AWARD/CONTRACT

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING DO-A7	PAGE 1 OF PAGES 104
2. CONTRACT *(Proc. Inst. Ident.)* NO. W91CRB-10-C-0178-P00011	3. EFFECTIVE DATE 10 Aug 2010	4. REQUISITION/PURCHASE REQUEST/PROJECT NO. SEE SCHEDULE	

5. ISSUED BY CODE W91CRB
US ARMY RDECOM CONTR CTR - W91CRB
4118 SUSQUEHANNA AVENUE
ABERDEEN PROV NG GROUND MD 21005-3013

6. ADMINISTERED BY *(If other than Item 5)* CODE S3101A
DCMA MUNITIONS AND SUPPORT SYS - S3101A
BLDG 1, ARDEC
PICATINNY ARSENAL NJ 07806-5000

7. NAME AND ADDRESS OF CONTRACTOR *(No., street, city, county, state and zip code)*
DRS SYSTEMS, NC.
5 SYLVAN WAY STE 305
PARSIPPANY NJ 07054-3818

CODE 1V3E4 FACILITY CODE 1V3E4

8. DELIVERY
[ ] FOB ORIGIN [X] OTHER *(See below)*

9 DISCOUNT FOR PROMPT PAYMENT
Net 30 Days

10 SUBMIT INVOICES *(4 copies unless otherwise specified)* TO THE ADDRESS SHOWN IN: ITEM

11. SHIP TO/MARK FOR CODE
See Schedule

12. PAYMENT WILL BE MADE BY CODE HQ0337
DFAS - COLUMBUS CENTER - HQ0337
NORTH ENTITLEMENT OPERATIONS
PO BOX 182266
COLUMBUS OH 43218-2266

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:
[ ] 10 U.S.C. 2304(c)( ) [ ] 41 U.S.C. 253(c)( )

14. ACCOUNTING AND APPROPRIATION DATA
See Schedule

15A. ITEM NO.	15B. SUPPLIES/ SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
	SEE SCHEDULE				

15G. TOTAL AMOUNT OF CONTRACT **$16,696,847.81**

16. TABLE OF CONTENTS

(X)	SEC.	DESCRIPTION	PAGE(S)
		PART I - THE SCHEDULE	
X	A	SOLICITATION/ CONTRACT FORM	1
X	B	SUPPLIES OR SERVICES AND PRICES/ COSTS	2 - 12
X	C	DESCRIPTION/ SPECS./ WORK STATEMENT	13 - 72
X	D	PACKAGING AND MARKING	73
X	E	INSPECTION AND ACCEPTANCE	74 - 75
X	F	DELIVERIES OR PERFORMANCE	76 - 77
X	G	CONTRACT ADMINISTRATION DATA	78 - 81
X	H	SPECIAL CONTRACT REQUIREMENTS	82
		PART II - CONTRACT CLAUSES	
X	I	CONTRACT CLAUSES	83 - 103
		PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS	
X	J	LIST OF ATTACHMENTS	104
		PART IV - REPRESENTATIONS AND INSTRUCTIONS	
	K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
	L	INSTRS., CONDS., AND NOTICES TO OFFERORS	
	M	EVALUATION FACTORS FOR AWARD	

CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17 [ ] CONTRACTOR'S NEGOTIATED AGREEMENT Contractor is required to sign this document and return copies to issuing office) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein (Attachments are listed herein)

18 [ ] AWARD (Contractor is not required to sign this document) Your offer on Solicitation Number W91CRB-09-R-0089-0011 including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract No further contractual document is necessary

19A. NAME AND TITLE OF SIGNER *(Type or print)*

20A. NAME OF CONTRACTING OFFICER
VICKY WATKINS / CONTRACTING OFFICER
TEL: 410-278-1239 EMAIL: victoria.m.watkins.civ@mail.mil

19B. NAME OF CONTRACTOR	19C. DATE SIGNED	20B. UNITED STATES OF AMERICA	20C. DATE SIGNED
BY _____ *(Signature of person authorized to sign)*		BY _____ *(Signature of Contracting Officer)*	10-Aug-2010

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1001					$0.00
	PY1 ENVG(O) Requirements FFP Program Year (PY) 1 will be from date of award to 365 days after date of award. PURCHASE REQUEST NUMBER: W9123120093170				
				NET AMT	$0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1001AA		220	Each	$73,200.00	$16,104,000.00
	PY1 ENVG(O) Test Articles FFP PY1 ENVG(O) Test Articles. Contractor shall deliver test articles in accordance with para 3.2 of attached Statement of Work. Pricing includes warranty cost. FOB: Origin PURCHASE REQUEST NUMBER: W9123120108029				
				NET AMT	$16,104,000.00
	ACRN AA TAC: AXFP CIN: W91231201080291001AA				$16,104,000.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1001AB				$0.00	$0.00
	REMOVED FFP FOB: Destination				
				NET AMT	$0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1001AC		1	Lot	$230,000.00	$230,000.00
	PY1 CDRLs - Mandatory FFP Contractor shall provide mandatory Contract Data Requirements List in accordance with Statement of Work for PY1 and Exhibit A. Pricing for CDRLs is in accordance with CDRL Pricing - BASE YEAR in Section C. Pricing for CDRLs listed as Not Separately Priced (NSP) is included in unit price of Test Articles. FOB: Destination PURCHASE REQUEST NUMBER: W9123120108029				
				NET AMT	$230,000.00
	ACRN AA TAC: AXFP CIN: W91231201080291001AC				$230,000.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1002		1	Lot	$140,000.00	$140,000.00

PY1 CDRLS - Optional
FFP
The Government may exercise option to purchase Contract Data Requirements List in accordance with SOW and Exhibit A. Pricing for CDRLs is in accordance with CDRL Pricing - BASE YEAR in Section C. Pricing for CDRLs listed as Not Separately Pricing (NSP) is included in unit price of Test Articles.
FOB: Destination
PURCHASE REQUEST NUMBER: W9123120108029

	NET AMT	$140,000.00
ACRN AA		$140,000.00

TAC: AXFP
CIN: W91231201080291002

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1003		8	Each	$11,000.00	$88,000.00
EXERCISED OPTION	PY1 TMDE Test Sets FFP The Government may exercise option to purchase an amount not to exceed 250 TMDE Test Sets during PY 1 of the contract. Pricing is in accordance with range pricing provided below.				

