3.4.5.2 DDS-R0152-Temperature		FAT
4.g.3.(c) Natural Environmental Factors; Humidity	3.4.5.3 DDS-R0153-Humidity	FAT	
4.g.3.(b) Natural Environmental Factors; Sand & Dust	3.4.5.4 DDS-R0154-Sand & Dust		FAT
4.g.3.(c) Natural Environmental Factors; Humidity & Salt Fog	3.4.5.5 DDS-R0155-Salt Fog	FAT	

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Analysis	Verification	Validation	Verification Results	Validation Results
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE PHYSICAL DATA NETWORK (PDN) (NO CCC BUILD) CHANGE 6					Met with Exception (MWE) 26	Met with Exception (MWE)
					Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
MSTR00HESPS Rev A 26 March 2009						
4.g.(3) Natural Environmental Factors	3.4.5.6 DDS-R0156-Fungus	FAT				
4.g.(4) Transport	3.4.5.7 DDS-R0157-Shock & Vibration			FAT		
4.g.(3) Natural Environmental Factors	3.4.5.8 DDS-R0158-Ice & Snow	FAT				
4.g.(3) Natural Environmental Factors	3.4.5.9 DDS-R0159-Acoustic Noise			FAT		
4.g.(3),(d) Natural Environmental Factors; Precipitation	3.4.5.10 DDS-R0160-Rain & Immersion			FAT		
4.g.(3) Natural Environmental Factors	3.4.5.11 DDS-R0161-Lightning	FAT				
	3.4.5.11 DDS-R0162-Lightning	FAT				
	3.4.5.11 DDS-R0163-Lightning	FAT				
	3.4.5.11 DDS-R0164-Lightning	FAT				

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
		Met	Met with Exception (MWE)
		26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB-OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) NO CCC (DDN) NO CCC (DDN) CHANGE 6			
4.e.(3) Setup	MSTRGOFESS Rev A-26 March 2004	Verification	Verification
	3.4.5.11 DDS-R0165-Lighting	FAT	
	3.4.6 DDS-R0166-Deployment Requirements	FAT	
	3.4.6.1 DDS-R0167-Deployment Requirements; Setup	FAT	
	3.4.6.1 DDS-R0168-Deployment Requirements; Setup	FAT	
	3.4.6.2 DDS-R0169-Deployment Requirements; Teardown	FAT	
	3.4.6.2 DDS-R0170-Deployment Requirements; Teardown	FAT	
4.e.(4) Tear-down	3.5 DDS-R0171-Design & Construction	FAT	
5(c) Human Systems Integration			

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NVE): 33	Not Yet Evaluated (NVE)
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORKS (TDN) NO CCC TASK CHANGE 6			
MSTR00HSPS Rev A 26 March 2004			
	3.5.1 DDS-R0172-Materials, Parts, and Processes	FAT	
	3.5.1.1 DDS-R0173-Connectors	FAT	
	3.5.1.2 DDS-R0174-Fastener Hardware	FAT	
	3.5.1.3 DDS-R0175-Tolerances	FAT	
	3.5.1.4 DDS-R0176-Corrosion Control	FAT	
	3.5.1.5 DDS-R0177-Electrical Equipment Grounding Scheme	FAT	
	3.5.1.6 DDS-R0178-Transit Case Electrical Grounding Scheme	FAT	
	3.5.1.7 DDS-R0179-Electrostatic Discharge	FAT	

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Met	Met with Exception (MWE): 26	Not Yet Evaluated (NYE): 33	Met	Met with Exception (MWE)	Not Yet Evaluated (NYE)
4.g.(1) Electromagnetic Interference (EMI)	3.5.1.8 DDS-R0180-Environmental Safety & Health (ES&H) 3.5.2 DDS-R0181-Electromagnetic Interference/Electromagnetic Compatibility 3.5.2 DDS-R0182-Electromagnetic Interference/Electromagnetic Compatibility 3.5.3 DDS-R0183-Identification & Marking 3.5.3.1 DDS-R0184-Nameplates & Product Marking 3.5.3.1 DDS-R0185-Nameplates & Product Marking	FAT	FAT	FAT	FAT	FAT	FAT	FAT
4.f.(1)-(2) Logistics and Readiness; Measures and Combat Support Requirements								

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results	Verification Results
		Met	Met with Exception (MWE): 26	Met with Exception (MWE)
			Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) NO. 6CC BLDG CHANGE 6				
	MSR COHESIVE R01 A 26 March 2005	Verification		
		A	B	C
	3.5.3.1 DDS-R0186-Nameplates & Product Marking		FAT	
	3.5.3.1 DDS-R0187-Nameplates & Product Marking		FAT	
	3.5.3.1 DDS-R0188-Nameplates & Product Marking		FAT	
	3.5.3.1 DDS-R0189-Nameplates & Product Marking	FAT		
	3.5.3.1 DDS-R0190-Nameplates & Product Marking	FAT		
	3.5.3.1 DDS-R0191-Nameplates & Product Marking		FAT & PAT 1	
	3.5.3.1 DDS-R0192-Nameplates & Product Marking		FAT	

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results	Verification Results
		Met	Met with Exception (MWE)
		Met with Exception (MWE): 26	Met with Exception (MWE)
		Not Yet Evaluated (NYE): 33	Not Yet Evaluated (NYE)
SUB OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) (NO CCC) (NO CHANGES)			
MSTR00000000 Rev A 26 March 2004			
5.(c) Human Systems Integration	Marking		
	3.5.3.1 DDS-R0193-Nameplates & Product Marking	FAT	
	3.5.3.1 DDS-R0194-Nameplates & Product Marking	FAT & PAT 1	
	3.5.3.1 DDS-R0195-Nameplates & Product Marking	FAT & PAT 1	
	3.5.3.1 DDS-R0196-Nameplates & Product Marking	FAT & PAT 1	
	3.5.3.1 DDS-R0197-Nameplates & Product Marking	FAT & PAT 1	
	3.5.4 DDS-R0198-Workmanship	FAT & PAT 1	

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification					Validation					Acceptance				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
SUBJ: OPERATIONAL REQUIREMENTS DOCUMENT (ORD) FOR THE TACTICAL DATA NETWORK (TDN) (NO. 155) (15) CHANGE 6	MSTRGCHES Rev. A-26 March 2001	3.5.5 DDS-R0199-Interchangeability	FAT													
		3.5.6.1 DDS-R0200-Electrical Design	FAT													
		3.5.6.2 DDS-R0201-Radio Frequency & X-radiation safety	FAT													
		3.5.6.3 DDS-R0202-Equipment Safety	-													
		3.5.6.3 DDS-R0203-Equipment Safety														
		3.5.6.3 DDS-R0204-Equipment Safety														
		3.5.6.3 DDS-R0205-Equipment Safety														
		3.5.6.4 DDS-R0206-Chemical Safety	-													
		3.5.6.4 DDS-R0207-Chemical Safety	FAT													
		Verification Results					Validation Results					Acceptance Results				
		Met														
		Met with Exception (MWE): 26														
		Not Yet Evaluated (NYE): 33														
		Met														
		Met with Exception (MWE)														
		Not Yet Evaluated (NYE)														

SOURCE SELECTION SENSITIVE

Requirement	System Specification	Verification Results					Verification Result	
		A	B	C	D	E	Met	Not Met
SUBOPERATIONAL REQUIREMENTS FOR THE TACTICAL DATA NETWORK (TDN) (NO. 000) (100) CHANGE 6	MSTRCOPS Rev. A.26 March 2004	3.5.6.4 DDS-R0208-Chemical Safety	FAT				Met with Exception (MWE): 26	Met with Exception (MWE)
		3.5.6.4 DDS-R0209-Chemical Safety		FAT				
		3.5.6.4 DDS-R0210-Chemical Safety		FAT				
		3.5.7 DDS-R0211-Human Engineering		FAT				
		3.5.8 DDS-R0212-Nuclear, Biological, and Chemical (NBC) Survivability	FAT					
4.g.2.(b) & (c) Survivability; NBC Contamination		3.5.8 DDS-R0213-Nuclear, Biological, and Chemical (NBC) Survivability	FAT					

SOURCE SELECTION SENSITIVE

Appendix A

Acronym List

Acronym	Definition
AC	Alternating Current
AES	Advanced Encryption Standard
AFATDS	Advanced Field Artillery Tactical Data System
AMSL	Above Mean Sea Level
ANSI	American National Standards Institute
AMS	Application Server Module
ATACC	Advanced Tactical Air Command Center
ATLASS	Asset Tracking Logistics and Supply System
BGP-4	Border Gateway Protocol-4
BMSL	Below Mean Sea Level
BTU	British Thermal Units
C	Centigrade
C4I	Command, Control, Communications, Computers and Intelligence
CAT	Category
CCA	Circuit Card Assembly
CCITT	International Telegraph and Telephone Consultative Committee
CDI	Conditioned Diphas
CD-ROM	Compact Disk Read Only Memory
CFR	Code of Federal Regulations
CIO	Chief Information Officer
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
CJCSM	Chairman of the Joint Chiefs of Staff Manual
CLNS	Connectionless Network Services
CMNS	Connection Mode Network Services
COMSEC	Communications Security
COS	Class of Service
COTS	Commercial-Off-The-Shelf
CSM	Communications Security Module
DB	Decibel
DDS-R	Data Distribution System-Replacement
DISA	Defense Information Systems Agency
DISN	Defense Information System Network
DISR	DOD IT Standards Registry
DOD	Department of Defense
DRAM	Dynamic Random Access Memory
DSM	Data Storage Module

SOURCE SELECTION SENSITIVE

DSP	Digital Signal Processor
DTC	Digital Technical Control
DTE	Data Termination Equipment
DVD	Digital Versatile Disc
EIA	Electronic Industries Association
EIGRP	Enhanced Interior Gateway Routing Protocol
E-mail	Electronic mail
EMI	Electromagnetic Interference
EMP	Electromagnetic Pulse
EPLRS	Enhanced Position Location Reporting System
ES&H	Environmental Safety & Health
ESD	Electrostatic Discharge
F	Fahrenheit
FAT	First Article Test
FIPS	Federal Information Processing Standard
GB	Gigabyte
GFE	Government Furnished Equipment
GMF	Ground Mobile Forces
GOTS	Government-Off-The-Shelf
GPS	Global Positioning System
GSCR	Generic Switching Center Requirements
HDD	Hard Disk Drive
HDLC	High Level Data Link Control
hr	Hour
HSSI	High Speed Serial Interface
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
Hz	Hertz
I/O	Input/Output
IAS	Intelligence Analysis System
ICMP	Internet Control Message Protocol
IDASC	Improved Direct Air Support Central
IEEE	Institute of Electrical and Electronics Engineers
IGMP	Internet Group Management Protocol
INE	Inline Network Encryptor
IP	Internet Protocol
IRDP	ICMP Router Discovery Protocol
ISDN	Integrated Services Digital Network
IS-IS	Intermediate Systems to Intermediate Systems

SOURCE SELECTION SENSITIVE

ISO	International Organization of Standards
IT	Information Technology
ITU	International Telecommunications Union
JECCS	Joint Enhanced Core Communications System
JITC	Joint Interoperability Test Center
kA	kilo amperes
KB	Kilobytes
KBPS	Kilobits Per Second
Km/h	Kilometers Per Hour
Kpps	Kilopackets Per Second
KVM	Keyboard-Video-Mouse
LAN	Local Area Network
lbs	Pounds
LEM	LAN Extension Module
LMST	Lightweight Multiband Satellite Terminal
LSM	LAN Services Module
LRU	Line Replaceable Unit
MAGTF	Marine Air-Ground Task Force
MB	Megabytes
MBPS	Megabits Per Second
MCHS	Marine Common Hardware Suite
MCNOSC	Marine Corps Network Operations and Security Command
MCSSC2	Marine Combat Service Support Command and Control System
MILOGS	Marine Integrated Logistics System
MIL-HDBK	Military Handbook
MIL-STD	Military Standard
MIPS	Marine Integrated Personnel System
MOPP	Mission Oriented Protective Posture
Mph	Miles Per Hour
MTBF	Mean Time Between Failure
MTTR	Mean Time To Repair
MTWS	MAGTF Tactical Warfare Simulation
NAS	Network Attached Storage
NBC	Nuclear, Biological and Chemical
NDI	Non-Developmental Items
NFPA	National Fire Protection Agency
NIC	Network Interface Card
NIOSH	National Institute of Occupational Safety and Health
NIPRNET	Non-secure Internet Protocol Router Network
NRZ	Non-Return to Zero

SOURCE SELECTION SENSITIVE

NSTISSAM	National Security Telecommunications and Information Systems Security Policy Advisory Memorandum
OS	Operating System
PCMCIA	Personal Computer Memory Card International Association
PEP	Power Entrance Panel
PM	Power Module
PPP	Point to Point Protocol
PRI	Primary Rate Interface
QOS	Quality of Service
RAM	Random Access Memory
RFC	Request For Comments
RIP	Routing Information Protocol
RSRB	Remote Source Route Bridging
SATCOM	Satellite Communication
SAN	Storage Area Network
SBU	Sensitive But Unclassified
SC	Subscription Channel
SCI	Sensitive Compartmented Information
SDLC	Synchronous Data Link Control
SEP	Signal Entry Panel
SFP	Small Form-factor Pluggable
SHF	Super High Frequency
SIPRNET	Secret Internet Protocol Router Network
SNMP	Simple Network Management Protocol
SOW	Statement of Work
SPEED	System Planning Engineering Evaluation Device
sqft	Square Feet
SR/TLB	Source Route / Translational Bridging
SRB	Source Route Bridging
ssh	Secure Shell
ST	Straight Tip
TCO	Tactical Combat Operations
TCP	Transmission Control Protocol
TDN	Tactical Data Network
TDS	Tactical Data System
TEMPEST	Transient Electromagnetic Pulse Emanations Standard
TFOCA	Tactical Fiber Optic Cable Assembly
TFTP	Trivial File Transfer Protocol

SOURCE SELECTION SENSITIVE

TLV	Threshold Limit Value
TS	Top Secret
TSM	Transition Switch Module
UHF	Ultra-High Frequency
UPS	Uninterruptible Power Supply
USMC	United States Marine Corps
UTC	Universal Time Constant
VLAN	Virtual LAN
VPN	Virtural Private Network
WAN	Wide Area Network
WSM	WAN Services Module

TECHNICAL MANUAL CONTRACT REQUIREMENT (TMCR)
FOR THE
TACTICAL DATA NETWORK
DATA DISTRIBUTION SYSTEM-REPLACEMENT (TDN DDS-R)
TMCR CINS-FY06-002

DRAFT
TECHNICAL MANUAL CONTRACT REQUIREMENT
FOR THE TDN DDS-R
TMCR CINS-FY06-002

SUBJECT: REQUIREMENTS FOR DELIVERY OF A SYSTEM OPERATOR'S AND MAINTENANCE ELECTRONIC TECHNICAL MANUAL (ETM) WITH COMPONENTS INVENTORY AND REPAIR PARTS LISTS (-14&P) IN ENHANCED PORTABLE DOCUMENT FORMAT (PDF) FILES DELIVERED ON CD-ROM

SCOPE: This Technical Manual Contract Requirement (TMCR) document presents requirements for preparing the subject manual. The files used to produce the ETM shall be written in English and delivered in the most current version of Microsoft (MS) Word or compatible files, on CD-ROM, to Marine Corps Systems Command (MARCORSYSCOM) only. System component-associated commercial manuals shall be written in English and provided in soft copy on the systems ETM CD-ROM using enhanced portable document format (PDF) files. Each CD ROM shall have Adobe Acrobat Reader installed to enable the user to read the ETM by using the CD-ROM only. Commercial manuals shall be reviewed to ensure the Marine Corps can properly support all subsystems. Recommendations shall be made to the Government if the Contractor concludes that supplementation may be required. The ETM CD-ROM shall have a label identifying the system, technical manual number, and Publication Control Number (PCN). The CD-ROM case shall also have a label or cover with system specific information. The Contractor shall deliver final draft ETMs for use with any prototype hardware systems. The contractor shall deliver final production ETMs (to include changes resulting from training, tests, reviews, and hardware changes) for delivery with production hardware systems. MARCORSYSCOM will be the approving authority for finals prior to publication.

1.0 DATA ITEMS. Data Items shall be delivered in accordance with the distribution matrix as listed on the Contract Data Requirements Lists (CDRL).

2.0. APPLICABLE DOCUMENTS. The following documents were used to establish the requirements of this TMCR to the extent covered herein and shall be used as guidance in the development of the system ETM.

2.1. Government Documents

SG-1A U.S. Marine Corps Style Guide

MIL-PRF-38784 Standard Practice for Manuals, Technical:
General Style and Format Requirements

MIL-HDBK-1221 Department of Defense Handbook for
Evaluation of Commercial Off-The-Shelf
(COTS) Manuals

MIL-STD-1840 Automated Exchange of Technical Information

MCO P5215.17 The Marine Corps Technical Publication
System

MCO P4400.150 Consumer-Level Supply Policy Manual

TM 4700-15/1 Ground Equipment Record Procedures

2.2. Commercial Documents

ASME Y14.38M Abbreviations and Acronyms

3.0. REQUIREMENTS. The requirements of this TMCR shall take precedence over any other document pertaining to technical manuals.

3.1. Technical Manuals Quality Assurance Data. The Contractor shall be responsible for the quality of the technical information and digital data provided by subcontractors and vendors. Refer to Section 4.0.

3.2. Technical Manuals

3.2.1 System Operator's and Maintenance Manual (-14&P). The Contractor shall develop a combined Operator's and Maintenance ETM with Components Inventory List and Repair Parts List for the TDN DDS-R. The manual shall be written in simple, practical English and provide system and subsystem oriented instructions for packing and unpacking, setup and teardown, and any special precautions or procedures for system installation, operation, troubleshooting and testing, maintenance, and shut down of the TDN DDS-R.