Range	Unit Price
1-50	$11,000
51-100	$ 5,000
101-175	$ 5,000
176-250	$ 5,000

8 units shall be shipped in place. Delivery date is 29 July 2011.
FOB: Origin
PURCHASE REQUEST NUMBER: W9123120108047

NET AMT $88,000.00

ACRN AB $88,000.00
TAC: AXFP
CIN: 000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1004				$0.00	$0.00
	PY1 ENVG(O) Maintenance Support FFP Contractor shall provide Organic maintenance in lieu of LCCS support, therefore this CLIN is not priced. FOB: Destination				

NET AMT $0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1005		1	Lot	$134,847.81	$134,847.81
EXERCISED OPTION	PY1 Spares FFP Contractor shall provide Fielding/Sustainment Spares in accordance with attached "EUA Spares" spreadsheet below. Spare parts are intended for use in Government Developmental Tests (such as EUA, RGT-I, RGT-II, WSMR, and CRTC) to support test execution and completion of required repairs to address issues/failures found in testing and as agreed to by the IPPT. Request vendors deliver spares by DD250 as they are needed to assist the Government in tracking quantities of parts used, with the balance due for all items by the required delivery date. FOB: Origin PURCHASE REQUEST NUMBER: W9123120108047				
				NET AMT	$134,847.81
	ACRN AB TAC: AXFP CIN: 00000000000000000000000000000000				$134,847.81

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
2001		4,500	Lot	(b) (4)	(b) (4)
OPTION	PY2 ENVG(O) Requirements FFP The Government may exercise the Option to purchase up to 4,500 ENVG(O) during Program Year 2 at prices specified in range pricing provided below. Pricing includes warranty cost. Unit price provided is weighted average unit price per ENVG. Qty/Range 1 - 500 (b) (4) 501 -1000 (b) (4) 1001-2000 (b) (4) 2001-3500 (b) (4) 3501-4500 (b) (4) FOB: Origin				
				NET AMT	(b) (4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
2002				$0.00	$0.00
	REMOVED FFP FOB: Destination				
				NET AMT	$0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
2003		1	Lot	(b) (4)	(b) (4)
OPTION	PY2 CDRLS - Mandatory FFP Contractor shall provide mandatory Contract Data Requirements List in accordance with Statement of Work for PY2 and Exhibit A. Pricing for CDRLs is in accordance with CDRL Pricing - PY2 in Section C. Pricing for CDRLs listed as Not Separately Priced (NSP) is included in unit price of Test Articles. FOB: Destination				
				NET AMT	(b) (4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
2004				$0.00	$0.00
	PY2 ENVG(O) Maintenance Support FFP Contractor shall provide Organic maintenance in lieu of LCCS support, therefore this CLIN is not priced. FOB: Destination				
				NET AMT	$0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
2005		1	Lot	(b) (4)	(b) (4)
OPTION	PY2 Spares FFP The Government may exercise option to purchase Fielding/Sustainment Spares as defined in subline items required during PY2 in accordance with para. 3.3.11.5.2 of the SOW and priced in accordance with Attachment 1 - Spares Pricing. An estimate of $4,000,000 for PY2 will be used for normalization. FOB: Origin				

NET AMT (b) (4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
3001		12,000	Each	(b) (4)	(b) (4)
OPTION	PY3 ENVG(O) Requirements FFP The Government may exercise the Option to purchase up to 12,000 ENVG(O) during Program Year 3 at prices specified in range pricing provided below. Pricing includes warranty cost. Unit price provided is weighted average unit price per ENVG. Qty/Range 1 - 1500 (b) (4) 1501 -4000 (b) (4) 4001- 6500 (b) (4) 6501- 9000 (b) (4) 9001- 12000 (b) (4) FOB: Origin				

NET AMT (b) (4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
3002				$0.00	$0.00
	REMOVED FFP FOB: Destination				
				NET AMT	$0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
3003		250	Each	(b) (4)	(b) (4)
OPTION	PY3 TMDE Test Sets FFP The Government may exercise option to purchase an amount not to exceed 250 TMDE Test Sets during PY 3 of the contract. Pricing is in accordance with range pricing provided below. Unit price reflects weighted average unit price for ENVG. Range / Unit Price 1-50 (b) (4) 51-100 (b) (4) 101-175 (b) (4) 176-250 (b) (4) FOB: Origin				
				NET AMT	(b) (4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
3004		1	Lot	(b) (4)	(b) (4)
OPTION	PY3 CDRLS - Mandatory FFP Contractor shall provide mandatory Contract Data Requirements List in accordance with Statement of Work for PY3 and Exhibit A. Pricing for CDRLs is in accordance with CDRL Pricing - PY3 in Section C. Pricing for CDRLs listed as Not Separately Priced (NSP) is included in unit price of Test Articles. FOB: Destination				

NET AMT (b) (4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
3005		1	Lot	(b) (4)	(b) (4)
OPTION	PY3 CDRLS - Optional FFP Contractor shall provide optional Contract Data Requirements List in accordance with Statement of Work for PY3 and Exhibit A. Pricing for CDRLs is in accordance with CDRL Pricing - PY3 in Section C. Pricing for CDRLs listed as Not Separately Priced (NSP) is included in unit price of Test Articles. FOB: Destination				

NET AMT (b) (4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
3006				$0.00	$0.00
	PY3 ENVG(O) Maintenance Support FFP Contractor shall provide Organic maintenance in lieu of LCCS support, therefore this CLIN is not priced. FOB: Destination				
				NET AMT	$0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
3007		1	Lot	(b) (4)	(b) (4)
OPTION	PY3 Spares FFP The Government may exercise option to purchase Fielding/Sustainment Spares as defined in subline items required during PY3 in accordance with para. 3.3.11.5.2 of the SOW and priced in accordance with Attachment 1 - Spares Pricing. An estimate of (b) (4) for PY3 will be used for normaliization. FOB: Origin				
				NET AMT	(b) (4)

Section C - Descriptions and Specifications

STATEMENT OF WORK

Enhanced Night Vision Goggle (ENVG)
Statement of Work

1.0 Scope. This Statement of Work (SOW) specifies the tasks and efforts the contractor shall perform during this production contract for the Enhanced Night Vision Goggle (ENVG), ENVG associated spare parts, and if required, Test Measurement and Diagnostic Equipment (TMDE). This SOW provides the program management, quality assurance, integrated logistics support (ILS), configuration management, and safety requirements for the items being sought under this procurement. The contractor shall ensure the delivered ENVG systems comply with the requirements of the ENVG Performance Specification offered in response to the Government's ENVG Purchase Description dated 18 MAY 2010. *Note that italicized portions of this SOW are not requirements, but rather provide additional details regarding desired enhancements.* **Note also that items in bold refer to requirements for Contract Line Item Numbers (CLINs) that become requirements if/when exercised.**

1.1 Terminology.

1.1.1 Government. When the term "Government" is used throughout this document, it shall refer to the cognizant personnel within PM Soldier Sensors & Lasers as well as the Procuring Contracting Officer (PCO) and his/her representatives assigned to the ENVG program.

1.1.2 Days. When the term "days" is used throughout this document, it shall refer to calendar days, unless explicitly specified as business days.

2.0 Applicable Documents. The following documents form a part of this SOW to the extent specified herein. Unless otherwise specified, the latest revision of each document shall apply.

2.1 Government Documents.

DOD 5220.22M	National Industrial Security Program Operating Manual
MIL-DTL-14072	Finishes for Ground Based Electronic Equipment
MIL-PRF-49506	Performance Specification for Logistics Management Information
DI-CMAN-80858	Contractor's Configuration Management Plan
MIL-HDBK-61	Configuration Management Guidance
PD-ENVG	Enhanced Night Vision Goggle Performance Specification submitted in response to Government's ENVG Purchase Description

2.2 Non-Government Documents.

ASME Y14.5M-1994	Dimensioning and Tolerancing – Includes Inch and Metric
ASME Y14.15	Diagrams, Electrical and Electronic
ASME/ISO/ASQ Q10012-2003	Measurement Management Systems - Requirements for Measurement Processes and Measuring Equipment.
ISO 9001:2000	Quality Management Systems – Requirements

3.0 Requirements

3.1 ENVG System Description. The ENVG is a helmet-mounted device, presenting imagery from image intensification and thermal sensors simultaneously or individually to allow the individual Soldier to perform missions during all light levels and in all terrains, in clear air and degraded visbility conditions. The ENVG shall be used by Soldiers and others engaged in close combat, combat support, and combat service support operations. The thermal sensor allows the Soldier to rapidly detect targets under all light levels and battlefield conditions, while the image intensifier sensor allows the Soldier to see detail and to use rifle-mounted aiming lasers. The combination of the two sensors shall significantly improve Soldier situational awareness. Other jobs performed by Soldiers wearing ENVG will include driving vehicles, performing operator maintenance, combat lifesaving, and other missions required of Soldiers involved in close combat.

3.1 Program Management.

3.1.1 Program Management Objective. The objective of program management under this contract is to provide both the contractor and the Government with a common set of information/tools required to effectively manage the work performed under this contract, minimize system performance risk, and ensure adherence to the established program schedule.

3.1.2 Integrated Program Master Schedule (IPMS). The objective of the IPMS is to provide a tool that provides sufficient detail and insight to allow the ENVG Integrated Product & Process Team (IPPT) to track the progress of the program. The initial submission shall be included as part of the offeror's proposal. All tasks/activities in the IPMS should be logically linked, showing predecessor/successor relationships, and critical path. The activities and tasks defined should be sufficient to account for the entire program under contract, and as a minimum, integrate all required data items, testing, hardware deliverables, and major contract program events/reviews, and program events requiring Government participation. The IPMS is CDRL/DID-001.

3.1.3 Risk Management/Mitigation Plan. The contractor shall use a risk management/mitigation document plan for the IPPT to document, track, and manage areas of program risk during the life of the contract. The initial submission shall be included as part of the proposal. The risk management/mitigaton plan shall include, but is not limited to the following: risk description, rating (stoplight or low, medium, high), program impact, mitigation strategy, action officer, schedule, and status. The Risk Management/Mitigation Document plan is CDRL/DID-002.

3.1.4 Integrated Product & Process Team (IPPT).

3.1.4.1 IPPT Overview. The Government and contractor shall incorporate an IPPT discipline into the ENVG production effort. The objectives of the IPPT are to foster an open, shared data/information environment and to implement a disciplined systems engineering approach to influence the design, manufacturing, testing, logistics support, and on-schedule delivery of specification compliant units, while striving to continuously improve the various Government/contractor processes and reduce system life cycle cost. The IPPT shall also complete the following additional actions throughout the life of the contract:

3.1.4.1.1 Hold IPPT reviews;
3.1.4.1.2 Use risk management techniques to document, track, and manage program areas of risk;
3.1.4.1.3 Review/concur on program documentation;
3.1.4.1.4 Review follow-on qualification testing with the goal of reducing repetitive testing;
3.1.4.1.5 Review/concur on all Failed Item Analysis Reports (FIARs)/Engineering Change Proposals (ECPs)/Waivers/Deviations/Trades;
3.1.4.1.6 Generate and update IPMS.

3.1.4.2 IPPT Membership. The IPPT shall consist of Government and contractor personnel associated with the ENVG program and related efforts. The U.S. Army ENVG Assistant Product Manager will co-chair the IPPT with the associated contractor counterpart. The IPPT chairpersons will work in good faith to reach agreement on all items requiring IPPT approval/concurrence. If agreement cannot be reached between the co-chairpersons, then the issue(s) will be escalated per each organization's chain of command. The co-chairs shall define the membership of the IPPT at the Post Award Conference.

3.1.5 Plans, Reports, Reviews, & Meetings. The IPPT co-chairs will develop an agenda for all reviews/meetings. The contractor shall provide an agenda and a read-ahead brief for all meetings/reviews no later than 2 business days before the scheduled review/meeting. The agenda and read-ahead briefing is CDRL-003. At the end of each review/meeting, the contractor and Government shall jointly prepare action items and meeting minutes. The action items list and the meeting minutes are CDRL-004. The contractor shall schedule (with Government concurrence), prepare for, and conduct the following reviews/meetings:

3.1.5.1 Not Used

3.1.5.2 IPPT Reviews. The contractor shall participate and support IPPT Reviews at approximately 90-day intervals throughout the life of the contract, or as agreed to by the IPPT chairpersons. The first IPPT Review shall be conducted on or about 45 days after the Post Award Conference. IPPT reviews may be conducted as teleconferences or video-teleconferences (VTCs) if mutually agreed upon by the IPPT co-chairpersons, however face-to-face meetings are preferred to be at the contractor's facility. IPPT reviews shall provide a working level forum to identify, discuss, and resolve issues that could affect the system performance, design, production, testing, logistics support, system deliveries, life cycle cost, and program schedule. The IPMS and Risk Mitigation Document shall also be reviewed at these meetings.