Each operator and maintenance task shall be presented in detail and in logical, systematic steps for the work to be accomplished. The maintenance instructions shall accurately provide the technician with all of the information needed to keep the equipment operational. The ETM shall provide system and subsystem oriented instructions for installation, operation, maintenance, and test of the TDN DDS-R. It will contain a Components Inventory List that can be used as a tool for performing inventories and record keeping. All tools and test equipment required to accomplish maintenance or installation shall be identified as part of the task. To the greatest extent practical, Government Furnished Materiel, Government technical manuals or Government-approved commercial operation and maintenance manuals, shall be used as references for system and subsystem maintenance.

Margins on each page shall not be less than one half inch. All terminology, symbols, and abbreviations shall be readily understandable by operators and maintenance personnel. Use of abbreviations shall be held to a minimum and shall be defined the first time they appear. Abbreviations used shall be in accordance with ASME Y14.38M.

3.2.2. Commercial Manuals. Commercial manuals shall be used, when available. The manuals shall contain all technical information on the assembly, installation, operation, and parts to support operation and maintenance. If the Contractor determines that commercial manuals are not complete, the Contractor shall develop new information to be incorporated into the commercial manual that is incomplete. Commercial manuals shall be submitted to the Government for review and approval within 60 days after Critical Design Review (CDR) at which time the Contractor has identified vendor equipment as system components. The Contractor shall submit commercial manuals, with supplementation when required, for review and acceptance. During review, the Government may determine that supplementation is required. See 3.2.3.

The Contractor shall deliver all associated commercial manuals in PDF format on the CD-ROM containing the system ETM. These manuals shall be linked with the references used in the system ETM.

NOTE: If the original equipment manufacturer provides only a hard copy manual, the Contractor shall convert the document to PDF files for inclusion on the system ETM CD-ROM.

Written copyright release shall be provided concurrently with each final commercial manual, whether supplemented or not. The copyright release shall specify that the Government has permission to reproduce or duplicate paper and electronic copies and post copies on a Marine Corps website, as needed.

3.2.3. Supplemental Information. In the event that the Government determines that supplementation is required to make the commercial manual acceptable for Government use, the Contractor shall prepare supplementation in the same format as the system manual. The Contractor shall submit draft supplementation within 60 days after Government request for supplementation. The Government requires 30 days for review of original submission or revision. The manual may be supplemented with existing data to support operation and maintenance. Should the required supplemental data be so extensive that clarity could not be preserved, the Contractor will be directed to prepare a new manual in ETM format to be included with the system ETM. MIL-HDBK-1221 may be used as a guide for preparation of supplementation. Warning and Caution statements will be added, as required, for the protection of personnel and equipment.

3.2.4. Manuals for Review. During reviews, the ETM shall be presented in its most current stage of development. Corrections resulting from in-process reviews, testing (Contractor or Government), validation, and verification shall be included. The Government requires 30 days for review/approval/disapproval. The ETM, validated by the Contractor and verified by the Government, shall be fielded with the system equipment.

3.3. ETM Front Cover and Front Matter Format and Style

3.3.1. Front Cover. The statement "FOR OFFICIAL USE ONLY" shall appear on the front of all unclassified manuals, CD-ROM jewel cases, and CD-ROM labels. The phrase "UNCLASSIFIED DATA" shall be placed on the label of all unclassified CD-ROM disks. The following distribution statement and destruction notice shall be printed on the front of all unclassified manuals and CD-ROM jewel case inserts. The statements shall be centered below a Marine Corps seal. (See Attachment 1 for CD-ROM label and case insert samples.) An electronic copy will be provided by the Government upon request.

DISTRIBUTION STATEMENT: THIS PUBLICATION IS REQUIRED FOR OFFICIAL USE OR FOR ADMINISTRATION OR OPERATIONAL PURPOSES.

DISTRIBUTION IS LIMITED TO U.S. GOVERNMENT AGENCIES ONLY. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO: COMMANDANT OF THE MARINE CORPS (ARD), WASHINGTON D.C. 20380-0001.

DESTRUCTION NOTICE: DESTROY BY ANY METHOD THAT WILL PREVENT DISCLOSURE OF CONTENTS OR RECONSTRUCTION OF THE DOCUMENT.

3.3.2 Front Matter. Front matter for the system manual shall contain a recapitulation of Warnings and Cautions cross-referenced to the text by page number. Front matter shall consist of the following:

- a. Cover
- b. Warnings and Cautions
- c. Table of Contents
- d. List of Illustrations
- e. List of Tables
- f. Safety Summary

3.3.3. Publication Numbers. The Government will assign a unique Marine Corps technical manual number and a unique PCN to the ETM. The technical manual number shall be placed on the top of all pages (frames) of the ETM. The PCN shall be placed on the lower right hand corner of the front cover only. Also, the technical manual number and the PCN shall be placed on the label and jewel case container of the CD-ROM.

3.3.4. Publication Date. The publication date shall be the copy freeze date, which is an engineering cutoff date established by the procuring activity. No hardware changes will be incorporated into the publication after the copy freeze date. The publication date shall be shown in the lower right hand corner of the front cover only.

3.4. ETM Technical Content/Format and Organization

3.4.1. Contents. The system manual contents shall be arranged according to the following:

- Chapter 1 - General Information
- Chapter 2 - Safety Precautions
- Chapter 3 - Installation Data
- Chapter 4 - Functional Description
- Chapter 5 - Operation
- Chapter 6 - Scheduled Maintenance
- Chapter 7 - Fault Isolation

- Chapter 8 - Alignment Procedures/Corrective Maintenance Procedures
- Chapter 9 - Repair Parts list
- Appendix X - Reference Publications
- Appendix X - Expendables/Durable Supplies and Materials List
- Appendix X - Tools and Test Equipment
- Appendix X - Components/Inventory List
- Appendix X - Glossary

NOTE

To facilitate ease in use, the Contractor shall incorporate the use of operation and maintenance flow charts or diagrams rather than textual information into the ETM wherever practical.

3.4.2. Chapter Requirements

Functional Organization

- a. The -14&P system ETM shall use digital photographs or illustrations integrated with procedural and maintenance tasks, text, and the parts list.
- b. Digital photographs and illustrations will show the relationship of components to an assembly and parts to a component.
- c. Digital photographs and illustrations shall be keyed in procedural or disassembly sequence.
- d. Line drawings shall be prepared and used in cases where photographs are not clear. It must be understood that clarity shall be the objective.
- e. Photographs or line art, including schematics, wiring diagrams, and block diagrams, shall be of sufficient darkness and sharpness of line to reproduce clearly at required reproduction size without additional treatment. Nomenclature, callouts, tabular material, and symbols appearing on illustrations shall be upper case, with eight point minimum reproduced size.

3.4.2.1. Chapter 1 - General Information. Chapter 1 shall describe the system in general physical and functional terms as specified below.

a. Introduction. The introduction shall define the system and its relationship with other systems. The mission of the system shall be stated. A diagram showing the interrelationships of the system equipment shall support the text. The major functional relationship and input/output to related systems shall be indicated.

b. Physical Arrangement. System areas and compartments shall be described and the system equipment and units contained in the areas shall be listed. The physical arrangement and description shall be supported by illustrations.

c. System Equipment. Each equipment subsystem comprising the system shall be identified and described. An illustration/picture shall be placed prior to the description. Descriptions of operator-attended equipment shall include general statements as to the nature and purpose of units and indicators. The text shall be supported by digital photographs/illustrations. All equipment shall be shown, whenever possible, in relative scale proportions. A piece of equipment may be separately illustrated with significant features called out, if such details are necessary for proper support of the text.

d. Associated System Equipment. When required, descriptions and illustrations of associated system equipment shall be limited to the major units thereof. The descriptions shall be more condensed than those of subject system equipment; otherwise, the same requirements are applicable. In the descriptions, emphasis shall be placed on those associated systems equipment that constitute operational or functional interfaces with the subject system. Such units shall be included in the system digital photographs/illustrations.

e. Reference Data. Reference data shall include a list of the equipment comprising the system describing descriptive and functional characteristics. The list shall contain nameplate data such as nomenclature, manufacturer and common names, abbreviated or informal nomenclature, and system characteristics.

f. Capabilities. A summary of system capabilities shall be provided.

3.4.2.2. Chapter 2 - Safety Precautions. Chapter 2 shall describe the hazards associated with system operation and maintenance. Any hazards identified in the Safety Assessment Report (SAR) shall be incorporated. To permit wide and unrestricted use, chapter 2 should contain only unclassified information.

a. Introduction. This description shall orient system supervisory personnel, and shall include the following:

(1) Purpose, scope, and organization of the system safety instructions.

(2) Basic safety concept.

(3) Basic responsibilities for safety.

b. Electromagnetic Radiation Hazards and Precautions. If applicable, describe the radiation hazards to personnel and the precautions to be taken. The hazards of radiation to flammable or explosive materials shall also be described. The description shall include discussions of, locations, minimum safe distances, and precautions to be taken when entering areas of radiation hazard.

c. System Hazards and Precautions. Descriptions of system hazards and precautions shall be included, addressed to system personnel, and referenced to particular system equipment. The descriptions shall be organized to be consistent with the operation of the system. The descriptions shall supplement and extend equipment safety instructions to the system level, by warning of potential hazards that can be caused during operation or maintenance.

d. Operational and Maintenance Safety Summary. A summary shall be included which emphasizes the proper use of equipment controls, describes the hazards to operators and maintenance personnel, or, as applicable, the hazard to persons in areas remote from the operations, and recommended precautions. An emergency operational routine shall be included which emphasizes the controls that permit immediate shut down of the system.

e. Hazardous Components. Identify and briefly describe the hazardous components including radioactive devices and elements

used with the system and summarize the general handling precautions for such components.

3.4.2.3. Chapter 3 - Installation Data. Incorporate installation drawings and information, as appropriate. System installation data shall include, but not be limited to, the following:

a. Electrical Power Requirements. Identify the electrical power requirements for the system and each system component. Include nominal input voltage requirements along with percent of variance that can be accommodated and whether or not the system component has an auto-sensing feature. Also, provide power requirements in terms of volt-amps.

b. Interconnection Diagrams. Interconnection block diagrams shall be presented. Show each piece of equipment as a block. A cable number shall identify all cables running between equipment. The number of active and spare leads in each cable shall be included. The illustrations shall also indicate all junction boxes, switchboards, etc., into which interconnection cables enter or leave.

c. Cable Run Diagrams. Isometric diagrams shall be used to indicate the location of all cable runs between compartments or areas. Each cable run diagram shall indicate by compartment identification for location of all cables shown on the interconnecting diagrams.

d. System Cable Interconnection Check. Cold-wire check procedures shall be provided to verify the proper installation of all system cables. These checks shall be conducted with all power off and all equipment completely shut down.

e. Active System Test. All active system test procedures required to verify the proper installation and operation of the system shall be included. Reference may be made to applicable tests and procedures in Chapter 6. Procedures for complete setup, testing, shut down, and data analysis shall be provided.

f. System Component Installation Procedures. Complete systematic, step-by-step instructions shall be provided for installation of system components not covered in any of the equipment manuals for the equipment comprising the system. The following types of supplemental information not provided in the equipment technical manual shall be included:

- (1) Instructions required to assemble components.
- (2) Instructions and diagrams required to install components.
- (3) Instructions for making electrical and all other interface connections between equipment, components, and other systems.
- (4) Servicing procedures.

g. Installation Drawings. The following drawings shall be included:

- (1) Pictorial diagrams.
- (2) Outline and mounting dimension data.
- (3) Interconnecting wiring and cabling diagrams.
- (4) Primary power distribution.

h. Installation Checkout. Systematic, step-by-step, procedures shall be provided to demonstrate that the system operates correctly, safely, and within tolerances. These procedures shall provide for system checkout as follows:

- (1) Installation inspection and pre-energizing procedures.
- (2) Turn-on and preliminary tests.
- (3) Installation verification tests.

i. Test Procedures. Testing procedures shall be presented in a logical order as follows:

- (1) Energize the system.
- (2) When test results are within the required tolerance, include a reference to the next logical test. When test results are out of tolerance, include a reference to the corrective maintenance or troubleshooting data. Reference shall be made to troubleshooting diagrams, except where probable

causes of failure can be predicted in which case reference may be made directly to a repair procedure.

3.4.2.4. Chapter 4 - Functional Description. Chapter 4 shall describe how the components jointly perform major operations and functions and how associated systems contribute to the performance of these major functions. Equipment or associated system interfaces shall be described only as necessary to identify the sources or destinations of system inputs and outputs. Description shall not repeat the functional description provided in the equipment manuals.

a. Method of Presentation. The presentation shall first define how the system's major functions meet the purpose of the system. Each major function shall then be discussed separately at progressively increasing levels of detail. A basic block diagram of the system shall support the description of the entire system. Where textual information can be enhanced pictorially, additional diagrams and other illustrations shall be used. In electronic manuals, the same diagram can be incorporated for use throughout the manual (one illustration - multiple links, when possible).

b. Introduction. The introduction shall describe the general approach that is used in the functional description. The introduction shall also describe briefly the interrelationship between the system and associated systems.

c. System Function Directory. A system function directory shall tabulate operation control functions and the signal data described in the detailed level of functional analysis. The tabulation shall include, but is not limited to, the following information, as applicable:

- (1) Official function name, common name, and symbol.
- (2) Type of control or signal (e.g., AC frequency and voltage, DC polarity and voltage).
- (3) The origin and termination of the control or signal.
- (4) Identification of equipment (e.g., relay transmitters, coordinate converters, distribution boxes, switches, and the like) between the origin and termination of the output control or signal.

(5) Figure numbers of illustrations on which the function is illustrated, including the fault isolation diagrams in Chapter 7.

3.4.2.5. Chapter 5 - Operation. Chapter 5 shall describe system operating modes and procedures. The descriptions shall be detailed to the level required for an understanding of the operational interfaces of the system equipment and associated systems. Illustrations shall be included, when necessary for clarity. The various operating modes shall first be described to acquaint the operator with all equipment combinations that can be employed to affect a given mode of operation.

a. Preoperational Conditions and Setup. Specific preoperational conditions presumed to be in effect prior to system operation shall be established. A system readiness check off list of significant switch positions and indicator status shall be tabulated. The initial conditions of associated-system equipment that directly affect system operation shall be treated in a similar manner.

b. Operating Modes. The primary operating mode shall be discussed in detail, and alternate modes shall be treated as modifications of the primary mode. Operating procedures common to all modes shall be detailed under the primary mode and referred to under the alternate modes, with such modifications of procedure as may be necessary. Each mode shall be described in the logical sequence of major phases, events, options, supervisory commands and responsive actions, and the following:

(1) Only equipment operational controls and indicators having system significance shall be explained in the description. When controls must be actuated and indicators observed in a sequence to achieve system operation, the descriptions will cite each control and indicator with a number to indicate the position in the sequence.

(2) Emphasis shall be placed, by the use of warnings and cautions, on the safe operation of controls, which if operated improperly, could result in hazards to personnel or damage to the equipment. Embedded warnings and cautions shall precede the operational step. Each control shall be followed by a brief description of its effects at the operator station and at remote stations. The primary mode description shall be supported by both general and detailed illustrations.

(3) Operational phases that involve the operator's judgment shall be illustrated by operational logic diagrams. The diagrams shall indicate the conditions that must be favorable prior to an operator action, or if unfavorable, indicate the alternate action. Illustrations that show dials, gauges, status lights, etc., shall indicate the favorable or unfavorable conditions that apply. Special procedures to be followed when an equipment failure may be bypassed (as separate from emergency procedures) shall also be described.

d. Normal Operation. The duties of system operators shall be described in terms of general responsibility and specific systematic, step-by-step procedures for operating the system in all of the primary modes. Descriptive words (such as switch, button, dial, or indicator) may be added to clarify the type of control involved. For example: "Press ACCESS button and observe channel spot." All system controls and indicators provided for the use of operators shall be covered. Controls and indicators provided only for maintenance and nonsystematic application shall not be called out.

e. Emergency Operation. Systematic, step-by-step procedures shall be provided for emergency operation of the system. If specially designated controls have been provided for emergencies, a short statement shall be included describing how they modify or otherwise affect normal system operation. Emergency procedures shall be supported by illustrations.

f. Special Operation. Special operations, such as test checkout, training, or evaluation exercises shall be described. Illustration support shall include block diagrams and line drawing diagrams.

3.4.2.6. Chapter 6 - Scheduled Maintenance. Chapter 6 shall contain all scheduled maintenance procedures for the system, together with necessary explanations and illustrations. These procedures shall be correlated along with the installation checkout requirements, such that any maintenance or performance test procedures also required for checkout may be properly referenced from Chapter 3, Installation Data. The Installation Standards Summary Sheet shall also include space for any maintenance or performance test result that should be recorded by the installer. The recorded information will provide a reference to the technician when troubleshooting, or when needed

for installation acceptance certification. Chapter 6 shall contain, but is not limited to, the following:

- (1) Introduction.
- (2) Tools and Equipment.
- (3) Scheduled maintenance action index.
- (4) Scheduled test procedures.

a. Introduction. The introduction shall be an explanation of the purpose, scope, and arrangement of the scheduled maintenance material. When a preventive maintenance procedure is critical to the operation of the system and the schedule for servicing is absolute (not recommended), this information shall be conspicuously written as a CAUTION. The following statement shall be included: "The scheduled maintenance instructions in this manual are intended to duplicate those furnished in the Planned Maintenance Checks System (PMCS)." In case of conflicts, the PMCS documentation takes precedence. Such conflicts should be reported immediately on the user comment sheet in accordance with the maintenance procedures for this manual.

b. Tools and Equipment. This section specifies the tools and equipment to be issued to maintenance personnel. Illustrations are provided showing the use of any special tools or equipment that is used in a special way for adjustment or calibration.

c. Scheduled maintenance action index. This index shall include all required scheduled performance tests. The index shall be tabulated as follows:

(1) Column 1, Interval. This index shall contain a list of all scheduled actions contained in the chapter. The following symbols to indicate the interval, as appropriate, shall be used:

<u>Interval</u>	<u>Symbol</u>
Daily	D
Weekly	W
Monthly	M
Quarterly (3 Months)	Q
Semiannually (6 Months)	S
Annually (12 Months)	A

Overhaul cycle C
As specified (explain) R

(2) Column 2, Maintenance action. This column shall list the title of the maintenance action, which corresponds to the interval number in column 1.

(3) Column 3, Reference. This column shall state the paragraph or table number of the maintenance procedure that corresponds to the maintenance action listed in column 2.

d. Scheduled Test Procedures. Include the detailed procedures for setting up and performing complete system tests. Each procedure shall be numbered and titled to clearly define the test action and the output to be tested. Safety precautions, tools and test equipment, and any preliminary setup data required to perform the test shall be included.

3.4.2.7. Chapter 7 - Fault Isolation. The major objective of the system fault isolation procedures shall be described along with a brief description of each type of maintenance diagram. This chapter shall contain fault isolation procedures, illustrations, and an explanation of the use of the information presented. In addition, this chapter shall contain a fault directory that relates fault symptoms found during operation to the fault isolation procedures. Fault isolation procedures, fault logic diagrams, control function diagrams, and data function diagrams shall be included as follows:

- (1) Operation-based symptom fault directory.
- (2) Fault isolation procedures.
- (3) System fault logic and troubleshooting maintenance dependency matrix diagrams.
- (4) System control function diagrams.
- (5) System data function diagrams.

a. Operation-Based Symptom Fault Directory. The directory shall relate system faults observed during operation described in Chapter 5 to fault isolation diagrams. The table(s) shall include references to system fault isolation diagrams, and where applicable, directly to equipment troubleshooting diagrams. The

content of the table shall include, as applicable, the following information:

- (1) Operating procedure step.
- (2) Functional description.
- (3) Fault isolation procedure.
- (4) Alignment procedure.
- (5) Fault isolation diagram.
- (6) Equipment document.

b. Fault Isolation Procedures. Procedures shall be included for isolation of a trouble to a single equipment or functional area of equipment. The procedures shall provide for the analysis of switching combinations and observable indications (dials, gauge lamps, and meters). The use of any required test equipment shall be described. The procedures shall support the fault-logic, control-function, and data function diagrams. The supporting diagrams shall be referenced by figure number. Prerequisite control settings and conditions shall precede each procedure.

c. System Fault Logic and Troubleshooting-Maintenance Dependency-Matrix Diagrams. System fault logic diagrams shall be prepared for fault indications observed during either scheduled tests or operation. These diagrams shall isolate the functional area of the equipment at fault and then refer the user to the equipment technical manual containing the information needed to complete the fault isolation and repair. Each diagram shall include or refer to information necessary to establish the system test or operating conditions required for starting the fault isolation procedure. The conclusion boxes shall list the equipment or functional area within and equipment that is the probable source of malfunction and the technical manual reference or references for further isolation and repair of the fault. Troubleshooting-matrix diagrams may be substituted for or augment fault logic diagrams.

d. System Control Function Diagrams. Control function diagrams shall be provided for all system control circuits. The control function diagrams shall be at the system level. The

diagrams shall show essential fault isolation test points or comparable indicators, and shall include appropriate references to equipment manuals.

e. System Data Function Diagrams. Data function diagrams shall show in detail the system information needed to isolate faults within signal or data flow paths. Data function diagrams shall include tolerance values and shall contain references to equipment publications where necessary. All inputs required to develop the output shall be shown.

3.4.2.8. Chapter 8 - Corrective Maintenance. Chapter 8 shall contain instructions required to:

a. Adjust and align the equipment to include all modules, subassemblies, and assemblies.

b. Remove and replace all repairable parts.

The instructions must identify the actions to be accomplished; safety precautions to be observed; and tools, parts, materials, and test equipment required. Step-by-step maintenance procedures, in disassembly and reassembly order, for any and all items of equipment (which are part of the system) not covered by individual manuals (government or commercial), must be included in this chapter.

3.4.2.9 Chapter 9 - Repair Parts List. This chapter provides a list of spares and repair parts required to maintain and support this equipment. They authorize the requisitioning and issue of spares and repair parts as indicated by the source, maintenance, and recoverability (SMR) code. The pages list spares and repair parts authorized for use in the performance of maintenance. The list also includes parts, which must be removed for replacement of authorized parts. Parts lists are composed of functional groups in alpha sequence, with parts in each group listed in Figure and Number sequence. This listing comprises the main part of the Repair Parts Listing. (See Attachment 2 for an example.) It consists of an illustration followed by a listing of assemblies or components. It is arranged in columns, which show stock numbers, item identification, and other data necessary to maintain this equipment in an operative condition. Illustrations are placed either before, or in close proximity to, the component or assembly. The items are arranged in disassembly sequence.

a. Illustration (Column 1). ADD VERBIAGE: DIGITAL PHOTOS FOR COMPONENTS AND ENGINEERING DRAWINGS FOR FABRICATED PARTS - WITH LINKS TO SPARE PARTS AND COTS MANUALS - REMOVE ILLUSTRATION TEXT THROUGHOUT DOCUMENT.

b. Source Maintenance and Recoverability Code (Column 2). This column contains a series of alphabetic letters, which denote the uniform source, maintenance, and recoverability coding structure. This code is assigned to items subordinate to or associated with an end item, i.e., spares, repair parts, and support equipment. The uniform code format is composed of three parts consisting of a two (2) position Source Code, a two (2) position Maintenance Code, and a one (1) position Recoverability Code.

(1) The code provides the user with information on each item relative to (1) the method of obtaining the item; for example, by requisition, fabrication or salvage; (2) the lowest maintenance level authorized to remove, replace and use the item and the lowest level capable to perform complete repair; and (3) disposition action on unserviceable items.

(2) Definitions of SMR codes are listed on page 20 of the preface. Sample SMR codes are:

(1) Source	(2) Maintenance Use Repair		(3) Recoverability
PA	F	F	A
PB	F	H	H
PC	O	Z	Z
AF	F	Z	Z
MF	F	F	F
KF	H	Z	Z
XA	F	Z	Z
XB	O	F	F
XC	H	Z	Z

DEFINITIONS AND APPLICATION OF SOURCE, MAINTENANCE, AND RECOVERABILITY CODES

SOURCE CODES

Source codes (first and second position) are assigned to support items and indicate the manner of acquiring the items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second position of the uniform SMR code format.

SERIES A: ASSEMBLE, COMPLETE ASSEMBLY NOT STOCKED

Code "A" entered in the first position of the source code applies to items that are not procured as assemblies, but are assembled within the Marine Corps prior to installation. The code entered in the second position designates the lowest level authorized to assemble the item. All the parts used in the assembly will be "P" coded.

<u>Code</u>	<u>Application/Explanation</u>
AO	Item to be assembled at organizational maintenance level.
AF	Item to be assembled at intermediate maintenance level.
AH	Item to be assembled at intermediate maintenance level.
AD	Item to be assembled at depot maintenance level.

SERIES K: ITEMS OF A KIT, NOT PURCHASED SEPARATELY

<u>Code</u>	<u>Application/Explanation</u>
KD	An item of depot overhaul/repair kit and not purchased separately. Depot kit defined as a kit that provides items required at the time of overhaul or repair.
KF	An item of maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizational or intermediate levels of maintenance.
KB	Items included in both a depot overhaul/repair kit and a maintenance kit.

SERIES M: MANUFACTURE, PARTS NOT PROCURED

Code "M" entered in the first position of the source code applies to items that are not procured, but are capable of being fabricated or manufactured within the Marine Corps. These items have relatively low usage and will generally be fabricated or manufactured only as required for immediate repair or replacement. The code entered in the second position designates the lowest level authorized to manufacture or fabricate the item. Units will requisition the bulk materiel under the NSNs and the quantities indicated to effect the fabrication or manufacture of the item.

<u>Code</u>	<u>Application/Explanation</u>
MO	Item to be manufactured or fabricated at organizational level.
MF	Item to be manufactured or fabricated at intermediate maintenance level.
MH	Item to be manufactured or fabricated at intermediate maintenance level.
MD	Item to be manufactured or fabricated at depot maintenance level.

SERIES P: PARTS PROCURED, SUPPLY SYSTEM STOCK

<u>Code</u>	<u>Application/Explanation</u>
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purposes because essentiality dictates that a minimum quantity be available in the supply systems.
PC	Item procured and stocked and which otherwise would be code PA except that it is deteriorative in nature.
PD	Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issues or outfitting. Not subject to automatic replenishment.

<u>Code</u>	<u>Application/Explanation</u>
PE	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF	Support equipment which will not be stocked but which will be centrally procured on demand.
PG	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment, which because of probable discontinuance or shutdown of production facilities would prove uneconomical to reproduce at a later time.

SERIES X: NOT PROCURED, GENERALLY IMPRACTICABLE FOR STOCKING, MAINTENANCE, OR MANUFACTURE

Items listed in this publication, which are source coded XA or XB, may have been subsequently assigned an NSN because of other applications in the Marine Corps.

Therefore, if an item source coded in the XA or XB series in this publication is required, users are directed to first make the following investigations:

- a. Check the corresponding part number in FEDLOG to determine if an NSN has been assigned.
- b. If an NSN has been obtained from the above check, refer to FEDLOG for the latest supply management decision regarding the stock number.
- c. Check stock for availability of part(s) having an NSN.
- d. If the review of stock discloses that materiel is not available, refer to FEDLOG for inventory record data regarding the preferred NSN, which may have been obtained in the FEDLOG review.
- e. Prepare a requisition citing the stock number shown in FEDLOG.

The above review will assist the user in obtaining the correct item of supply from the supply system, when available, rather

than through alternate methods such as obtaining the desired part from salvage, requisitioning the next higher assembly, or recommending that the equipment be overhauled or retired. If a stock number for the desired item does not exist, then the source of supply as defined below will prevail:

<u>Code</u>	<u>Application/Explanation</u>
XA	Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.
XB	Item is not procured or stocked. If not available through salvage, requisition.
XC	Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturers' part number.

MAINTENANCE CODES

Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth position of the Uniform SMR Code Format as follows:

- a. USE Code (third position): The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item, as indicated by one of the following levels of maintenance.

<u>Code</u>	<u>Application/Explanation</u>
O	Organizational.
F	Field. Intermediate.
H	Field. Intermediate.
L	Item is removed, replaced, used at designated Specialized Repair Activity.
D	Depot.

- Z Item is not authorized to be removed or replaced at any maintenance level. This code assigned to items not required for support in a specific application and is identified for reference purposes only.

b. REPAIR Code (fourth position): The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair. The decision to code the support item for repair at the indicated maintenance levels requires that all maintenance capability (remove, replace, repair, assemble and test) for the support items be provided to that level. This does not preclude some minor repair, which should be accomplished at a lower level of maintenance unless specifically excluded by the appropriate code (i.e., L).

Code Application/Explanation

- O Organizational.
- F Field. Intermediate.
- H Field. Intermediate.
- K Repairable item. Repair, condemnation, and disposal to be performed at Contractor facility.
- D Depot.
- L Repair restricted to designated Specialized Repair Activity.
- Z Non-repairable. No repair is authorized.
- B No repair is authorized. The item may be reconditioned by adjusting, lubricating, etc., at the user level. No parts or special tools are procured for the maintenance of this item.

RECOVERABILITY CODES

Recoverability codes (fifth position) are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the uniform SMR code format.

<u>Code</u>	<u>Application/Explanation</u>
Z	Non-reparable item. When unserviceable, condemn and dispose of at the level indicated in position 3.
O	Reparable item. When uneconomically repairable, condemn and dispose of at organizational level.
F	Reparable item. When uneconomically repairable, condemn and dispose of at field maintenance level.
H	Reparable item. When uneconomically repairable, condemn and dispose of at field maintenance level.
D	Reparable item. When beyond lower level of repair capability, return to depot. Condemnation and disposal not authorized below depot level.
L	Reparable item. Repair, condemnation and disposal not authorized below depot level.
A	Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material). Refer to appropriate manuals/directives for specific instructions.

c. Stock Number (Column 3). This column furnishes National Stock Numbers (NSNs) assigned to those centrally managed items required for the support of the equipment. When they have been assigned, NSNs will be used in all supply operations, from original purchase to final disposal of the item. Absence of an NSN indicates the item is not normally stocked as a repair part, as indicated by the source code portion of the SMR codes. If an item without an NSN is required, it should be determined if the item can be obtained from assembly, manufacturer or salvage by referring to the source code. Items not stock numbered, that cannot be obtained from these sources, may be requisitioned using the CAGE code, part number and referencing the technical manual number, date of the technical manual, Figure and item number and the page number, which applies.

d. Commercial and Government Entity (CAGE) (Column 4). The CAGE codes are five position codes assigned to the manufacturers/non-manufacturers organizational entities/Contractors. The CAGE code is used in conjunction with the firm's reference number relating the firm with the item of supply, production or design

in cataloging and other supply record, as well as on engineering documentation. The codes are essential to contract/purchase agreements and various activities/agencies automated data processing (ADP) systems. The CAGE code and reference number are used to screen item identifications against each other primarily to detect duplication.

e. Part Number (Column 5). Indicates the primary number used by the manufacturer (individual, company, firm, corporation or government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards and inspection requirements to identify an item or range of items.

NOTE

When an NSN item is requisitioned, the item received may have a different part number than the part being replaced.

f. Description (Column 6). Indicates the Federal item name and, if required, a minimum description to identify the items. Items that are included in kits and sets are listed below the name of the kit or set with the quantity of each item in the kit or set indicated in the quantity incorporated in column. When the part used differs between serial numbers of the same model, the effective serial numbers are shown as the last line of the description.

g. Replace (Column 7). This column is divided as follows:

- (1) ECO column indicates items that have been determined to be economically cheaper to replace during repair than to expend the man-hours necessary to fully inspect each item.
- (2) MAN column indicates items that must be replaced any time they are loosened or removed.

No X in either column indicates the item has special inspection procedures or this item is further disassembled and a subsequent page will cover the components.

h. Unit of Measure (U/M) (Column 8). Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. The measure is expressed by two-character alphabetical abbreviation (e.g., ea, in, pr, etc.).

When the unit of measure differs from unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

i. Quantity Incorporated in Unit (Column 9). Indicates the quantity of the item used in the breakdown shown on the illustration figure, which is prepared for a functional group, sub-functional group, or an assembly. An "AR" appearing in the column in lieu of quantity is applicable (e.g., shims, spacers, etc.).

j. Special Information. Circled key callouts on the Repair Parts Illustration figures are to indicate items that must be replaced during repair of an item in order to return that item to 100% functionality and 90% service life according to repair standard requirement.

k. NSN Index. A list in NSN sequence containing part numbers, CAGE codes and NSNs which are cross-referenced to each illustration figure and item number appearance.

l. Part Number Index. A list in part number sequence containing part numbers, CAGE codes and NSNs which is cross-referenced to each illustration figure and item number appearance.

3.4.1.10. Appendix X - Reference Publications. A list of the manuals that pertain to system and system equipment, and other documents of interest, such as training materials/courseware and manuals for associated systems equipment shall be included.

3.4.1.11. Appendix X - Expendable/Durable Supplies and Materials List. This appendix lists supplies and materials needed to operate and maintain the system.

a. Explanation of Columns.

Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g. "Use cleaning compound, item 5, App.A").

Column (2) - Maintenance Level. This column identifies the lowest level of maintenance that requires the listed item.

O = Organizational
I = Intermediate
D = Depot

Column (3) - National Stock Number. This is the NSN assigned to the item; use it to request or requisition the item.

Column (4) - Description. Indicates the Federal Item Name and, if required, a description to identify the item. The last line for each item indicates the part number and CAGE code.

Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetic abbreviation (e.g., EA, in). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy the requirements.

3.4.1.12. Appendix X - Special Tools and Test Equipment. A list of all special tools and test equipment for system-level maintenance shall be included. Special tools are defined, as those tools not listed in the tool kit normally assigned to the required maintenance person in the Marine Corps unit when that person is deployed.

b. Explanation of Columns.

Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the tool or test equipment

Column (2) - Maintenance Level. This column identifies the maintenance level allocated the tool or test equipment.

Column (3) - National Stock Number. This is the NSN assigned to the specific tool or test equipment.

Column (4) - Nomenclature. This is the noun name of the tool or test equipment.

Column (5) - Tool Number. List the manufacturer's part number and CAGE for the tool.

3.4.1.13. Appendix X. Components Inventory List with Illustrations. Appendix X shall contain digital photographs with links to user manuals, technical data, and identification data on collateral and collection-type items within the Marine Corps. The components to be issued with the end item shall be identified under the heading of "SUPPLY SYSTEM RESPONSIBILITY" and, when required, under the heading "COLLATERAL MATERIEL." End items requiring collateral materiel are governed by whether the end item is initial or replacement issue. The Commander, Marine Corps Logistics Bases, 814 Radford Boulevard, Albany, Georgia 31704-1128, will direct whether the issue of the end item is with collateral materiel or without collateral materiel. Items listed under "USING UNIT RESPONSIBILITY" heading are to be requisitioned separately through the supply system when applicable. Using units are also responsible for requisitioning the required publications to support the end item identified by the ID number shown on the cover of the TM. The end item will be complete when the total quantity of items, as applicable, shown in the components list is on hand. (See Attachment 3 for an example.) An electronic copy of the attachment will be provided by the Government upon request. A complete components inventory list shall be provided to the Government upon delivery of the first system.