3.1.5.3 Informal Reviews. The contractor shall be available for informal reviews and Government visits in addition to the IPPT reviews. The IPPT co-chairs will, whenever possible, attempt to minimize travel costs for both parties by utilizing teleconferences or VTCs to conduct these informal reviews.

3.1.5.4 Post Award Conference/Preliminary Design Review/Critical Design Review/Production Readiness Review (PAC/PDR/CDR/PRR). The contractor shall host a Post Award Conference within 15 days of contract award to ensure there is a mutual understanding of the terms, conditions, and requirements among all parties responsible for the management and performance of the contract. The contractor shall host a PDR within 45 days of contract award to provide a preliminary assessment of the design of the ENVG. A CDR shall be hosted by the contractor no more than 30 days following the PDR to review the final design in preparation for initial production. An initial PRR shall be hosted by the contractor no more than 150 days after contract award. A final PRR shall be hosted by the contractor no more than 4 months after the IOT. The PRRs shall review the contractor's production readiness to meet the requirements of the contract. Exit criteria for the various reviews includes, but is not limited to:

3.1.5.4.1 Post Award Conference Exit Criteria. IPPT agreement on the following:

a. Contract terms, conditions, and requirements.

3.1.5.4.2 Preliminary Design Review Exit Criteria. Government approval the contractor has accomplished/verified the following:

a. Technical effort and design indicate operational test success (effective, suitable, and survivable
b. Preliminary design, as disclosed, satisifies the ENVG Performance specification.
c. N/A
d. Established and documented system allocated baseline to enable the design to proceed with proper configuration management
e. Established adequate processes and metrics for the program to succeed
f. Included human integration design factors in the overall system design
g. Identified program risks and established risk mitigation plan
h. Program schedule is executable (technical, cost, risk)
i. Staffed program properly
j. N/A

3.1.5.4.3 Critical Design Review Exit Criteria. Same as Preliminary Design Review Exit Criteria (3.1.5.4.2).

3.1.5.4.4 Production Readiness Review Exit Criteria. For both the initial and final Production Readiness Reveiws, Government approval the contractor has accomplished/verified the following:

a. Design is ready for production
b. No unacceptable risks (cost, schedule, performance) exist for prime and subs

c. Established and documented system product baseline to enable initial production to proceed with proper configuration management.
d. Identified production risks and established mitigation plan
e. Established adequate processes and metrics for the program to succeed
f. Program schedule is executable (technical, cost, risk)
g. Staffed program properly
h. Design is producible within the production budget

Government approval of the Final Production Readiness Review is required for Type Classification – Standard.

3.1.5.5 System Engineering Plan. The contractor shall prepare a System Engineering Plan (SEP) that describes the contractor's processes and resources to incorporate System Engineering practices to build, test, deliver, and support the ENVG. The SEP shall include, but is not limited to the following:

3.1.5.5.1 Discussion of main ENVG components (monocular, helmet mount, helmet mount wiring assembly, battery pack, etc.) and primary system sub-components (image intensification sensor, thermal sensor, display, optics)
3.1.5.5.2 System performance to be achieved including KPPs, to include a system and component/sub-component power allowance table
3.1.5.5.3 Interface/Interoperability with other equipment (helmet, TWS, aiming lasers, TMDE (If applicable))
3.1.5.5.4 Contractor's System Engineering (SE) organizational integration (technical, Quality & Test, logistics), including sub-contractors
3.1.5.5.5 Contractor's SE approach to the following topics for the system and componens/sub-components: reliability, maintainability/supportability, NBC, EMI, Safety/Environmental, HFE, producibility, Quality & Test, training
3.1.5.5.6 System technical risk management (technical, schedule, cost)

The SEP is CDRL/DID-006.

3.1.6 Correspondence Transmission. The contractor shall submit, as a minimum, written program correspondence or documentation via electronic submittal. The preferred method of file submission is via e-mail. Alternative correspondence submittal procedures may be allowed on a case-by-case basis, with Government concurrence (either Government IPPT chairperson(s) or Government contracting officer).

3.1.7 Data Submissions.

3.1.7.1 Data Requirements. The data items shall be submitted to the Government via electronic media. The electronic format shall be compatible with Microsoft Office 2000 for text documents, spreadsheets, and graphics presentations, and Microsoft Project 2000 for program schedules. Electronic technical manual (ETM) data shall be delivered in accordance with paragraph 3.3.7 of this statement of work.

3.1.7.2 On-Line Technical Information. It is the intent of the Government to gain on-line access to contractor maintained data, configuration files, to include drawings down to the spare parts level, and information supporting the ENVG program. The type of information to be available on-line shall be concurred to by the IPPT prior to its implementation. The most recent version of all data shall be made available within five working days of being updated. The Contractor shall allow the Government the capability of retrieving on-line all current and last-modified versions of documentation. Classified data shall be provided on magnetic or optical media. Classified data shall be handled in accordance with DOD 5220.22M and DD Form 254, Security Classification Guide, attached to the contract. Any restrictions on the use of the electronic data shall be as prescribed in the Data Rights Clause.

3.1.7.2.1 The contractor shall establish and maintain an online file sharing website (e.g., SharePoint) for the program. Access shall be strictly controlled, and granted to contractor project

members per contractor internal protocols, and to Government project team members, as identified by the Government.

3.1.7.2.2 The contractor will establish a common user file management system, concurred on by the IPPT, for the website.

3.1.7.2.3 The contractor shall establish a specific file-sharing library entitled "Deliveries to the Government", containing separate, sub-files named exclusively for each contract CDRL, by CDRL number and Title. The contractor shall post all submitted CDRL drafts, government comments and CDRL final submissions in the appropriate named CDRL folder. This electronic CDRL library shall be the sole recognized file sharing point for electronic copy CDRLs for the contract. To facilitate the smooth flow of information, the Government highly encourages establishment of a standard, comprehensive file management structure, approved by the IPPT, to support any contract file sharing arrrangement.

3.1.7.2.4 The contractor shall, for all CDRLs, establish and enforce a file naming convention that requires a standard format for naming the basic submitted file, and all subsequent serial revisions/versions separately, by basic filename, serial revision/version number and date.

3.1.7.3 Copyrights & Data Rights. All publications and publication materials delivered under this contract become the property of the Government and are not subject to copyright by the contractor. At a minimum, all ENVG Interface Control Drawings and specifications delivered to the Government under this contract shall be provided with Government Purpose Rights and shall meet the requirements of paragraph and sub-paragraphs of 3.3.11 of this statement of work. Any violation of this requirement by the contractor will result in a penalty, including possible termination of the contract.

3.1.8. Not Used.

3.2 Quality Assurance and Test.

3.2.1 Quality Assurance Objectives. The objectives of the Quality Assurance requirements are to establish early insight into the contractor's products/processes to ensure timely deliveries which meet the system/component performance requirements, and identify early-on any issues/concerns that will impact the timeliness of the delivered product and its performance.

3.2.2 Quality System Requirements. The contractor shall establish, maintain, and operate a quality system in accordance with ISO 9001:2008, or equivalent. The contractor shall provide the Government an overview of their quality management system as tailored for the ENVG as well as their Quality Validation Plan (QVP) at the post award. Quality and reliability shall be addressed at each IPPT review, to include Statistical Process Control (SPC) and other metrics employed by the prime contractor and their major suppliers to control critical processes. The contractor shall maintain a calibration system in accordance with ANSI/NCSL Z540.3-2006, Requirements for the Calibration of Measuring and Test Equipment; ISO 10012:2003, Measurement management systems - Requirements for measurement processes and measuring equipment, or equivalent to ensure that all test/inspection, measurement, and diagnostic equipment to include all accessories and ancillary equipment are properly calibrated and identified by appropriate labeling.

3.2.2.1 Supplier Quality Management. The contractor shall be responsible to verify the quality of the work performed by suppliers, including any inspections and tests performed by the suppliers. The contractor shall describe any methods unique to this contract of supplier selection, retention, management, inspection, and test validator or other supplier controls above and beyond that which is described in the contractor's Quality System Plan (3.2.2). Suppliers of key/critical components or processes shall be identified including names and contact information of key supplier personnel. The Government reserves the right to review/audit any suppliers of key/critical components. No review/audit of any suppliers by the Government will relieve the contractor of the responsibility of managing suppliers.

3.2.2.2 Measurement standards. In addition to the basic calibration standards, for image tube testing, the contractor shall maintain not less than three each contractor-owned image tube standards. For these image tube standards, the contractor shall maintain measurement records for critical performance parameters including signal-to-noise ratio, resolution, luminance gain, equivalent background input (EBI), photocathode sensitivity, modulation transfer function (MTF), and halo. These measurements shall be made and documented on at least a quarterly basis, using actual production test and acceptance equipment, and data shall be provided to the Government at program reviews. In addition, correlation testing shall be conducted with the Government laboratory, on an as needed basis, to ensure acceptable standards are being maintained. This may require a Government visit quarterly, or additional visits if there are correlation issues, and the contractor shall measure during this visit up to three each Government-owned tube assemblies.

3.2.3 Responsibility for Inspection. The contractor shall be responsible for the performance of all inspection requirements specified herein. Except as otherwise specified elsewhere in the contract, the contractor may use his own or any other facilities, with IPPT concurrence, suitable for the performance of the inspection requirements specified herein. The Government reserves the right to audit, perform, witness, or verify any of the inspections deemed necessary to assure supplies and services conform to prescribed requirements. The contractor shall be responsible for correcting any deficiencies found during required testing in all affected contractor product.

3.2.4 Use of Government Property/Material. The contractor's quality program shall include procedures for the control, use, and maintenance of Government furnished material and property, if provided. The contractor shall report to the procuring activity any Government furnished property or material that is found damaged, malfunctioning, or otherwise unsuitable for use.

3.2.5 Use of Contractor's Inspection Equipment**.** The contractor's gauges, measuring, and testing devices shall be made available for use by the Government when required to determine conformance with contract requirements. If requested by the Government, the contractor's personnel shall be made available for operation of such devices and for verification of their accuracy and condition.

3.2.6 Inspection and Test Records. The contractor shall maintain complete and accurate records of all inspections and tests, and shall make those records available for review or audit by the Government upon request.

3.2.7 Quality Validation Plans (QVPs). The Contractor shall document his approach to establish and maintain control over the quality of items delivered and assure all systems meet the performance requirements in the PD, throughout the life of the contract, in the Quality Validation Plan (QVP). The Contractor shall submit the QVP using the QVP matrix provided in Appendix A of this Statement of Work (SOW) as the baseline for establishing their sample plan, sample size, and test method, and in accordance with CDRL-008. Once approved, any changes to the QVP require Government concurrence. The QVP shall document how process control will be maintained in all areas of operations, for both the contractor and its critical suppliers. Suppliers of critical components, materials, or processes shall be identified in the QVP. The Government reserves the right to review/audit both the contractor and any suppliers. No review/audit of any suppliers by the Government will relieve the contractor of its responsibility for the performance and inspection of the products or services acquired by its suppliers. Following contract award, the contractor shall submit Final QVPs for the following items:

3.2.7.1 ENVG system
3.2.7.2 Image Intensification sensor
3.2.7.3 Thermal sensor
3.2.7.4 Microdisplay
3.2.7.5 Helmet mount
3.2.7.6 Battery pack
3.2.7.7 System electronics (unless packaged with components 3.2.7.2, 3.2.7.3, or 3.2.7.4)
3.2.7.8 Test, Measurement, and Diagnostic Equipment (if required) per 3.3.3

For the purposes of QVP submissions breakout of the system into components (3.2.7.2 thru 3.2.7.8) may be modified, with IPPT concurrence, to suit the design and subcontractors, as long as the entire system is addressed

Individual QVPs are CDRL-008 items.