3.4.1.14 Appendix X - GLOSSARY. Abbreviations and definitions.

3.4.1.15. Appendices. Include additional appendices as applicable to identify appropriate related technical information and procedures (exclusive of administrative procedures).

3.4.1.16. Index. Not required in an ETM with the table of contents bookmarked or linked.

3.5. ETM Changes. Changes to the ETM, including those resulting from engineering change proposals, shall be submitted by issuing a new, updated CD-ROM. Changes to electronic files, which make up the ETM, are to be provided using the same guidance by which the basic ETM was written.

4.0. QUALITY ASSURANCE PROVISIONS

4.1. Quality Assurance Functions. All TM elements and processes shall be evaluated at various stages of development/

revision, by one or all of the following quality assurance functions:

- a. Quality reviews.
- b. Quality program reviews.
- c. In-Process Reviews (IPR).
- d. Validation.
- e. Verification.

4.1.1. Control of Subcontractors and Vendors. The Contractor shall ensure the quality of TMs prepared by subcontractors and vendors.

4.1.2. IPRs

4.1.2.1. The Government requires IPRs at stages of TM development (a minimum of 30% and 80%) to provide for coordinated monitoring of TM preparation by the Contractor and the Government. The Contractor shall support IPRs and provide access to TM materials, intermediate products, and final products. Upon request, the Contractor shall provide to the Government the most current ETM on CD-ROM for review prior (a minimum of 14 calendar days) to the scheduled IPR. The Contractor shall provide one ETM (on CD-ROM) to each IPR participant. The IPRs shall include evaluation of:

- a. Source data.
- b. TM plan/outline.
- c. Presentation methods.
- d. Modes of preparation.
- e. TMCR compliance.
- f. Completed documentation (electronic, text, and artwork).
- g. Current ETM development (ETM on CD-ROM).
- h. Current PDF files.

4.1.2.2. IPR Records. The Contractor shall act on reported decisions/discrepancies resulting from or associated with IPRs. Each review shall include corrections from the previous IPR, if

applicable. Comments and redline resulting from reviews shall be incorporated. Previous comments from any IPR shall be revisited prior to proceeding with the current IPR. If the previous comments have not been included, the IPR shall not be considered complete.

4.1.2.3. Disposition of IPR Findings. Discrepancies/deficiencies found as a result of the IPR shall be corrected prior to certification and acceptance of the ETM.

4.1.3. Guidance Conference. A start of work guidance conference shall be held at Contractor's facility to ensure a basic understanding of the requirements of this TMCR. This conference shall be held in conjunction with the contract Post Award Conference.

4.1.4. Validation. Validation is a Contractor, quality assurance responsibility accomplished on all TMs, changes, supplemental data, and revisions thereto. Validated manuals are required for testing and training. The Contractor shall provide a Validation Plan to the Government. The purpose of this plan is to define the activities, milestones, and schedules to be used to conduct the validation effort. The ETM shall not be ready for validation until the following conditions have been fulfilled.

a. Contractor's engineering technical review has been completed.

b. Information, illustrations and parts lists reflect correct configurations of the system/equipment, to include all engineering changes.

c. Procedural instructions are readily understandable by the intended user and adequate to perform all operations and maintenance functions.

d. All procedures have been performed to assure accuracy and performance requirements.

e. Adequacy of data is checked to ensure that it supports the approved maintenance and support plan.

f. Hardware of the proper configuration is available for the validation and verification effort.

g. All safety hazards identified in the SAR are resolved and identified within the text as cautions or warnings necessary to protect the equipment or personnel as appropriate.

h. The use of any hazardous material has been identified. The Contractor shall address, as a minimum, the hazardous materials listed in the Environmental Protection Agency's list.

i. Upon completion of validation, the Contractor shall provide a signed Validation Certificate testifying to the completeness, accuracy, and safety of the ETM.

4.1.5. Verification. An ETM shall not be ready for verification until the Contractor furnishes a Validation Certificate signed by an authorized official of the company to indicate validation is complete. This may be a locally designed form. The Government will verify that the ETM is accurate during verification. The Contractor shall provide system equipment, technical/engineering support, and facilities, as required, to aid the Government in the performance of the verification effort. The Contractor shall provide one set of ETM(s) on CD-ROM to each verification participant, no less than 14 calendar days prior to the scheduled verification effort.

The Contractor shall incorporate all Government comments from specification compliance-reviews, technical accuracy reviews, and Government verification reviews into final submission of the ETM. Correction of discrepancies or changes resulting from Government training, testing, and reviews shall be provided for use and incorporation into the production ETM. Documents requiring 15% or more corrections will be deemed unacceptable by the Government.

5.0. PACKAGING AND DELIVERY

5.1 Packaging

5.1.1 Marking. In addition to sender and addressee information, the exterior of each package shall bear the following:

- (1) Publication number.
- (2) Contract or Purchase Order Number.
- (3) Type of material enclosed.

(4) Number of containers in the shipment.

5.1.2 Packing List. A copy of the letter of transmittal, or the packing list, shall be placed inside the package. When a shipment consists of several packages, the letter of transmittal or packing list shall be enclosed in the first package and shall identify the material that was wrapped in each package.

5.1.3 CD-ROM for Review. The CD-ROM shall be wrapped to provide maximum protection during shipping. Each CD-ROM shall be delivered in a standard, compact, digital, audio, disk case, and wrapping. The case is to be usable as storage for the disk once the plastic cover wrapping is removed. Multiple CD copies may be delivered in the same shipping container. CD-ROMs are to be delivered as specified on the Distribution Matrix of the CDRL.

5.2. Delivery Instructions

5.2.1 ETM. The draft ETM shall be provided for use with prototype hardware systems. The final ETM shall be provided for Government verification. Only verified ETMs shall be provided for fielding with production hardware systems. A master CD final submission shall be made 30 days after incorporation of changes resulting from Government verification or final review. Upon Government approval of the ETM, two CD-ROMs shall be over-packed with each end item. A copy of the ETM Master (CD-ROM) shall be delivered to MARCORSYSCOM only. Manuals shall be submitted to the Government by DD-250. Following Government approval of the ETM, a promulgation letter signed by an authorized official of MARCORSYSCOM will be provided to the contractor by the Government as a .pdf file for incorporation into the ETM right after the cover page. (See Attachment 4 for an example.)

5.2.2. Commercial Manuals. The Contractor shall install all commercial manuals, with supplements, if applicable, as .pdf files on the same CD-ROM as the ETM.

5.2.3. MS Word Files. Copies of all MS Word files created to produce the system manual and commercial manual supplements shall be delivered to MARCORSYSCOM. All word files shall be delivered on a separate CD-ROM.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. TITLE

Logistics Management Information (LMI) Data Product(s)

2. IDENTIFICATION NUMBER

DI-ALSS-81529

3. DESCRIPTION / PURPOSE

The LMI Data Product(s) consists of data that a requiring authority needs to develop their internal materiel management processes. This data contains information in the areas of provisioning, cataloging, packaging, and support equipment.

4. APPROVAL DATE (YYMMDD)

961118

5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)

A/TM

6a. DTIC APPLICABLE

6b. GIDEP APPLICABLE

7. APPLICATION / INTERRELATIONSHIP

7.1 This DID contains the format and content preparation instructions for LMI Data Product(s) required by Appendix B of MIL-PRF-49506.

7.2 This DID is applicable to the acquisition of military systems and equipment.

7.3 The delivery method (e.g., on-line access, tape, floppy, etc.) is outside the scope of MIL-PRF-49506 and must be addressed separately.

APPROVAL LIMITATION

9a. APPLICABLE FORMS

9b. AMSC NUMBER

A7215

10. PREPARATION INSTRUCTIONS

10.1 Reference Documents. The applicable issue of the documents cited herein, including their approval dates and the dates of any applicable amendments, notices, and revisions, shall be specified in the contract.

10.2 Format. The Data Product(s) must be in accordance with the associated format in Appendix B of MIL-PRF-49506.

10.3 Content. The content of Data Product(s) is described in Appendix B, MIL-PRF-49506. The Data Product Worksheets (Figure 2, MIL-PRF-49506), or some other requirements identification tool contained in the contract, shall specify the selected data.

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Marine Corps Systems Command



Statement of Work for the Tactical Data Network Data Distribution System - Replacement (TDN DDS-R)

18 April 2006

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1 Scope. This Statement of Work (SOW) sets forth the work efforts required to design, integrate, test, produce and prepare associated documentation for the Tactical Data Network Data Distribution System - Replacement (TDN DDS-R) production model. Production shall entail procuring or fabricating items to integrate and install Commercial-Off-the-Shelf (COTS) and Government-Off-the-Shelf (GOTS) components and software into transit cases. The contractor shall provide Program Management, System Engineering, Software/Hardware Integration, Configuration Management, Quality Management, Testing, Interim Logistics Support Services, Integrated Logistics Support, Maintenance Planning, Supply Support, Technical Publications, Support and Test Equipment, Operations and Maintenance Training and System Testing for the TDN DDS-R. The contractor shall be responsible for providing all specific material, services and necessary support documentation needed to complete the tasks identified in this SOW. The scope of the work includes support for any testing conducted by the Government.

2 Applicable Documents. The following documents of the exact date and issue specified, form a part of this SOW to the extent specified herein. In the event of conflict between the applicable documents and this SOW, the SOW shall take precedence. All second tier and below references cited in mandatory compliance documents shall be considered as guidance only. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 Military Standards and Specifications - Mandatory Compliance.

MIL-STD-882D	10 Feb 00	Standard Practice for System Safety
MIL-PRF-29612B	31 Aug 01	Training Data Products
MIL-PRF-49506 NOT1	18 Jan 05	Logistics Management Information
MIL-E-17555H(2)	02 Nov 92	Electronic and Electrical Equipment, Accessories and Provisioned Items (Repair Parts): Packaging of
MIL-STD-129P(3)	29 Oct 04	Military Marking for Shipment and Storage
MIL-STD-130M	02 Dec 05	Identification Marking of U.S. Military Property
MIL-STD-196E	17 Feb 98	Joint Electronics Type Designation System
MIL-STD-2073-1D(1)	10 May 02	DoD Standard Practice for Military Packaging
MIL-STD-461 E	20 Aug 99	Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment
DoD 8510.1-M	Jul 00	Department of Defense Information Technology Security Certification and Accreditation Process (DITSCAP) Application Manual
DoDI 8500.2	06 Feb 03	Information Assurance (IA) Implementation
DFARS 252.211-7003		Item Identification and Valuation

2.2 Military Standards and Specifications – Guidance Only.

MIL-STD-1686C	25 Oct 95	Electrostatic Discharge Control Program for Protection of Electrical and Electronics Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
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2.3 Handbooks – Guidance Only.

MIL-HDBK-502 NOT 1	20 Jan 05	Acquisition Logistics
MIL-HDBK-61A	07 Feb 01	Configuration Management Guidance
MIL-HDBK-512A	31 Oct 01	Parts Management
MIL-HDBK-29612/1A	31 Aug 01	Guidance for Acquisition of Training Data Products and Services (1 of 5 Parts)
MIL-HDBK-1785	01 Aug 95	System Security Engineering Program Management Requirements
MIL-HDBK-781A	01 Apr 96	Reliability Test Methods, Plans and Environments for Engineering Development, Qualification, and Production

MIL-HDBK-881A	30 Jul 05	Work Breakdown Structures for Defense Materiel Items
MIL-STD-1472D	Oct 97	Human Engineering Design Criteria for Military Systems, Equipment, and Facilities

2.4 Other Government Documents. Unless otherwise stated, the following documents may be obtained from the Document Automation and Production Service, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 1911-5094 or visit <http://dodssp.daps.mil>.

DII COE I&RTS	Defense Integration Information Common Operating Environment Integration and Runtime Specification
DoDD 4650.1	Policy for Management and Use of the Electromagnetic Spectrum
DoDI 3020.41	Contractor Personnel Authorized to Accompany the U.S. Armed Forces
FED-STD-313	Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities
NAVSEAINST 9310.1	Naval Lithium Battery Safety Program
NTIA Manual	National Telecommunications and Information Administration
QSTAG 244	Nuclear Hardening Criteria for Military Equipment
TM S9310-AQ-SAF-010	Technical Manual for Batteries, Navy Lithium Safety Program Responsibilities and Procedures

Copies of TM S9310-AQ-SAF-010 are available from Naval Weapons Support Center, Code 3057, Building 36, Crane, IN 47522-5060.

2.5 Non-Government Documents.

ANSI X3.27	File Structure and Labeling of Magnetic Tapes for Information Interchange
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Copies of ANSI X3.27 are available from www.ansi.org or American National Standards Institute, 1819 L Street, NW, 6th Floor, Washington, DC 20036.

ASME Y14.34-1996	Associated Lists
ASME Y14.100-2000	Engineering Drawing Practices

Copies of ASME documents are available from www.asme.org or American Society of Mechanical Engineers Information Central Orders/Inquiries, P.O. Box 2300, Fairfield, NJ 07007-2300.

ASTM D3951	Standard Practice for Commercial Packaging
ASTM D4169-01e1	Standard Practice for Performance Testing of Shipping Containers and Systems

Copies of ASTM documents are available from www.astm.org or American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ANSI/EIA-625	Requirements for Handling Electrostatic Discharge-Sensitive (ESDS) Device
ANSI/EIA-649	National Consensus Standard for Configuration Management
ANSI/EIA-748	Earned Value Management System

Copies of EIA documents are available from www.eia.org or Electronic Industries Alliance Corporate Engineering Department, 2500 Wilson Boulevard, Arlington, VA, 22201.

IEEE/EIA 12207	Standard for Information Technology – Software Life Cycle Processes
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Copies of IEEE/EIA 12207 are available from www.ieee.org or Institute of Electrical and Electronics Engineers Service Center, 445 Hoes Lane, Piscataway, NJ 08854-1331.

NAS 411	Hazardous Materials Management Program
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Copies of NAS 411 are available from www.aia-aerospace.org or Aerospace Industries Association of America, 1250 Eye Street, NW, Suite 1200, Washington, DC 20005-3924.

2.6 Forms.

DD Form 1494	Application for Equipment Frequency Allocation
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3 Requirements. The contractor shall perform all tasks required and delineated in this SOW to design, develop, integrate, test, produce, manufacture, deliver and prepare associated documentation, provide logistic support, provide technical support, provide training, develop technical manual and deliver the TDN DDS-R in the quantity specified in the contract. The contractor shall provide all materials, equipment, hard tooling, personnel, and facilities necessary to manufacture, fabricate, integrate, produce and deliver the types and quantities of deliverables specified by the contract. The contractor shall not modify COTS components from their original design without Government approval.

3.1 Program Planning and Management.

3.1.1 Program Management. The contractor shall establish and maintain program management operations throughout the period of performance. Program management practices shall provide visibility into the contractor's organization and methods used in managing the program. Documentation shall be readily available to Government representatives. Program management operations shall include but are not limited to the following areas:

- a. Program Planning, Schedule, and Control
- b. Subcontractor Control
- c. Data Management
- d. Management and Accountability for Government Furnished Equipment (GFE), Material or Information
- e. Meetings, Formal Reviews, Conferences, and Audits

DI-MGMT-80227, Contractor's Progress Status and Management Report

3.1.2 Subcontractor Management. The contractor shall be responsible for performance of requirements delineated in this SOW, and shall institute appropriate management actions relative to subcontractor performance. Requirements which are contractually specified shall apply to subcontractor performance; however, the contractor shall be accountable for compliance of their subcontractors and are responsible for ensuring all deliverable products comply with the contract requirements.

3.1.3 Data Management. The contractor shall establish a single, centralized system for management of all data required under this contract. The contractor, in developing information that will be furnished to the Government, shall make the maximum use of existing data and provide maximum multiple use of technical information. Specific data management functions shall include schedule control for deliverables, maintenance of deliverable, approval of deliverable format, distribution and delivery of data products. The system shall include facilities

for storage of all data developed or utilized for this contract, and shall provide equal access to data by the Government. The contractor shall ensure all data is centrally available for Government review to ensure continuity of the system fabrication and supporting documentation. The Government reserves the right to review all data associated with and developed for the TDN DDS-R.

3.1.3.1 Technical Proposal. The contractor's Technical Proposal, as negotiated and accepted by the Government, shall be incorporated by reference into the resultant contract. Information contained in the offer's proposal regarding organization, staffing, manning levels, and experience or education qualifications of personnel that are to be utilized in performance of this contract shall also be incorporated into the resultant contract. Any changes in these arrangements are to be submitted to the contracting officer in advance for approval. In the event of any conflict or ambiguity between the contractor's technical proposal and the Government SOW, the Government's written requirements shall take precedence.

3.1.3.2 RESERVED

3.2 RESERVED

3.2.1 RESERVED

3.2.2 RESERVED

3.3 Meetings, Formal Reviews, Conferences, and Audits.

3.3.1 Contractor Responsibilities. The contractor shall plan, host, attend, coordinate, support and conduct the meetings, in-process reviews, formal reviews, conferences, and audits, hereinafter referenced as "reviews". The reviews shall be conducted at Government and contractor facilities. Reviews requiring demonstration and/or examination of equipment shall be conducted at the contractor's facility. All such reviews shall be included in the program schedule and may be held concurrently with the Government's approval. The contractor shall prepare agendas, conference presentation materials, minutes and reports following each review. The Government reserves the right to cancel any review or to require any review to be scheduled at critical points during the period of performance. Action item documentation, assignment of responsibility for completion and due dates shall be determined prior to adjournment of all reviews. A summary of all action items, responsible parties, and estimated completion date shall be included with the minutes.

DI-ADMN-81249A Conference Agenda

DI-ADMN-81250A Conference Minutes

DI-ADMN-80508A Technical Report – Study/Services (Action Item Database)

3.3.2 RESERVED

3.3.3 In Process Review. In Process Review (IPR) will be held on a quarterly or as needed basis, at a date and location mutually agreed upon. The Government reserves the right to cancel any review or to require any review to be scheduled during the period of performance. The contractor's progress, management, technical support service, integrated logistics support, administrative, assurance of compliance with contract requirements, program status, funding, problem identification and resolutions shall be agenda items. Actual versus expected performance of each area shall be addressed. The contractor shall prepare presentation materials providing an overview of all agenda items.

3.4 Systems Engineering. The contractor shall establish and maintain an effective systems engineering program throughout the design, testing and production processes, which shall include the following tasks:

3.4.1 Reviews.

3.4.1.1 Preliminary Design Review. The Preliminary Design Review (PDR) shall be held in conjunction with the PAC. The PDR shall be used to resolve any issues in the Performance Specification, however it will not be used as an opportunity to impose additional requirements. The PDR shall include equipment, hardware and software configuration items and related support equipment. The contractor shall show and/or demonstrate that evaluations of materials, lead times, tooling, fabrication techniques, assembly methods, test equipment, skills, processes and inspection techniques have been accomplished for equipment, hardware and software configuration items and related support equipment, and the producibility objectives have been achieved. The reviews will evaluate the progress, technical adequacy, and risk resolution (on a technical, cost and schedule basis) of the design and will assess the technical risk associated with the selected manufacturing (assembly) methods (processes). The PDR also shall identify all single source, sole source and diminishing source(s). Upon successful completion of the review, a baseline for system architectural design shall be established and placed under configuration management.

3.4.1.2 Critical Design Review. The Critical Design Review (CDR) shall present a final design that incorporates all deficiencies identified from the PDR. The CDR shall be a detailed review of the hardware design for the TDN DDS-R and all data items required by the contract. The contractor shall provide a trace capable of demonstrating the design furnished at CDR implements the performance requirements of the TDN DDS-R and present the methods used to verify and validate the design. An assessment of the results of producibility analyses conducted on system hardware will be made to ensure detailed producibility design solutions satisfy the established requirements. Upon successful completion of the review, a baseline for system design shall be established and placed under configuration management. Topics covered at the CDR shall include, but not be limited to the following:

- a. Detailed presentation of program plan indicating Design, Fabrication, Test Phases and Specification/Interface specification/drawings.
- b. Detailed presentation of Electrical/Mechanical/Software Design.

- c. Electro-Magnetic Interference (EMI)/Thermal/Cooling Design.
- d. Environment, Safety and Health (ESH) Analysis.
- e. Nuclear, Biological, Chemical (NBC) Survivability.
- f. Packaging/Handling/Storage/Transportability.
- g. Testing documents.
- h. Interoperability.
- i. Reliability, Availability, Maintainability, Supportability and Logistics.
- j. Safety Analysis/Preliminary SAR.

3.4.2 Open Systems Design. The contractor shall use an open systems approach as the preferred design strategy to: (1) chose commercially supported specifications and standards for selected system interfaces (external, internal, functional and physical), products, practices and tools; and (2) build open system architectures as the primary foundation in developing the proposed system and its elements. Open systems is a system design philosophy that uses widely-accepted, industry-approved interface standards that will allow technological upgrades in system components to be easily inserted in the future. The contractor shall identify the means for ensuring conformance to open systems standards and profiles throughout the development process and provide evidence that the process being used to manage the open systems approach support open system benefits such as portability, interoperability, technology insertion, vendor independence, reusability, scalability, and commercial product based maintainability.

3.4.3 Human Systems Integration. The contractor shall apply effective Human Systems Integration (HSI) principles during TDN DDS-R design, production and integration. The contractor shall ensure manpower, personnel, training, personnel survivability and habitability, and human factors engineering requirements have been incorporated into the layout, design, and arrangement of equipment having an operator or maintainer interface. The contractor shall also integrate HSI principles into theirs systems safety program. The HSI program shall ensure the TDN DDS-R can be operated, maintained, supported and controlled in its intended environment, including NBC Mission Oriented Projected Posture IV (MOPP IV).

a. Manpower. The manpower requirements shall ensure that the most efficiency and cost effective use of manpower and contractor support is being used and identify any cost or schedule issues that could adversely impact the TDN DDS-R.

b. Personnel. The contractor shall establish personnel principles that will reduce manpower and training costs.

c. Training. The contractor shall apply principles that will enhance the user's capabilities and reduce individual and collective training costs. The contractor shall maximize the use of new learning techniques, simulation technology, embedded training, and instrumentation systems to provide anytime, anyplace training that reduces the demand on the training establishment and reduces Total Ownership Cost (TOC).

d. Human Factors Engineering. Human factors design requirements shall be established to develop effective man-machine interfaces. It shall preclude system characteristics that require extensive physical, complex manpower or training intensive tasks that result in frequent or critical errors. Refer to MIL-STD-1472D for guidance.

3.4.4 Failure Reporting, Analysis and Corrective Action System. The contractor shall develop a closed loop failure reporting system, procedures for analysis of failures to determine cause, and documentation for recording corrective actions taken. The Failure Reporting, Analysis, and Corrective Action System (FRACAS) shall include uniform failure reporting, failure analysis reports and corrective actions in a single data base. All hardware/software failures from system level down to the Line Replaceable Unit (LRU) shall be subject to these requirements throughout the testing period including production and integration testing, and during the post-production support period (warranty, OEM (depot) repair and Contractor Logistics Support (CLS)). The contractor shall execute a single FRACAS database to encompass in-factory (testing) and in-field (CLS) failure reporting. The contractor shall notify the Government of any failure which impacts cost, schedule, producibility, supportability, and cost of ownership or interface/performance within twenty-four (24) hours of such failure. Within ten (10) working days of the occurrence of a non-critical failure, the contractor shall perform an analysis of the failure and provide recommended corrective action(s) in a report. All failures, critical and non-critical, shall be reported monthly to the Government for review and acceptance. The contractor shall assess the failure data for the identification of trends, five (5) or more failures of the same root cause, and identify those trends in the contractor's monthly report to the Government. Each FRACAS report shall identify the root cause and detail the remedial action taken, including parts replaced. The Government reserves the right to conduct Failure Review Board (FRB) meetings.

DI-RELI-80255, Failure Summary and Analysis Report

3.4.5 Grounding, Bonding, and Shielding. The contractor shall ensure that the TDN DDS-R and subsystems are properly grounded, bonded and shielded to prevent ground loops and common ground returns for power/control circuits to minimize electromagnetic interference. The contractor shall ensure that all externally exposed metal parts, shields, control panels, switch handles, connectors, bushings, etc. are ground to the system chassis.

3.4.6 Electrostatic Discharge Control. The contractor shall establish, implement and document and Electrostatic Discharge (ESD) Control program following the guidelines provided in EIA-625. The ESD protective measure shall be used in manufacturing, packaging, storing and transportation of ESD sensitive components. The contractor shall ensure that ESD identification markings on all ESD sensitive subassemblies are visible during equipment installation, maintenance or repair. MIL-STD-1686 may be used for guidance.

3.4.7 Electromagnetic Radiation Hazards. The TDN DDS-R design shall protect personnel, fuels, and ordnance from hazardous effects of electromagnetic radiation.

a. Hazards of Electromagnetic Radiation to Personnel. The TDN DDS-R shall comply with current national criteria for the protection of personnel against the effects of electromagnetic radiation.

b. Hazards of Electromagnetic Radiation to Fuels. The TDN DDS-R's fuel shall not be inadvertently ignited by radiated electromagnetic environment.

c. Hazards of Electromagnetic Radiation to Ordnance. The TDN DDS-R's ordnance with electrically initiated devices shall not be inadvertently ignited during, or experience degraded performance after, exposure to external radiated electromagnetic environment.

3.4.8 Quality Management System. The contractor's quality management system shall ensure product conformation to contractual requirements. The contractor shall have implemented, documented, and have previously demonstrated the ability to maintain the quality management system to be used on the contract. The contractor shall make available all quality management documentation for the Government to review upon request.

3.5 Environmental Safety and Health.

3.5.1 System Safety. The contractor shall identify and evaluate safety and health hazards, define risk levels, and determine the probability and severity of all hazards associated with development, use, and disposal of the system in accordance with MIL-STD-882D. Residual risks will be evaluated by the Government in accordance with Tables A-I through A-IV of MIL-STD-882D and accepted as appropriate. The contractor must identify all explosive risks in the Safety Assessment Report (SAR).

3.5.1.1 Safety Assessment. The contractor shall perform and document a Safety Assessment to identify all safety features of the hardware, software, and system design and to identify procedural, hardware and software related hazards that may be present in the TDN DDS-R including specific procedural controls and precautions that should be followed. In addition, the contractor shall make recommendations applicable to hazards at the interface of the system with the other system(s) as contractually required.

3.5.1.2 Safety Assessment Report. The contractor shall provide a SAR that documents the Safety Assessment and clearly identifies any residual risks of the TDN DDS-R. The SAR shall document system safety assessment of procedures involved in system production, deployment, installation, assembly, test, operation, maintenance, servicing, transportation, storage, modification, demilitarization and disposal. The SAR shall include a signed statement that all identified hazards have been eliminated or their associated risks controlled to acceptable levels and that the TDN DDS-R is ready to test, field or operate. In addition, the contractor shall make

recommendations applicable to hazards at the interface of the TDN DDS-R with other systems. In addition, the contractor shall make recommendations applicable to hazards at the interface of this TDN DDS-R with other systems. The safety analysis shall support the Maintainability Task Analysis, Training and Technical Manual development.

DI-SAFT-80102B, Safety Assessment Report (SAR)

3.5.2 Battery Safety Assessment. The contractor shall document the battery safety assessment in the SAR. The SAR shall include the battery risk assessment, recommendations, procedures and other corrective actions to reduce hazards to an acceptable level.

3.5.3 Hazardous Materials Management Program. The contractor shall implement a Hazardous Materials Management Program (HMMP) in accordance with or similar to NAS 411. The contractor shall avoid the use of toxic chemicals, hazardous materials and ozone depleting substances in the design, operational support and disposal of the TDN DDS-Rs. Manufacturing processes that will have a detrimental impact upon the environment shall be avoided. More information on chemicals and hazardous materials to be avoided can be obtained from the Environmental Protection Agency (EPA). The contractor shall make available Material Safety Data Sheets (MSDS) to the Government for review.

3.5.3.1 Hazardous Materials Management Program Plan. The contractor shall provide a HMMP Plan to the Government for review and approval.

DI-MGMT-81398, Hazardous Materials Management Program (HMMP) Plan

3.5.3.2 Hazardous Materials Management Program Report. The contractor shall provide HMMP Report to the Government for review and approval.

DI-MISC-81397, Hazardous Materials Management Program (HMMP) Report

3.6 Configuration Management Process. The contractor shall implement a Configuration Management process for the control of all configuration items representing or comprising the TDN DDS-R and various platform configurations to ensure each item delivered conforms to the approved CM product baseline. The principles contained in EIA-649 and MIL-HDBK-61A may be used for guidance. The contractor's configuration management program shall consist of configuration identification, configuration control, configuration status accounting, and configuration audits. Consideration for interfacing with other acquisition requirements such as design review, quality, and other program related disciplines shall be addressed. The contractor shall designate a CM representative to serve as a primary point of contact to the Government for all CM matters. The contractor's representative shall be responsible for any subcontractor's CM efforts. The contractor shall notify the Government of any changes at the contractor's facility, which affects the contractor's established CM process. The contractor's CM process shall be defined in the proposal.

DI-CMAN-80858B, Contractor's Configuration Management Plan

3.6.1 Configuration Identification. The contractor shall participate in a joint Government/contractor integrated team to designate Configuration Items (CIs) to be managed by the Government and those to be managed by the contractor. For CIs that have been identified for Government control, the contractor shall provide form, fit, function and interface documentation necessary for configuration status accounting.

3.6.1.1 Configuration Status Accounting. The contractor shall establish and maintain a Configuration Status Accounting (CSA) database, which represents the configuration of the TDN DDS-R. All baselines and changes shall be documented in the contractor's CSA database. The contractor's CSA database shall permit acceptance of commercial product information; however, if requirements to report data outside of the contractor's CSA database or format exist, the information may be delivered as a supplement to prevent disruption to their existing system. The contractor's CSA database shall reconcile any differences between the supplier information and contractor practices to provide the Government with clear accountability of product information. Additionally, the CSA database shall provide a reliable source of configuration information to support TDN DDS-R activities, including program management, systems engineering, logistics support, and modification/maintenance actions.

3.6.2 Configuration Management Meeting/Audits. If acceptable to the contractor and Government, the Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) will be conducted concurrently.

3.6.2.1 Interface Control Working Group. The contractor shall be a participant in the Interface Control Working Group (ICWG) established between TDN DDS-R and other applicable systems. The ICWG will meet, as necessary, to resolve any interface problems. Meetings shall be held in conjunction with other reviews, if possible.

3.6.2.2 Functional Configuration Audit. The FCA shall be performed to verify that the TDN DDS-Rs and its CIs are accurate, complete, compatible, and the CI has achieved the performance and functional characteristics delineated in the Performance Specification. The FCA shall be conducted jointly by the Government and the Contractor, at a time and place mutually agreed to, with the Government chairing the audit. The contractor shall be responsible for providing the system to be audited, facilities, personnel, documentation (including drawings), and other support as may be required. The contractor shall develop a configuration audit plan which ensures the characteristics of the CIs match the specified requirements. The Contractor shall be responsible for providing the system to be audited, facilities, personnel, documentation (including drawings), and other support as may be required. The Contractor shall develop a configuration audit summary report after each audit. The Contractor shall correct all audit discrepancies as documented in the Configuration Audit Reports within Government established timeframes. The Functional Baseline will be established upon completion of the FCA and resolution of audit discrepancies.

DI-CMAN-81022C, Configuration Audit Summary Report (Functional)

3.6.2.3 Physical Configuration Audit. The PCA shall be conducted jointly by the Government and the contractor, at a time and place mutually agreed to, with the Government chairing the audit. The contractor shall be responsible for providing the system to be audited, facilities, personnel, documentation (including drawings), and other support as may be required. The PCA shall be performed to verify that the TDN DDS-R and its CIs are accurate, complete, compatible, and that the CI baseline data package matches the physical equipment for production. The PCA shall validate the supporting processes that the contractor uses in the production of the CI. The PCA shall verify that any elements of the CI that were modified or redesigned are incorporated into the physical configuration baseline. All newly developed or modified portions of the system shall accurately reflect form, fit and function, information as provided on the control drawings for non-developmental/COTS items. A complete production model shall be made available for conduct of the PCA. United States Marine Corps Logistics Command (LOGCOM), Albany will provide a PCA plan to the contractor. The PCA shall verify that engineering drawings and other documentation for all newly developed or modified portions of a CI are accurately represented in the production CI. The contractor shall support LOGCOM in the development of the configuration audit plan and provide the system to be audited, facilities, personnel, documentation (including drawings), and other support as may be required. In the event the Government finds evidence the drawings and/or documents do not adequately represent the equipment, production shall cease until all discrepancies are corrected and the Government approves the Configuration Audit Report. The product baseline shall be established upon successful completion of the PCA, resolution of audit discrepancies and their incorporation into the technical data package.

3.6.3 Baseline Management. The contractor shall be responsible for maintaining the currency and accuracy of the established baseline to ensure form, fit and function of the TDN DDS-R. The contractor shall establish definitive processes, which shall identify how the baseline will be managed/maintained. These processes shall be defined in the contractor's CM plan and made available for Government review. The Government shall be notified of any changes to the contractor's processes/procedures.

3.6.3.1 Product Baseline. The product baseline is established by Government approved specifications, engineering drawings and associated documentation including approved parts lists and inspection/test data. The product baseline shall be established at the PCA. No changes shall be made to this baseline without going through the ECP process. All permanent changes to any established baseline shall be by ECP. MIL-HDBK-61 and ANSI/EIA-649 provide guidance for preparing these configuration control documents. Sufficient supporting data to evaluate the proposed change, such as drawings, supplemental drawings, sketches, specifications, or manufacturer's data sheets, shall be submitted with ECPs. Changes shall be identified to the affected assembly serial number, or if not part of an assembly, to the affected equipment serial number. ECPs shall be submitted by the contractor, and shall be limited to those that are necessary or offer significant benefit to the Government. If it is necessary to temporarily depart from the authorized configuration, the contractor shall prepare and submit a Request for Deviation (RFD). MIL-HDBK-61 and ANSI/EIA-649 provide guidance for preparing these configuration control documents. Authorized deviations are a temporary departure from the requirements and do not constitute a change in an approved baseline. Submission of recurring

deviations is discouraged and shall be minimized. Where it is determined that a change should be permanent, the contractor shall process an ECP.

DI-CMAN-80639C Engineering Change Proposal (ECP)

DI-CMAN-80640C Request for Deviation (RFD)

3.6.3.2 Notice of Revision. The contractor shall process Notice of Revisions (NORs) when technical documentation controlled by another contractor or Government agency required changes following approval of an ECP. NORs shall be submitted as necessary in conjunction with the ECP process as described above. At a minimum, the NOR shall contain: Date; CAGE Code of Submitter; NOR Number; CAGE of Document; Document Number; Title of Document; Revision Letter (current and new) and related ECP Number; configuration Item (or system) to which the ECP applies; and Description of revision.

3.6.3.3 Allocated Baseline. The allocated baseline will be established at the PDR. The allocated baseline shall describe the CI's/ Computer Software Configuration Item (CSCIs) to a level of design detail which is greater than that for a functional baseline. The allocated baseline shall be supplemented by specifications, drawings, and related data as necessary to specify: (1) the essential CI functional characteristics, as allocated from higher-level CI; (2) external and internal interface requirements for each CI; (3) physical characteristics necessary to ensure compatibility with associated systems and CIs; and (4) constraints on the design of a CI, including GFE employed, envelope dimensions, component standardization and ILS requirements. Government approval shall be required prior to making changes to the allocated baseline.