3.2.8 Production Qualification Test (PQT)/First Article Test (FAT)/Acceptance Test (AT)/Conformance Inspection (CI). The contractor shall conduct PQT, FAT, AT, and CI for the ENVG and all major components as agreed by the IPPT, in accordance with the Quality Validation Plans and test procedures concurred on by the IPPT, to demonstrate conformance to all requirements of the ENVG performance specifications. PQT qualification by similarity is encouraged and requires IPPT approval. Re-qualification is required if the system or component manufacturer has not produced the contracted item within the prior 12-month period. The contractor shall notify the IPPT before any changes are made to the materials (to include suppliers) or processes utilized to manufacture the qualified ENVG system. Changes to materials, processes, procedures, equipment, and facilities may require a portion of the respective PQT to be rerun, as determined and agreed upon by the IPPT. The contractor shall host a PQT Test Readiness Review for the IPPT to ensure test objectives, methods/procedures, and scope are agreed to approximately 120 days after contract award. The PQT shall demonstrate all requirements of the ENVG Performance Specification offered in response to the Government's ENVG Purchase Description. The contractor shall propose a sampling plan for the PQT as part of their initial QVP proposal. At a minimum, the Government recommends a similar sampling plan as outlined in Appendix A. For those performance requirements not listed in Appendix A, the contractor shall propose a logical sampling plan. The final PQT sampling plan shall be negotiated as part of the contractor's QVP. At the conclusion of each system and component PQT conducted, the contractor shall submit a PQT test report in accordance with the requirements of paragraph 3.2.8.4 of this Statement of Work. Initial qualification of the ENVG shall require successful completion of the Government witnessed PQT to include Reliability Testing, successful completion of Government conducted Developmental Testing (DT) and Operational Testing (OT), including Follow-on Testing (FOT) if required, in accordance with paragraph 3.2.8.1, as well as meeting all paragraph 3.3 (Integrated Logistics Support & MANPRINT) sub-paragraph requirements for the system and achievement of Type Classification - Standard. The contractor shall complete PQT prior to the start of Government DT/OT. If failures occur during the initial qualification of the ENVG, the contractor shall be responsible for subsequent costs associated with any design modifications, support documentation updates, and retesting actions required to successfully complete all contractor tests and all Government tests/re-tests. Following completion of DT/OT, the contractor shall complete a First Article Test (FAT) on Low Rate Initial Production (LRIP) systems, and shall transition to CI testing in accordance with the contractor's QVPs. At the conclusion of the FAT, the contractor shall submit an FAT test report in accordance with the requirements of paragraph 3.2.8.8 of this Statement of Work. Reduction of CI based on in-process inspection and control of processes is encouraged, but must be concurred upon by the IPPT. Upon successful completion of testing, all ENVG systems used during testing will be refurbished and/or replaced to the production configuration to a working order capable of passing Group A test (less cosmetic defects/scratches resulting from prior testing). It is intended these units shall be used for fielding.

3.2.8.1 Developmental/Operational Testing (DT/OT). The Government will conduct both DT and OT on the ENVG as part of the initial qualification process to ensure the contract requirements are satisfied both technically as well as in an operational environment. These tests are also required to obtain approval for operational use of the ENVG from the U.S. Army. DT/OT will begin after the completion of Contractor PQT. If any deficiencies are found during PQT, the contractor shall provide corrected units for use in the DT/OT, and shall conduct retest of PQT as required. The contractor shall correct all DT/OT deficiencies, conduct appropriate retest of PQT as necessary, and shall provide corrected units for continuance of test. During Government DT/OT, the contractor shall be prepared to provide on-call support at a location on or close to the test site. The contractor's rep(s) shall be able to inspect, repair, maintain, modify, perform failure analysis, consult and train the ENVG if necessary. The contractor shall provide the required number of systems along with ancillary items as required for the various test events in accordance with the following anticipated schedule in Table 3.1. DT/OT testing may encompass, but is not limited to, the elements contained in Table 3.2.

3.2.8.1.1 Reliability Growth. The ENVG system shall meet the operational environment reliability requirements of the ENVG Performance Specification submitted in response to Government's ENVG Purchase Description, prior to the start of Government OT. As shown in Table 3.1, the Government is planing for three reliability growth tests. The number of growth tests may increase or decrease depending on reliability results and the overall test schedule.

Table 3.1. Anticipated Test Schedule

Event	*Estimated Date / Location*	*Number of Systems Required*
Post Award Conference	15 days ARO / Contractor's Facility	0
Preliminary Design Review	45 days ARO / Contractor's Facility	0
Critical Design Review	75 days ARO / Contractor's Facility	0
PQT Test Readiness Review	120 days ARO / Contractor's Facility	0
Initial Production Readiness Review	150 days ARO / Contractor's Facility	0
Safety Assessment Report due	5 months ARO / N/A	0
Contractor PQT	6 months ARO / Contractor's Facility	56 (IAW contractor QVP)
Early User Assessment	6 months ARO/ Fort Benning, GA (T)	10
50% Tech Manual review	6 months ARO / Contractor's Facility	2
50% Training review	6 months ARO / Contractor's Facility	2 (2 from 50% TM Review)
80% Tech Manual review	8 months ARO / Contractor's Facility	2 (2 from 50% TM Review)
80% Training review	8 months ARO / Contractor's Facility	2 (2 from 50% TM Review)
100% Tech Manual review	10 months ARO / Contractor's Facility	2 (2 from 50% TM Review)
100% Training review	10 months ARO / Contractor's Facility	2 (2 from 50% TM Review)
Delta PQT (if needed)	10 months ARO / Contractor's Facility	13
OTRR1 for Initial Operational Test (IOT)/Air Jump	10 months ARO / TBD	0
KPP Assessment/Reliability Growth Test	10 months ARO / APG, MD (T)	15
Tech Manual validation	11 months ARO / Contractor's Facility	2 (2 from 50% TM Review)
I&KPT/Logistics/Maintainability /MANPRINT Demonstration (LMMD)	12 months ARO/ TBD	27
NBC (possibly a paper study)	13 months ARO / Dugway Proving Ground, UT	1 (possibly 0 if paper study)
KPP Assessment/Reliability Growth Test II	13 months ARO / Fort Benning, GA (T)	15
Soldier Survivability	13 months ARO / WSMR, NM	4
Electromagnetic Environmental Effects (E3)/ Electromagnetic Interference (EMI)/Electromagnetic Compatibility (EMC) Test comprised of High Altitude Electromagnetic Pulse (HEMP), Personnel Electrostatic Discharge (PESD), and Helicopter Electrostatic Discharge (HESD)	13 months ARO / WSMR, NM	4
Low Energy Laser Evaluation	13 months ARO / WSMR, NM	4
IOT/Air Jump System Support Package Component List (SSPCL) due	~14 months ARO / TBD	0
New Equipment Training (NET) Test Support Package (TSP) for IOT/Air Jump	14 months ARO / TBD	0
OTRR2 for IOT/Air Jump	14 months ARO (60 days prior to IOT/Air Jump) / TBD	0
Cold Region Test Center (CRTC) event	16 months ARO / Fort Greely, AK (T)	15
IOT/Air Jump Test Items and SSP due	16 months ARO (10 days prior to IOT/Air Jump NET) / TBD	39
IOT/Air Jump NET (4 days)	16 months ARO (10 days prior to	30 (from IOT/Air Jump test