3.6.3.4 Functional Baseline. The Performance Specification establishes the functional baseline. Government approval shall be required prior to making changes to the functional baseline.

3.6.4 Configuration Control. The contractor shall establish and maintain positive control methods and procedures that ensure the integrity and traceability of CI design throughout the life cycle of Engineering Data Management (EDM) and/or production. The contractor shall apply configuration control to established CIs and to newly developed CIs. Once baselines are established, the contractor shall not implement a design or performance change to the CIs without receiving prior authorization from the contracting activity. The need to deviate from the written procedures or materials contained in engineering drawings or other technical documentation shall be requested by the electronic submission of ECPS or RFDs. The creation and submission of ECPS and RFDs shall be accomplished using MEARS Create software application that resides at a secure web site, <https://mearsweb2.redstone.army.mil>. For the purpose of gaining access to the web site, the contractor shall request user-ID and password privileges from the Requiring Office identified in block 6 of the applicable Contract Data Requirement List. The contractor shall direct any technical or functional questions concerning usage of MEARS Create software to the Requiring Office for guidance. The contractor shall notify the Requiring Office by electronic mail when completed RFDs and ECPs are ready for formal submission.

3.6.5 Notification of Changes to Commercial Equipment, Software and Firmware. The

contractor shall submit notification to the Government when changes occur to commercial equipment or software/firmware, which is being procured or fabricated by the contractor off-the-shelf, and the Government does not control the developer's design.

DI-MISC-80508A, Technical Report - Study/Services (Notification of Changes to Commercial Equipment, Software and Firmware)

3.7 Engineering Drawings.

3.7.1 Vendor Item Control Drawing. The contractor shall prepare a vendor item control drawing for commercial item(s) approved for use in the design and not covered by Government or nationally recognized industry association specifications and standards. The contractor shall provide evidence that the part complies with the requirements of the applicable part documentation. Existing test data (such as supplier originated objective evidence of compliance or Government/Industry Data Exchange Program (GIDEP) reports) shall be used to the maximum extent possible.

3.7.2 Product Drawings/Models. The contractor shall develop a complete product drawing/models package and provide it to the Government. This process may require the revision and update of existing drawings, and/or development of new drawings to meet the requirements of product drawings/models and associated lists. Revised and newly created drawings shall be developed to document any design change and shall reflect all changes resulting from Government approved ECPs. Existing, revised, and new product drawings/models and associated lists shall be used as the engineering data for procuring, controlling, and using materials, parts, and assemblies whether produced in-house or supplied by the vendor. The drawings/models shall be used for the manufacture, assembly, provisioning, inspection, testing, and configuration management of the materials, parts, modules, subassemblies, and assemblies of the equipment covered under this contract. The drawings/models and associated lists shall not carry any proprietary markings and provide the necessary design, engineering, manufacturing, and quality assurance requirements information necessary to enable the procurement or manufacture of an interchangeable item duplicating the physical and performance characteristics of the original product, without additional design engineering effort or recourse to the original design activity. The product drawings shall also include control drawings for all COTS items that do not conform to recognized Government or industry specifications, non-developmental items (NDI) and items developed at private expense for which the Government had not acquired unlimited rights. These control drawings shall provide the applicable performance specification of form, fit, and function and provide interface information needed for competitive re-procurement of that item or and interchangeable item. New product drawings/models shall conform to ASME Y14.100 and ASME Y14.34. The Government is furnishing an engineering drawing Technical Data Package. These drawings shall be used to the maximum extent possible. These drawings comprise the current Product Baseline for the TDN DDS-R. No changes shall be made without going through the formal ECP process.

DI-SESS-81000C, Product Drawings/Models and Associated Lists (Engineering Configuration)

3.8 Unique Identification. The contractor shall implement specific Unique Identification (UID) marking, as defined in MIL-STD-130M and DoD Guide to Uniquely Identifying Tangible Items. The two-dimensional UID marking shall be incorporated in to existing data plates, shall be machine-readable with common optical scanning devices and be accompanied by the corresponding human readable markings when practical. The principal end items shall be marked with the UID/data plate in a position that allows scanning in an installed position. All spare parts, secondary repairables and consumables that exceed \$5,000 when purchased separately will also be marked with the UID prior to delivery to the Government.

3.8.1 Item Unique Identification (UID) Plan. The contractor shall develop a plan that identifies all items requiring UID markings in accordance with DFARS 252.211-7003 to include maintenance-worthy subassemblies, components and parts below \$5,000. The plan shall also describe the marking process and identify marking locations for each item identified.

DI-MISC-80508A, Technical Report - Study/Services (UID Plan)

3.8.2 UID Bar Code Identification Report. The contractor shall provide a Bar Code Identification Report for all UID marked items.

DI-MGMT-80177A, Bar Code Identification Report – (UID Data for Embedded Components)

3.8.3 Diminishing Manufacturing Sources/Obsolescence. The contractor shall establish a proactive program to identify items, including spare parts that have become or will become obsolete and/or are subject to Diminishing Manufacturing Sources (DMS). The contractor shall prepare a Diminishing Manufacturing Sources and Material Shortages (DMSMS) Plan. The plan shall identify item risks, project and identify when the item risk may impact the configuration baseline, and recommend risk mitigation action(s). The contractor shall develop and provide recommendations relating to the identification of action plans to mitigate the schedule and cost risk associated with obsolescence. The contractor shall submit notification to the Government when changes occur to commercial equipment or software that is being procured or fabricated by the contractor as a COTS item and the Government does not control the developer's design. The contractor shall convey this information along with recommended solution, including alternative sources, parts, costs, etc. to the Government on a quarterly basis. The Government may direct the contractor to obtain specific item(s) based on priority of the mission, need, or time to repair. The contractor shall identify the parts planned to be used as well as those used in the TDN DDS-R at all indented levels. The data may be obtained progressively during any program life cycle phase using sources such as the preferred parts list, bill of materials, vendor surveys, inspections, etc. The information documented at the part level shall be updated as the design progresses or changes and be sufficient to enable forecasting and management of any associated DMSMS issues. The contractor shall participate in the Government/Industry Data Exchange Program (GIDEP). Proactive application of GIDEP is encouraged.

DI-SESS-81656, Source Data for Forecasting (DMSMS Plan)

DI-MISC-80508A, Technical Report, Study/Services (DMSMS Report)

3.9 Testing/Verification

3.9.1 Master Test Plan. The contractor's proposal shall define a Master Test Plan (MTP) that encompasses all testing. The MTP shall be the top-level working document that ties all contractor and subcontracting test activities together. The MTP shall be submitted to the Government thirty (30) days following the PDR. The following areas shall be emphasized in the MTP:

- a. Test event
- b. Purpose of the test
- c. Date of test start and end
- d. Location of the test
- e. Need for Government test support
- f. Overall schedule of test
- g. Interoperability analysis/testing

DI-NDTI-80566, Test Plan

3.9.2 Contractor Support to Government Testing. The contractor shall support Government test efforts to include integration testing at MCTSSA and Joint Interoperability Test Command (JITC) testing at Fort Huachuca. The contractor shall provide on-site personnel and in-house support for Government tests. The contractor shall support each Government test by providing on-site maintenance, training, logistics, and technical support for the period of the test. Test support requirements will be tailored to the test being conducted. The contractor shall provide all required organizational, intermediate, and depot level support equipment and spare parts needed to maintain the TDN DDS-R and ancillary equipment during each test. The contractor shall analyze test data, conduct failure analysis, and maintain a data tracking system throughout all test efforts.

3.9.3 Reporting Test Results – Critical System Requirements. For other than Critical System Requirements (CSRs), the contractor shall certify by signature on the recorded data sheets to indicate the validity of the test results. The Government shall be notified of any CSR that failed or is failing, to achieve the allocated threshold. CSRs shall be reported within twenty-four (24) hours. Both shall be followed up in writing in the form of a report. CSR reports shall include a time phased projection of when the threshold will be achieved or exceeded. This report shall address the following as a minimum:

- a. System requirements – cite specific source document and paragraph
- b. Parameter to be met – annotate CSRs
- c. Parameter threshold/objective
- d. Demonstrated value (of parameter) to date
- e. Projected "fix" date
- f. Analysis/assessment of the test results

DI-MISC-80508A, Technical Report – Study/Services (Critical System Requirements (CSR))

3.9.4 System Integration/Qualification Test. The contractor shall develop and implement System Integration/Qualification Test (SIT) procedures to demonstrate the adequacy and suitability of the contractor's integration processes and procedures for achieving the performance inherent in the design. The results of the test shall demonstrate the techniques and processes employed do not degrade the design and meet all requirements in the Performance Specification. Government personnel will conduct the SIT at the MCTSSA Systems Integration Environment. The contractor shall make available (2) complete systems to MCTSSA for SIT. The contractor shall provide support in accordance with paragraph 3.9.2.

DI-NDTI-80603, Test Procedure (System Integration/Qualification Test (SIT))

3.9.5 Test Readiness Review. The contractor shall conduct a Test Readiness Review (TRR) fifteen (15) days prior to the start of FAT. The purpose of the TRR is for the Government to conduct a formal review of the contractor's readiness for testing. Emphasis shall be placed on system requirements using test results and their analysis. Remaining "problem areas" and their projected "get-well" dates shall be addressed.

3.9.6 First Article Test. The contractor shall develop and implement First Article Test (FAT) procedures to demonstrate the adequacy and suitability of the contractor's production processes and procedures for achieving the requirements in the Performance Specification. The results of the test shall demonstrate the manufacturing and production techniques employed do not negatively impact established requirements. The Government shall be notified of this test(s) fifteen (15) days in advance.

DI-NDTI-80603, Test Procedure (First Article Test (FAT))

DI-NDTI-80809B, Test/Inspection Report (First Article Test (FAT))

3.9.6.1 Nonconformance of First Article. In the event the first articles fail to meet requirements as described in the Performance Specification, the contractor shall submit plans for the corrective action or disposition to the Government for approval. Minor failures may be corrected during the testing, with Government approval. Production shall not be initiated without Government approval.

DI-RELI-81315, Failure Analysis and Corrective Action Report

3.9.6.2 First Article Refurbishment. If the approved first article is not destroyed in testing, the contractor may refurbish first article units as part of the first article effort, and deliver these units as part of the contract quantity, provided they meet production acceptance test requirements. This shall be accomplished within ninety days (90) after first article approval.

3.9.7 Production Acceptance Test. The contractor shall develop and implement Production Acceptance Test (PAT) Phase I and PAT Phase II procedures to demonstrate the adequacy and suitability of the contractor's production processes and procedures for achieving the performance inherent in the design. Production Acceptance Testing shall be conducted in two phases.

a. Phase I shall demonstrate the system meets all requirements as identified in the Requirements/Verification Cross Reference Matrix contained in the Performance Specification. The contractor shall conduct Production Acceptance Test (Phase I) at the contractor's facility prior to shipment. The Government shall witness PAT (Phase I) testing and a Limited Technical Inspection (LTI) will be performed.

b. Phase II shall demonstrate that shipment of the equipment to field units has not degraded its capability. The contractor shall develop procedures for Phase II. PAT Phase II procedures shall utilize installation checkout and test procedures developed in accordance with TMCR CINS-FY06-002 (Chapter 3 of the System Manual) where applicable. The Government will conduct Production Acceptance Testing (Phase II) at destination utilizing this set of procedures. Phase II procedures may be a subset of Phase I procedures. Acceptance of units will only be accomplished after successful completion of PAT II.

DI-NDTI-80603, Test Procedure (Production Acceptance Test (PAT) I & II)
DI-NDTI-80809B, Test/Inspection Report (Production Acceptance Test (PAT) I)

3.9.8 Refurbishment and Retrofit of Units. The contractor shall refurbish and retrofit all previously delivered units to include all approved corrective actions and modifications. All refurbished and retrofitted units must undergo PAT and are to be delivered as part of the required number of contract deliverables.

3.9.9 Interoperability Testing. The contractor shall provide support for interoperability testing by the Joint Interoperability Test Command (JITC), Fort Huachuca, AZ IAW paragraph 3.9.2. to ensure that the TDN DDS-R is interoperable with the systems specified in the system Performance Specification.

3.10 Integrated Logistics Support. The contractor shall plan and conduct an ILS program, which shall govern the management of the ILS effort. The ILS effort shall be conducted as an integral part of the development and integration process to define the range and depth of the required support and address all applicable and related elements of logistics.

3.10.1 Integrated Logistics Support Integrated Product Team. A joint Government/contractor Integrated Product Team (IPT) shall be established to monitor the status of the ILS program implementation. The IPT shall provide a means for coordinating logistics matters, schedules and SOW performance, ensuring adequacy and timeliness of action items, and assisting the Government ILS manager in discharging their responsibilities. The Government will appoint the chairperson of the IPT. Sub-teams or committees may be established as necessary to monitor such program elements as tests or demonstrations.

3.10.2 Integrated Product Team Meetings. The joint IPT shall meet to review ILS program progress as required. The meetings shall be held at times and places mutually agreed to by the Government and contractor. As a minimum, the agenda shall provide for status reporting, analysis of problem areas, evaluation of schedules and proposed changes to the ILS program.

Each open agenda item shall have a completion date and the action officer responsible shall provide the status at subsequent meetings.

3.10.3 Integrated Logistics Support Process. The contractor shall have a documented ILS process that identifies how the ILS elements will be used to meet the logistics support requirements for the TDN DDS-R. The ILS process shall also assign responsibilities; establish milestones for executing the ILS program. The contractor shall describe the process, involving both the Government and the contractor, which shall be employed in planning, developing and acquiring the logistics resources for test support and operational support at all specified maintenance levels. The ILS process shall ensure the TDN DDS-R, when fielded, will satisfy all supportability criteria, per the Performance Specification. The contractor shall draft, review and update the Integrated Support Plan (ISP) to reflect changes emanating from the program changes, reviews and other actions affecting the logistics aspects of the program. The contractor's program/process shall be available for Government review, upon request. The ISP is due from the contractor to the Government within thirty (30) days after contract award.

DI-MISC-80508A Technical Report – Study/Services (Integrated Support Plan)

3.10.4 Warranty Performance System. The contractor shall establish and maintain a warranty performance system that identifies and documents all items to be warranted under this contract. Each item warranted shall be indexed and identified by UID serial number, model or part number, and date of acceptance by the Government. Warranties shall become effective based upon the acceptance by the Government of each system. All pertinent data required for the Government to pursue warranty provisions, remedy and relief for each item shall be maintained by the contractor for the duration of the warranty length. All warranty claims and transactions shall be documented and made available for Government review during scheduled meetings and/or reviews. The contractor shall ensure that subcontractor and vendor warranties provide the same coverage and are passed through to the end item.

3.10.4.1 Warranty. The contractor shall provide a parts and labor warranty covering workmanship, materials, design and performance characteristics of the TDN DDS-R. The warranty shall apply to all contractor designed/developed interfaces and COTS hardware items.

3.10.4.2 Warranty Length. The warranty shall be for a minimum of three (3) years with an option for a two (2) year extended warranty. The contractor shall provide a warranty matrix that provides the warranty period for each item tracked by serial number and UID and identifies the OEM manufacturer.

3.10.4.3 Warranty Response Time. The contractor shall provide a Return Material Authorization (RMA) within twenty-four (24) hours of the request from the Government. The contractor shall deliver warranty replacement items to the Government within seven (7) calendar days after receipt of warranty item from the Government.

3.10.4.4 Toll-Free Telephone Hotline. The contractor shall provide a Marine Corps-unique, toll-free, telephone hotline for processing warranty claims. The hotline service shall be available

during normal working hours (at the answering location). For after hours calls, provisions shall be made for a caller to leave a message. The message shall be answered no later than the next business day. The hotline service shall issue a Return Material Authorization (RMA) to authorize and begin tracking of defective items returned for repair. Help desk (i.e. technical support) services are not required.

3.10.4.5 Warranty Administration Point of Contact. The contractor shall provide the name, telephone number and email address of the individual(s) to whom warranty administration issues may be escalated for quick resolution. This Point of Contact (POC) shall be at a higher level of management in the organization than the warranty claims processing hotline. The POC information shall be provided to the Government contracting officer in writing

3.11 Maintenance Planning. The contractor shall conduct maintenance planning to define optimal maintenance activities that fully support the TDN DDS-R maintenance concept. The maintenance concept for the TDN DDS-R is defined below.

3.11.1 Organizational Maintenance. Organizational maintenance shall consist of simple tasks performed by the user and simple repairs performed by organizational maintenance technicians. No special purpose tools or test equipment shall be required at the organizational maintenance level. Organization maintenance shall consist of the following:

a. Preventative maintenance includes visual inspection, testing, cleaning, tightening and other minor adjustments, making external adjustments on equipment and perform operational checks using authorized tools, manuals and test equipment.

b. Corrective maintenance includes the performance of minor cable and cable connector repair, isolating the cause of equipment malfunction to the defective LRU by the use of Built-In Test (BIT), removing and replacing LRUs and returning equipment to full operational capability with minimum downtime.

3.11.2 Intermediate Maintenance. Intermediate maintenance shall consist of repair tasks performed by trained technicians. Repairs authorized are the continued fault isolation of the LRU/circuit card using standard tools and test equipment, identification and replacement of defective components, alignment (if required), calibration (if required), and the return of the equipment to full operation with minimal downtime. Defective LRUs/circuit cards may be repaired at the intermediate level however, they shall be considered for depot level corrective maintenance. Those items already in the DoD inventory shall follow their established intermediate maintenance procedures.

3.11.3 Depot Maintenance. Depot maintenance shall consist of complete repair, major overhaul, or complete rebuild of the parts, assemblies, subassemblies, and end items, including the manufacture of parts, piece part repair, modification and testing that is beyond the capability of the intermediate level of maintenance. Depot level maintenance, if any, shall be performed by the production contractor, or the OEM, for those items unique to the TDN DDS-R and by the appropriate depot for those items already in the DoD inventory.

3.12 Supply Support.

3.12.1 Provisioning Guidance Conference. The Provisioning Guidance Conference shall be hosted by the contractor, at the contractor's facility within thirty (30) days after contract award, preferably concurrent with the PAC. The agenda shall define requirements for Logistics Management Information (LMI) Data Products including format and medium of delivery, addressing of unique Government requirements, and discussion/resolution of any unclear provisioning/cataloging related areas. Development of a Provisioning Performance Schedule and scheduling of periodic LMI Data Product submissions for Government review will also be accomplished at this conference.

3.12.2 Provisioning Conference. The contractor shall host a Provisioning Conference at the contractor's facility in accordance with the Provisioning Performance Schedule developed at the Provisioning Guidance Conference. The contractor shall provide and disassemble production grade equipment during this conference to validate and verify all provisioning documentation.

3.12.3 Provisioning Plan. The contractor shall establish, manage and execute a LMI program in accordance with MIL-PRF-49506. MIL-HDBK-502 may be used for additional guidance. The LMI program shall be the basis for the integration of the logistics support element, and provide the interface between the engineering and integrated logistics effort used in the systems engineering effort. The objectives of the LMI program are to provide optimum material readiness, economical logistics support, and identify and evaluate resources required to develop and manage an effective support system. All design, modification/alteration, and engineering activity shall require LMI. Provisioning status, identification of problem area(s), and necessary resolutions to problems addressed shall be discussed at each ILS IPT. The contractor shall provide the Provisioning Plan during the Provisioning Guidance Conference.

DI-ALSS-81529, Logistics Management Information (LMI) Data Products (Provisioning Plan)

3.12.4 Provisioning and Other Pre-procurement Screening.

a. Provisioning and other pre-procurement screening data is used to identify existing National Stock Numbers (NSNs) for an item, validate currency of an NSN and aid in maximum use of known assets. The contractor shall identify provisioning and other pre-procurement data to be submitted for Government screening.

b. Screening shall be prepared in accordance with MIL-PRF-49506.

(1) Use a fixed length record format as indicated below:

CARD COLUMN (CC)	DATA ELEMENT	REMARKS
1-3	Document Identifier Code	Enter "LSR"
4-6	Package Sequencer Number	Enter "Z01" or if two P/Ns use "A01" and "Z02"
7	Priority Indicator Code	Use "4"
8-9	Activity Code	Use "PA"
10-26	Submitter's Control Number (See Below) cc 10-13: Cataloger Team/Desk cc 14-16: Provisioning Control Code cc 17-23: PLISN IAW MIL-PRF-49506 (field shall be right justified)	
24-26	Leave blank	
27-31	Destination Code	Contractor's CAGE code
32	Type of Screening Code	Use "F"
33-36	Output Data Request Code	Use "9911"
37	Statistical Indicator Code	Use "A"
38	Single/Multiple Output Code	Use "1"
39	Blank	
40	DIDS Segment Code	Use "2"
41	Reference Number	Leave Blank
	Category Code	
42	Reference Number	Leave Blank
	Variation Code	
43	Commercial or NATO Supply Code For Manufacturing	Use Commercial and Government Entity Code (CAGE) or NATO Supply Code for Manufacturer (NSCM)
48-79	Reference Number	Enter Reference Number
80	Continuation Indicator Code	Use "1"

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(2) Submit Provisioning Screening transactions to Defense Logistics Services Center in the above format via compact disc.

a. Provisioning Screening shall be processed at the following address:

DEFENSE MEGACENTER COLUMBUS
ATTN: Tape Librarian/Bldg 23/FLIS-PROVISIONING
3990 E. Broad Street
COLUMBUS, OH 43216-5000

b. To submit a diskette for processing, prepare a letter of transmittal to accompany your diskette indicating "Diskette" as the enclosure. Mail the letter and diskette to:

COMMANDER
DEFENSE LOGISTICS SERVICES CENTER
DIRECTORATE OF LOGISTICS INFORMATION MANAGEMENT
ATTN: DLSC-SBA (PROVISIONING SCREENING)
FEDERAL CENTER
74 WASHINGTON AVENUE, N.
BATTLE CREEK, MI 49017-3084

DI-ALSS-81529, Logistics Management Information (LMI) Data Products (POPS)

3.12.5 Provisioning Technical Documentation. The contractor shall develop and document Provisioning Technical Documentation to include a Provisional Parts List (PPL) and Tools and Test Equipment List (TTEL). These lists shall contain the Data Products selection list. The Government at the Provisioning Guidance Conference (PGC) shall designate the format and medium of delivery. The frequency for submission of such lists shall also be designated at the PGC.

DI-ALSS-81529, Logistics Management Information (LMI) Data Products (Provisioning Technical Documentation (PTD))

3.12.5.1 Provisioning Parts List. The PPL shall contain the end item, component or assembly and all support items which can be disassembled, reassembled or replaced and when combined, constitute the end item, component or assembly and shall include items such as parts, materials, connecting cabling, piping and fittings required for the operation and maintenance of the end item, component or assembly. The PPL shall be used to determine the range and quantity of support items required to maintain the end item for an initial period of service. This includes all repairable COTS items unless excluded by the provisioning requirements. It does not include a breakdown of Government furnished equipment. The PPL shall include items such as parts, materials, connecting cabling, piping and fittings required for the operation and maintenance of the end item/equipment. The PPL shall contain all tools, test equipment, repair kits and repair parts sets required to maintain the end item, component, or assembly equipment unless excluded

by the provisioning requirements. The contractor will provide a recommended buy list of critical spare parts to MARCORSYSCOM, Tactical Networks, Albany, GA.

DI-ALSS-81529, Logistics Management Information (LMI) Data Products (Provisioning Parts List)

DI-ALSS-81529, Logistics Management Information (LMI) Data Products (Spare Parts List)

3.12.5.2 Tools and Test Equipment List. The contractor shall provide a TTEL that shall contain those support items required to inspect, test, calibrate, service, repair or overhaul an end item.

DI-ALSS-81529, Logistics Management Information (LMI) Data Products (Tools and Test Equipment List (TTEL))

3.12.6 Engineering Data for Provisioning. Engineering Data for Provisioning (EDFP) is technical data used to describe parts and consists of data such as specifications, standards, drawings, photographs, sketches and descriptions, and necessary assembly and general arrangement drawings, schematic drawings, schematic diagrams, wiring and cable diagrams necessary to indicate the physical characteristics, location and/or function of the item. At a minimum, EDFP must provide:

- a. Technical information of items for maintenance support and considerations.
- b. Item identification/descriptions necessary for:
 - (1) Cataloging actions and assignments of a NSN
 - (2) Review for item entry control
 - (3) Standardization to include standardization/interchangeability
 - (4) Item management coding
 - (5) Identification/procurement of initial spares
 - (6) Preparation of allowance/issue lists
- c. The contractor shall furnish EDFP in the following order of precedence:
 - (1) Government or industry recognized specifications or standards
 - (2) Engineering drawings
 - (3) Commercial catalogs or catalog descriptions
 - (4) Sketches or photographs with brief descriptions of dimensional, material, mechanical, electrical or other descriptive characteristics.
- d. EDFP shall be submitted in hard copy. EDFP shall be marked in such a manner as to identify the proprietary rights (limited or unlimited). EDFP shall also be marked with the Provisioning Line Item Sequence Number (PLISN) in the upper right hand corner. EDFP shall not be provided when the item is:

- (1) Identified as a Government specification or standard which completely describes the item including its dimensional, mechanical, and electrical characteristics
- (2) Previously cataloged/assigned an active NSN with type 1 item identification

DI-ALSS-81529, Logistics Management Information (LMI) Data Products (Engineering Data for Provisioning (EDFP))

3.12.7 Request for Nomenclature. The contractor shall submit a Request for Nomenclature in accordance with MIL-STD-196E for the system. This requirement is mandatory for use in type designation of communications and electronic materiel.

DI-CMAN-81254A, Request for Nomenclature

3.13 Technical Publications

3.13.1 Electronic Technical Manuals. The contractor shall develop a System Electronic Technical Manuals (ETM) in accordance with Technical Manual Contract Requirement (TMCR) CINS-FY06-002, which shall include all information required for the installation, operation and maintenance of the TDN DDS-R. Resulting product data derived from the Reliability and Maintenance (RAM) and ILS analysis shall influence the manual content. The manuals shall reference the commercial and military manuals associated with the specific equipment comprising the TDN DDS-R. The contractor shall provide the source files for the ETMs, so that modifications/changes can be made by the Government.

TMCR CINS-FY06-002, Technical Manual Contract Requirement (Electronic Technical Manuals (ETM))

3.13.2 Commercial Off-the-Shelf Manuals. The contractor shall provide COTS manual(s) for the TDN DDS-R to include supplemental data as necessary. The manual(s) shall contain installation, operation, troubleshooting and maintenance instructions.

DI-TMSS-80527A, COTS Manual and Associated Supplemental Data

3.13.3 Copyright Release. The contractor shall identify copyrighted material, if any, and shall obtain the written approval of the copyright owner. The contractor shall furnish appropriate copyright release giving the Government permission to reproduce and use copyrighted information. When the contractor uses a manual, which covers a vendor's component(s) or a portion thereof, and the vendor's manual contains copyrighted material, the contractor shall be responsible for obtaining a copyright release from the vendor and providing the copyright release to the Government.

3.13.4 Change Pages/Modification Instructions. The contractor shall provide change pages/modification instructions to the manuals as a result of approved changes to the baseline system. The Government requires notification of all changes and revisions to the manuals for the duration of this contract. Notice of new models/equipment, when they are available, is also

required for Government information. The contractor shall develop change pages/modification instructions in accordance with Technical Manual Contract Requirements.

TMCR CINS-FY06-002, Technical Manual Contract Requirement (Change Pages/Modification Instructions)

3.13.5 Validation. Validation is a Contractor, quality assurance responsibility accomplished on all TMs, changes, supplemental data, and revisions thereto. Validated manuals are required for testing and training. The Contractor shall provide a Validation Plan to the Government. The purpose of this plan is to define the activities, milestones, and schedules to be used to conduct the validation effort. The ETM shall not be ready for validation until the following conditions have been fulfilled.

- a. Contractor's engineering technical review has been completed.
- b. Information, illustrations and parts lists reflect correct configurations of the system/equipment, to include all engineering changes.
- c. Procedural instructions are readily understandable by the intended user and adequate to perform all operations and maintenance functions.
- d. All procedures have been performed to assure accuracy and performance requirements.
- e. Adequacy of data is checked to ensure that it supports the approved maintenance and support plan.
- f. Hardware of the proper configuration is available for the validation and verification effort.
- g. All safety hazards identified in the SAR are resolved and identified within the text as cautions or warnings necessary to protect the equipment or personnel as appropriate.
- h. The use of any hazardous material has been identified. The Contractor shall address, as a minimum, the hazardous materials listed in the Environmental Protection Agency's list.
- i. Upon completion of validation, the Contractor shall provide a signed Validation Certificate testifying to the completeness, accuracy, and safety of the ETM. This may be a locally designed form, but shall be signed by an authorized official of the company.

TMCR CINS-FY06-002, Technical Manual Contract Requirement (Validation Certification)

3.13.6 Verification. An ETM shall not be ready for verification until the Contractor furnishes a Validation Certificate signed by a responsible person assigned to indicate validation is complete. The Government will verify that the ETM is accurate during verification. The Contractor shall

provide system equipment, technical/engineering support, and facilities, as required, to aid the Government in the performance of the verification effort. The Contractor shall provide one set of ETM(s) on CD-ROM to each verification participant, no less than 14 calendar days prior to the scheduled verification effort. The Contractor shall incorporate all Government comments from specification compliance-reviews, technical accuracy reviews, and Government verification reviews into final submission of the ETM. Correction of discrepancies or changes resulting from Government training, testing, and reviews shall be provided for use and incorporation into the production ETM. Documents requiring 15% or more corrections will be deemed unacceptable by the Government.

3.14 Support Equipment. Support equipment is defined as tools, test equipment, automatic test equipment, and Built-In Test/Built-In Test Equipment (BIT/BITE). The requirement for support equipment shall be satisfied by items currently in the Marine Corps inventory to the maximum extent practical. Listings of support equipment resident in the Marine Corps inventory are available from the Government upon the contractor's written request. If the contractor has determined that support equipment is not required, then an explanation is required on how and for how long the system is going to be maintained.

3.14.1 General Purpose Support Equipment. General Purpose Support Equipment (GPSE) is defined as tools and test equipment currently in the Marine Corps inventory. Listings of GPSE resident in the Marine Corps inventory are available from the Government upon the contractor's written request.

3.14.2 Special Purpose Support Equipment. Special Purpose Support Equipment (SPSE) is defined as tools, and test equipment NOT currently in the Marine Corps inventory. Listing of tools and test equipment resident in the Marine Corps inventory are available from the Government upon the contractor's written request. If it has been determined that SPSE is required, the contractor shall develop a Support Equipment Recommendation Data (SERD) using MIL-PRF-49506 detailing the recommended test equipment and testing application. The contractor shall minimize the use of SPSE.

DI-ALSS-81530, Logistics Management Information (LMI) Data Products (Support Equipment Recommendation Data ((SERD))

3.14.3 Calibration and Measurement Requirements Summary. The contractor shall list calibration requirements of test equipment. The Calibration and Measurement Requirements Summary (CMRS) shall be developed only for SPSEs, which have been identified by the contractor.

DI-QCIC-80278A, Calibration and Measurement Requirements Summary (CMRS)

3.14.4 General Purpose Automatic Test Equipment. The contractor shall provide a listing of required General Purpose Automatic Test Equipment (GPATE), which is defined as automatic test equipment currently in the Marine Corps inventory. Listing of GPATE resident in the Marine Corps inventory are available from the Government upon the contractor's written request.

DI-ILSS-80294A, Maintenance, Test and Support Equipment Requirements List (General Purpose Automatic Test Equipment (GPATE))

3.15 Manpower, Personnel and Training. The contractor shall provide a training program In Accordance With (IAW) MIL-PRF-29612B. The training program will focus on the delta between the fielded TDN DDS and the TDN DDS-R as it relates to operation and maintenance. Prior to course initiation, the contractor shall meet safety standards, which are IAW local, state, and federal regulations.

3.15.1 Management of Training Development. The contractor shall appoint a Training Manager who shall be the single point of contact for training and courseware development matters. The Training Manager and other contractor personnel conducting training shall be able to read, write, speak and comprehend the English language, including technical language and terms associated with the operation, repair, installation, maintenance, assembly, and disassembly of the TDN DDS-R. The Training Manager shall have three (3) or more years of training and managerial experience with formal military training, and shall have an understanding of all tasks to be taught under this contract, with expertise in one or more of the areas. Sixty (60) days prior to the conduct of any training course, the contractor shall provide written certification of the proficiency and skill of the instructors to conduct the required training to the Government. Sufficient proficiency and skill is defined as either two (2) years experience conducting formal military training in the specific area of instruction or an equivalent level of civilian teaching experience. The Government will consider waivers to proficiency and skill levels on a case-by-case basis. The Government will review and approve contractor proposed instructors thirty (30) days prior to the start of training. The duties of this Training Manager shall include, but shall not be limited to, the coordination of training courseware analysis, design, and development. Additionally, the Training Manager shall be responsible for the coordination of training presentation for the TDN DDS-R.

3.15.1.1 Plan of Action and Milestones. The contractor shall provide a Plan of Action and Milestones (POA&M) for the training program as a portion of the Training Development Program Plan. The POA&M shall identify proposed course dates: proposed Job Task Analysis (JTA) dates; proposed 10%, 50%, and 100% training development progress review dates; proposed review date for completed draft; and delivery date for final training materials. Draft training materials to support these reviews shall be submitted to the Government for review not less than fourteen (14) days prior to scheduled reviews. The contractor shall incorporate reported decisions and correct discrepancies resulting from or associated with these reviews. Each review shall include corrections from the previous review. Comments and redlines resulting from reviews shall be incorporated. Comments from any previous review shall be revisited prior to proceeding with the current review. If the previous comments have not been included, the review shall not be considered complete.

DI-SESS-81521B, Training Program Structure Document (Plan of Action and Milestones (POA&M))

3.15.1.2 Job Task Analysis. The contractor shall identify the task deltas from the fielded TDN DDS and the TDN DDS-R during the JTA. Result of the JTA shall be presented at the 10% review. The JTA developed by the contractor shall focus on the delta between the fielded TDN DDS and the proposed TDN DDS-R design.

3.15.2 Instructional Level. The contractor shall develop courses in sufficient depth to meet the following requirements:

3.15.2.1 Operator Course Requirements. The course shall focus on the delta operational tasks that were identified through the JTA process. The course will provide students with the knowledge and understanding of the increased system's capabilities, limitations, interfaces, operations and shall include as a minimum preventive maintenance checks and services, capabilities and function of the system, and operations/operator maintenance. The course shall be of sufficient depth to ensure that students are qualified to properly operate the system. At a minimum, the hands-on instruction shall include and, upon completion, enable the student to: operate the system, subsystem, and equipment controls; and perform system checks and verification procedures.

3.15.2.2 Maintenance Course Requirements. The course shall focus on the delta maintenance tasks that were identified through the JTA process. The course shall provide students with the knowledge and understanding of the increased capabilities, limitations, interfacing, operations, and the preventive and corrective maintenance tasks/skills required. At a minimum, the instruction shall include: capabilities, functions and operation of the system; preventive and corrective maintenance procedures; external diagnostics and other tests; and measured performance data. At a minimum, the instruction shall include and upon completion, enable the student to: operate the system and subsystems; execute diagnostic self-test and interpret readouts; remove and install major components and perform pre-shop setup tests; determine if the system/subsystem is malfunctioning or not; isolate and locate malfunctions in the LRU; replace the defective LRU; perform all required alignments and adjustments; verify proper system/subsystem functions; perform routine preventive maintenance functions. The course shall be developed around the Government maintenance concept and shall allow the student to become proficient with the required operations and the preventive and corrective maintenance tasks. The course shall be of sufficient depth to ensure that students are qualified to maintain the system to the appropriate level using the technical manuals, general purpose test equipment, and all available diagnostics. The course shall include a minimum of ten (10) instructor-inserted faults or malfunctions.