Event	*Estimated Date / Location*	*Number of Systems Required*
	IOT/Air Jump) / TBD	items)
IOT/Air Jump Pilot Test (4 days)	16 months ARO (5 days prior to IOT/Air Jump) / TBD	35 (from IOT/Air Jump test items)
OTRR 3 for IOT/Air Jump	~17 months ARO (1 day prior to IOT/Air Jump) / TBD	0
IOT/Air Jump	~17 months ARO / TBD	35 (from IOT/Air Jump test items)
Tech Manual verification	20 months ARO / TBD	2 (2 from 50% TM Review)
Final Production Readiness Review	20 months ARO / Contractor's Facility	0
Follow-on Test (FOT) to IOT/Air Jump (if required)	23 months ARO / TBD	15
First Article Test (FAT)	24 months ARO / TBD	TBD (IAW contractor QVP)

Table 3.2. DT/OT Elements.

1	Operational Reliability (KPP5)
2	Probability of Recognition (Clear & obscured) (KPP 1)
3	System Weight (KPP2)
4	Battery life / low power indicator (KPP3)
5	Aiming light compatibility (KPP4)
6	Power-up time
7	Soldier and CIE Compatibility (existing helmets, protective masks, laser protection goggles, wind sand and dust goggles, helmet mounted MILES equipment, communication equipment (helmet mounted microphone) and other head or helmet mounted accessories, IBA, MOLLE/LBE, MOPP (1-4) gear, gloves (utility & cold weather)
8	Human Factors (manipulate all switches, knobs, and other manual controls/adjustments on the ENVG, while wearing MOPP IV gear and arctic mittens)
9	Individual Movement Techniques
10	Ventilation & fogging of lenses
11	Infrared light source
12	Visual quality of moving targets
13	Field of view
14	Focus range
15	Diopter adjustments
16	Laser Protection (KPP 6)
17	System visibility and audibility (KPP 6)

3.2.8.2 Reliability Testing. The contractor shall conduct reliability testing on the system and major components (3.2.7.1 through 3.2.7.7) as part of PQT, FAT, and on every production lot to verify continued compliance with the ENVG system reliability requirements. The contractor shall submit Production Reliability Acceptance Test (PRAT) reports for all reliability tests as specified in 3.2.8.5. Sampling of each lot shall be conducted IAW the approved QVPs. The contractor shall be prepared to institute all necessary corrective actions to bring the systems into reliability compliance at no additional cost to the Government, to include all units delivered since the last previously successful reliability test as determined by the Government. Demonstration of reliability

compliance following institution of corrective actions shall be conducted by the contractor at no additional expense to the Government. The Government shall assess reliability growth with targets tests and demonstrated values as identified in Table 3.3. The table includes the baseline reliability assessment as conducted in the PQT as outlined in paragraph 3.2.8 and the QVP; it also includes a placeholder for PQT contractor reliability test for corrective action (CA) verification, which may be required for verification of deficiencies as found in DT/OT testing, per 3.2.8.1. The contractor is required to demonstrate the ENVG system specified reliability as a point estimate during the initial PQT, and with 80% confidence during any subsequent PQT, FAT, or PRAT. The ENVG system is required to demonstrate 250 hours mean time between essential function failure (MTBEFF) and 360 hours mean time between system abort (MTBSA) with 80% confidence in the IOT.

Table 3.3 – Planned Reliability Growth Targets

Test Phase	Operating hours	Cumulative operating hrs	MTBEFF point estimate
Early User Assessment	540	540	
PQT Contractor	750 min	1,290	
DT/RGT I	1,800	3,090	198
Delta PQT Contractor – CA Verification	1,500 min	4,590	
DT/RGT II	1,800	6,390	345
IOT	2,000	8,390	393

3.2.8.3 Test Procedures. The contractor shall prepare and submit to the IPPT, for concurrence Test Procedures for PQT, FAT, AT, and CI testing of the ENVG system and major components (3.2.7.1 through 3.2.7.8), in compliance with the Quality Validation Plans. The contractor shall use the same Test Procedures for all testing (PQT, FAT, AT, and CI) unless modifications are agreed upon by the IPPT. Any modifications to the agreed upon procedures shall be concurred with in writing by the IPPT chairpersons prior to being implemented. Final approval of the Test Procedures shall occur prior to commencement of PQT for the ENVG. Test Procedures are CDRL-009.

3.2.8.4 PQT Test Report. Upon completion of the PQT, the contractor shall prepare and submit a PQT Test/Inspection Report. The PQT report shall reflect the test results, to include raw data, compiled and calculated data, and conclusions. The report shall address all testing performed and all failures encountered. All conclusions shall be clearly identified as such and shall be appropriately segregated from the objective results. The PQT report is CDRL-010

3.2.8.5 Reliability Reports. Upon completion of each production reliability test for ENVG systems and major components (3.2.7.1 through 3.2.7.8), the contractor shall provide the to IPPT Production Reliability Acceptance Test (PRAT) reports in electronic format of the reliability test results. The report shall be in contractor format and shall include, but not be limited to, a test summary, test description, identification of item(s) under test, lot from which the test sample was taken, lots represented by the sample, test group number, performance requirements, test profile and operating hours, any anomalies, calculated reliability, measured values taken during the test, conclusions, and applicable Failed Item Analysis Reports (FIARs) and Sub-contractor Corrective Action Reports (SCARs). PRAT Reports are CDRL-011.

3.2.8.6 Disposition of Test Units. All test units shall be refurbished or replaced to the production configuration, following completion of testing to a working order condition capable of passing Group A test (less cosmetic defects/scratches resulting from prior testing). It is intended these units may be used for fielding. These same refurbishment requirements apply to any units included in Reliability Testing conducted under this effort.