3.15.3 Methods of Instruction. The preferred methods of instruction are lectures, demonstrations, practical exercises and application. No less than seventy (70) percent of course presentation shall be practical exercise and hands-on training. Fault isolation shall be accomplished by having students identify faults to the specific LRU and/or software CI with particular emphasis on high failure items. The trainee to instructor ratios shall be 5:1 for practical exercises and 25:1 for lectures.

3.15.4 Course Material. All course material shall be prepared per MIL-PRF-29612B. The

reading level at which written training material is developed generally shall be no higher than eighth grade reading level. The contractor shall provide, to each student attending Instructor and Key Personnel Training (I&KPT) courses, a copy of all course material required to teach the course. The contractor shall provide all supplies, test equipment, common and special tools, and technical literature to each Government student while taking the course. Test equipment shall be identical to that used in the operational environment. For each course, the contractor shall prepare and deliver the following training documentation IAW MIL-PRF-29612B. For further guidance MIL-HDBK-29612/1A (1-5) may be used.

3.15.4.1 Learning Analysis Report. The contractor shall provide a Learning Analysis Report (LAR) containing the mission statement and course objectives. It shall also contain the Learning Objectives (Terminal Learning Objectives and Enabling Learning Objectives) and the knowledge, skills, and attitudes required to perform the tasks.

DI-SESS-81518B, Instructional Performance Requirements Document (Learning Analysis Report (LAR))

3.15.4.2 Lesson Plan. The contractor shall provide a Lesson Plan (LP) to the Government that shall contain data that provides specific definition and direction to the instructor on learning objectives, method of evaluation (student), equipment, instructional media requirements (if needed), instructor notes (if needed), and the conduct of training. MIL-STD-29612/2A is recommended for guidance only.

DI-SESS-81523B, Training Conduct Support Document (Lesson Plan (LP))

3.15.4.3 Trainee Guide. The contractor shall provide a Trainee Guide (TG) that shall contain data, which enhances the trainee's mastery of the knowledge, skills, and attitudes needed for a given subject. These materials may be in the form of information, diagram, job, assignment, problem, and outline sheets.

DI-SESS-81523B, Training Conduct Support Document (Trainee Guide (TG))

3.15.4.4 Instructional Visual Aids. The contractor shall provide visual aids, i.e., PowerPoint, flip charts, etc., to be used by the instructor in the conduct of classes. They shall enhance the learning process and be IAW Government approved production standards.

DI-SESS-81523B, Training Conduct Support Document (Instructional Visual Aids (IVA))

3.15.4.5 Test Package. The contractor shall provide the specific requirements data necessary for the examination of an individual's knowledge, skills, attitudes, and achievement of terminal and enabling learning objectives. Examinations shall either be written or performance or a combination of both and they shall objectively measure the student's ability to achieve the requirements of the learning objectives. Answer keys will be provided for all written exams and performance checklists will be used to evaluate performance exams.

DI-SESS-81525B, Test Package

3.15.5 Initial Training. The contractor shall develop training material (courseware) to cover operator, and maintenance tasks for the TDN DDS-R. The contractor shall be responsible for initial training and all the courseware to support it. Training and courseware shall cover the operation, maintenance, system administration, and repair/replacement of all components and ancillary equipment (if any) unique to the TDN DDS-R. Initial training shall be conducted at the contractor's facilities or a mutually agreed upon site. The Government reserves the right to inspect the contractor's training facilities. Prior to course initiation, the contractor's facilities shall meet safety standards IAW local, state, and federal regulations. Initial training shall be in two (2) evolutionary increments [I&KP and New Equipment Training (NET)]. Following each training evolution, approved Government comments received from the attendees shall be incorporated into the training materials.

3.15.5.1 Instructor and Key Personnel Training. The contractor shall conduct I&KPT utilizing the Government approved draft courseware. I&KPT shall consist of courses for operators, maintainers, system administrators, and installers/fielders. The contractor shall conduct one class for a maximum of twenty-five (25) students per course. This course shall be targeted to instructors from Marine Corps Communication-Electronics School, Command and Control Systems School, Marine Corps Tactical Systems Support Activity, representatives from Training and Education Command, designated personnel from the Marine Expeditionary Forces (MEFs), Contractor Support Personnel and installers/fielders (if required). Following completion of I&KPT, approved Government comments received from attendees shall be incorporated into the courseware to yield an improved product.

3.15.5.2 New Equipment Training. The contractor shall conduct NET to take place at Government sites at the using units' locations to be determined. Course requirements will be the same as I&KPT. A minimum of four (4) Courses will be conducted: one (1) at Camp Pendleton, CA (I MEF); Camp Lejeune (II MEF), NC; Okinawa, Japan (III MEF); and one (1) at New Orleans, LA (IV MEF). The Government intends to conduct multiple training sessions at each location throughout the fielding process. Training sessions will not be held concurrently. Contract options may be exercised for additional training sessions. Up to six (6) Field Service Representatives (FSRs) from the Government's designated CLS contract may also attend each iteration of NET.

3.15.6 Training Course Completion Report. The contractor shall provide to the Government written certification of the proficiency of each student, an evaluation of trainee performance, the course of instruction and related materials. A Student Training Course Evaluation and Certificate of Training shall be provided to each student. A copy of each student's Student Training Course Evaluation shall be provided to the respective student's command.

3.16 Packaging, Handling, Storage and Transportation

a. General. The Contractor shall be responsible for Preservation and Packaging (P&P) of the deliverables under the terms of this statement of work. P&P for deliverables shall be in accordance with MIL-STD-2073-1D, with Notice 1 as applicable. Packaging data shall be developed in accordance with MIL-STD-2073-1D and all appendices for the End Item and all repairable components assigned Source, Maintenance and Recoverability (SMR) Codes PA, PB, PC, PD, PE and PG.

b. Should items be scheduled for long term storage they shall be packaged in accordance with the level "A" requirements of MIL-STD 2073-1D, Appendix A, Electronic Equipment and Appendix J, Table J.Ia., Specialized Preservation code "GX" for items meeting Electrostatic Sensitive requirements. Spare repairable components shall be preserved and packaged in accordance with MIL-STD-2073-1D, Appendix "A", Table A.VI., Electronic Equipment. Items shall be packed into a reusable fast-pack container.

c. Classification and Data Development. The Contractor shall classify the selected items as common, selective, or special in accordance with MIL-STD-2073-1D, Appendix A, paragraph A.5.1, and shall develop data as required by MIL-STD-2073-1D, Appendix E, paragraph E.4. The Contractor shall provide logistics information sufficient for the Government to determine the adequacy of the data submitted.

d. Validation. The Contractor shall validate preservation processing and packaging for selective and special group items in accordance with MIL-STD-2073-1D, Appendix F. Exceptions to validation requirements shall be as delineated in MIL-STD-2073-1D, paragraph 5.6. The test report shall accompany data submissions.

e. Development of Marking Requirements. Marking requirements for shipment and storage shall be developed in accordance with MIL-STD-129. Bar coding and a detailed packing list is required.

f. Engineering Changes. In the event a Government approved ECP affects packaging design requirements for previously approved data, the Contractor shall update the affected packaging data and submit it to the Government for approval.

DI-PACK-80120B, Preservation and Packing Data (Packaging, Handling, Storage and Transportation (PHS&T))

DI-PACK-80121B, Special Packaging Instructions (PHS&T)

ASTM-D4169, Containers and Systems, Shipping, Performance and Testing of (PHS&T – Validation Report)

3.16.1 Transportability Program. The contractor shall implement a transportability program which shall address the inherent capability of an item to be moved by towing, self-propulsion, or carrier, via railway, highway, waterway, pipeline, ocean or airway, using existing equipment or equipment that is planned for the movement of this item. The contractor shall conduct transportability engineering efforts to identify and measure the limiting constraints,

characteristics, and environments of transportation systems and to integrate this data into design criteria to user operational and planned transportation capabilities effectively.

3.17 Software.

3.17.1 Software Development. The contractor shall utilize existing TDN COTS and NDI software which will be provided as GFE. The contractor shall be responsible for providing all required software/hardware drivers. GFE software cannot be altered.

3.17.2 Firmware Support Manual. The contractor shall provide a Firmware Support Manual (FSM). The FSM shall provide the information needed to program and reprogram the firmware devices of a system and shall apply to Read-Only Memories (ROMs), Programmable ROMs (PROMs), Erasable PROMs (EPROMs), and other firmware devices.

DI-IPSC-81448A, Firmware Support Manual (FSM)

3.17.3 System/Subsystem Specification. The contractor shall provide a System/Subsystem Specification (SSS). The SSS shall specify the requirements for a system or subsystem and the verification methods to be used to ensure that each requirement has been met. The SSS shall be used as the basis for design and qualification testing of a system or subsystem.

DI-IPSC-81431A, System/Subsystem Specification (SSS)

3.17.4 Computer Operation Manual. The contractor shall provide a Computer Operation Manual (COM). The COM shall provide information needed to operate a given computer and its peripheral equipment. This manual focuses on the computer itself, not on particular software that will run on the computer.

DI-IPSC-81446A, Computer Operation Manual (COM)

3.18 Contractor Performance Measurement.

3.18.1 Contract Work Breakdown Structure. The contractor shall maintain the Contract Work Breakdown Structure (CWBS) and dictionary using MIL-HDBK-881A for guidance only. The CWBS shall provide the basis for further extension by the contractor to lower levels during the performance of the contract. The contractor shall extend the CWBS to the appropriate level required to provide adequate internal management, surveillance, and performance measurement, regardless of the reporting level stipulated in the contract for Government visibility. The contractor shall use the CWBS as the primary framework for contract planning, budgeting, and reporting of the cost, schedule and technical performance status to the Government. The contractor shall analyze the system requirements generated and translate them into a structure representing the products and services that comprise the entire work effort commensurate with the acquisition phase and contract requirements. The contractor's team or organizational entity responsible for the systems engineering of the system shall prepare the technical elements of the extended CWBS. The contractor shall update the CWBS during the execution of the contract.

Changes to the CWBS or associated definitions at any reporting level shall require approval of the Government. According to the new Earned Value Management (EVM) policy memo dated March 2005, if the contract is valued at less than \$20M in then-year funds, then a cost-benefit analysis shall be conducted before deciding to implement EVM.

DI-MGMT-81334B, Contract Work Breakdown Structure (CWBS)

3.18.2 Integrated Master Schedule. The contractor shall provide an Integrated Master Schedule (IMS). No specific format or scheduling technique is prescribed. The IMS shall be consistent with the CWBS and must be detailed sufficiently that critical and high-risk efforts are identified and planned as realistically to assure executability. The IMS shall be extended and expanded as the contract unfolds and additional insight is needed (for example, rolling wave detail planning or scope changes). The IMS shall also include the efforts of all activities, including contractor or supplier and subcontractor and present a current, integrated view of the contract or agreement that is consistent with resource plans, Contract Performance Reports, and other approved documentation. Furthermore the IMS should reflect those risks identified and documented in the contractor's risk management plan.

DI-MGMT-81650, Integrated Master Schedule (IMS)

4.0 Contractor Support. The contractor shall provide interim support services for the TDN DDS-R for a one (1) year period, IAW the delivery order(s), in order for the Government to obtain all necessary documentation and resources to organically support the equipment. The contractor shall provide an interim support plan which defines the approach which will be employed to ensure operational availability/readiness of the TDN DDS-R (A₀=.95) and a plan to transition support to the Government. The contractor shall make available all documentation generated, as a result of these services, for Government review. The contractor shall document corrective actions taken during the period of services in the FRACAS reports. As a minimum, the following services shall be provided:

- a. Create and maintain a database of maintenance actions which include date, time, reporting unit, response time, item, part number, failure and failure mode, and corrective action taken.
- b. Establish and maintain a twenty-four (24) hour, three hundred and sixty-five (365) day helpdesk and hotline to assist operator and maintenance personnel. A log shall be maintained which documents all calls to include at a minimum, using unit, problem reported and item resolution.

DI-MISC-80508 Technical Report – Study/Services (Helpdesk Log)

DI-MISC-80508 Technical Report – Study/Services (Interim Support Plan)

4.1 Spares. The Offeror shall provide, as a part of its offer, a list of all Line Replaceable Units (LRUs) included in the TDN DDS-R that are critical to the operation of the system. The list shall reflect those items that can be removed and replaced at intermediate and/or organizational level.

The list shall depict recommended spares supporting peacetime and wartime environments. The list shall include, but shall not be limited to: description, manufacturer, manufacturer part number, Commercial and Government Entity (CAGE) Code, price per unit, quantity per system, National Stock Number (NSN), if applicable, and Maintenance Replacement Rate (MRRI) (breakage per thousand per year). The Offeror shall propose and recommend spare LRUs sufficient for two (2) years of TDN DDS-R operation. The Offeror shall also list TDN DDS-R consumables and rate of consumption. The Offeror shall include, as part of its cost proposal the cost associated with the procurement of these spares in Section B of the solicitation. For the purpose of generating this spares list, the following criteria shall be applied:

- a. For peacetime, Annual Operational Requirement (AOR) of 2160 hours.
- b. For wartime, Annual Operational Requirement (AOR) of 8640 hours.

4.2 RESERVED

4.3 RESERVED.

Appendix A - Acronyms

ACO	Administrative Contracting Officer
AOR	Annual Operational Requirement
BIT/BITE	Built-In Test/Built-In Test Equipment
CAGE	Commercial and Government Entity
CBIL	Common and Bulk Items List
CDR	Critical Design Review
CI	Configuration Item
CLS	Contractor Logistics Support
CM	Configuration Management
CMRS	Calibration and Measurement Requirements Summary
COM	Computer Operation Manual
COR	Contracting Officers Representative
COTS	Commercial Off-the-Shelf
CSA	Configuration Status Accounting
CSCI	Computer Software Configuration Item
CSR	Critical System Requirements
CWBS	Contract Work Breakdown Structure
DDS-R	Data Distribution System - Replacement
DITSCAP	Department of Defense Information Technology Security Certification and Accreditation Process
DMS	Defense Messaging System
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DoD	Department of Defense
ECP	Engineering Change Proposal
EDFP	Engineering Data for Provisioning
EDM	Engineering Data Management
EMI	Electromagnetic Interference
EPA	Environmental Protection Agency
EPROM	Erasable Programmable Read-Only Memory
ERR	Engineering Release Record
ESD	Electrostatic Discharge
ESDS	Electrostatic Discharge Sensitive
ESH	Environment, Safety and Health
ETM	Electronic Technical Manual
EVM	Earned Value Management
FAT	First Article Test
FCA	Functional Configuration Audit
FRACAS	Failure Reporting, Analysis and Corrective Action System
FSM	Firmware Support Manual

FSR	Field Service Representative
GFE	Government Furnished Equipment
GFI	Government Furnished Information
GFM	Government Furnished Material
GIDEP	Government/Industry Data Exchange Program
GOTS	Government Off-the-Shelf
GPATE	General Purpose Automatic Test Equipment
GPSE	General Purpose Support Equipment
HSI	Human Systems Integration
HMMP	Hazardous Materials Management Program
IA	Information Assurance
IAW	In Accordance With
ICWG	Interface Control Working Group
I&KP	Instructor and Key Personnel
ILS	Integrated Logistics Support
IMS	Integrated Master Schedule
IPR	In-Process Review
IPT	Integrated Product Team
I&RTS	Integration and Run-Time Specification
ISP	Integrated Support Plan
IVA	Instructional Visual Aid
JITC	Joint Interoperability Test Command
JTA	Job Task Analysis
KPP	Key Performance Parameter
LAR	Learning Analysis Report
LMI	Logistics Management Information
LOGCOM	Logistics Command
LP	Lesson Plan
LRU	Line Replaceable Unit
MARCORSYSCOM	Marine Corps Systems Command
MCTSSA	Marine Corps Tactical System Support Activity
MEF	Marine Expeditionary Force
MOPP IV	Mission Oriented Projected Posture IV
MSDS	Material Safety Data Sheets
MTP	Master Test Plan
NBC	Nuclear, Biological, Chemical
NDI	Non-Developmental Item
NET	New Equipment Training
NOR	Notice of Revision
NSCM	NATO Supply Code for Manufacturer
NSN	National Stock Number
OT&E	Operational Test and Evaluation
PAC	Post Award Conference
PAT	Production Acceptance Test
PCA	Physical Configuration Audit

PDR	Preliminary Design Review
PGC	Provisioning Guidance Conference
PLISN	Provisioning Line Item Sequence Number
PM	Program Manager
POAM	Plan of Action and Milestones
POC	Point of Contact
P&P	Preservation and Packaging
PPL	Provisional Parts List
PROM	Programmable Read-Only Memory
RFD	Request for Deviation
RMA	Return Material Authorization
ROM	Read-Only Memory
SAR	Safety Assessment Report
SERD	Support Equipment Recommendation Data
SIT	System Integration/Qualification Test
SMR	Source, Maintenance and Recoverability
SOW	Statement of Work
SPSE	Special Purpose Support Equipment
SSS	System/Subsystem Specification
STD	Software Test Description
TDN	Tactical Data Network
TG	Trainee Guide
TMCR	Technical Manual Contract Requirement
TOC	Total Ownership Cost
TRR	Test Readiness Review
TTEL	Tools and Test Equipment List
UID	Unique Identification