3.2.8.7 Failed Item Analysis Reports (FIARs). The contractor shall submit a FIAR for each failure that occurs during system and component-level PQTs, FAT, CI testing, reliability testing, and Government DT/OT. The Contractor shall notify the Government within 48 hours of failure occurrence for failures occurring during system

and major component (3.2.7.1 through 3.2.7.8) PQT, FAT, CI testing, and reliability testing. The Government reserves the right to stop acceptance of product at any time while any FIAR is pending based on the impact of the failure in question. The complete content of the FIAR and a list of personnel to be notified of failures shall be concurred on by the IPPT at the Post Award Conference. A FIAR shall not be considered closed until the IPPT has concurred on the report. Concurrence by the IPPT is required prior to shipment of any potentially affected production units. 100% inspections/test (Group A) performance data shall be made available to the Government for review upon request. The contractor shall present the Group A status (e.g., serial numbers, pass/fail, reasons for failure(s), corrective actions) at each IPPT review. Each FIAR is a separate CDRL-012 item. Each Test Failure Notification is a separate CDRL-013 item.

3.2.8.8 First Article Test (FAT) Report. Upon completion of the FAT, the contractor shall prepare and submit a FAT Test/Inspection Report. The FAT report shall reflect the test results, to include raw data, compiled and calculated data, and conclusions. The report shall address all testing performed and all failures encountered. All conclusions shall be clearly identified as such and shall be appropriately segregated from the objective results. The FAT report is CDRL-014.

3.2.9 Environmental Stress Screening (ESS). Each ENVG system shall be subjected to an Environmental Stress Screening (ESS) with an appropriate failure-free verification period. The contractor shall include a proposed ESS profile as part of the proposal and shall be designed to effectively reduce/eliminate workmanship and infant mortality type defects of the system. Causes of ESS failures shall be tracked, investigated, and closed per contractor internal procedures for the purpose of continuously improving the screen and the manufacturing processes. ESS performance data shall be made available to the Government for review upon request. Modification of the ESS profile may be allowed with IPPT approval based on ESS data evaluations. The contractor shall present the ESS status (e.g., serial numbers, pass/fail, reasons for failure(s), corrective actions) at each IPPT review.

3.2.10 Warranty of Equipment. The offeror is required to submit their commercial warranty if available. The warranty shall be included in the price of the unit product cost. During the warranty period, the contractor shall repair or replace – at no cost to the Government – any ENVG system, Test Maintenance and Diagnostic Equipment (TMDE), and related spare parts that fails under normal operations, while in storage, or during transportation. The contractor will verify warranty status and ship a spec-compliant replacement system no later than 48 hours upon receipt of the failed unit. The warranty will exclude equipment failures caused by combat damage, natural disaster, or misuse. Government acceptance of a storage warranty does not limit the Government's rights under any other term or condition of this contract. The returned unit may be either the system originally returned to the contractor or one drawn from contractor managed float assets. Float assets shall be owned by the Government. The contractor shall pay for all shipping costs for warranty items.

3.2.10.1 Warranty Process Flow Chart. The contractor shall prepare and deliver an initial Warranty Process Flow Chart as part of the proposal. The IPPT shall review and update the Warranty Process Flow Chart at the following events/times: at PDR and CDR (3.1.5.4), and 2 months, 6 months, and 12 months after the Government's first fielding of ENVG systems under this contract. The Warranty Process Flow Chart is CDRL-016.

3.2.10.2 Warranty Status Report. The contractor shall prepare and deliver a monthly Warranty Status Report. The first report is due one month after the Government's first fielding of ENVG systems under this contract. Each Warranty Status Report is a separate CDRL-017 item.

3.3 Integrated Logistics Support (ILS) & MANPRINT.

3.3.1 ILS Requirements. The contractor shall plan, manage, and execute an ILS program that assures the ENVG achieves an operational availability $\geq 90\%$. The contractor's proposed logistics support plan shall be developed from a supportability analysis completed in accordance with MIL-PRF-49506 and ANSI GEIA-STD-007. The ENVG logistics support requirements shall consist of provisioning, NET/schoolhouse training materials, system support package (SSP), and technical manuals (TMs) (both Crew-level and Maintainer-level TMs), Test Maintenance and Diagnostic Equipment (TMDE), if required, repair parts and special tools list (RPSTL), and technical orders (TOs) as applicable. After establishment of the initial logistics baseline, any changes effecting form, fit, or function of the system down to the spare parts level shall be submitted to the Government for approval. Upon

receipt of notification of proposed changes, the Government will identify the required contractual documentation for delivery and acceptance.

3.3.2 Maintenance Concept. The ENVG maintenance concept must conform to the Army's two-level maintenance concept. ENVG maintenance at the Crew-level shall be organic. Organic maintenance of the ENVG at the Maintainer-level is desired. The two level maintenance concept is defined by FM 4-30.3 and MIL-STD 40051. Maintenance support provided by Crew-level maintainers will not exceed 0.25 direct production man-hours or 2.3 direct production man-hours for the Maintainer-level over the course of a year for repair of the ENVG. Compliance with Direct Production Annual Maintenance Man-Power Hours (DPAMMH) and availability requirements at the both the Crew and Maintainer Level will be determined by the logistics management information (LMI) and the Level of Repair Analysis (LORA) provided by the offerors. Analysis of the LMI and LORA information will include, but not limited to, the skill level of the crew and maintainer, components to be maintained, projected component reliability data, and tools and technical information available at the respective level. Maintainer-level support shall consist primarily of fault isolation, removal and replacement of modules, and system exchange when necessary. The contractor shall develop and implement a Logistics plan to deliver all materials and documentation required to support the ENVG. Alternative maintenance concepts for Maintainer-level support may also be proposed, to include Life-Cycle Contract Support (LCCS), or adding repair of spared subassemblies, however offerors must provide detailed analysis to demonstrate the benefits of adopting any such proposal, especially with regard to life cycle cost as compared to organic maintenance. The contractor shall submit the draft Logistics Support Plan for their ENVG system as part of the proposal. The Logistics Support Plan is CDRL-018. The IPPT shall review and update (if necessary) the Logistics Plan at the PDR and CDR (3.1.5.4), and 2 months, 6 months, and 12 months after the Government's first fielding of ENVG systems under this contract. **If LCCS is implemented, the contractor shall prepare and deliver a monthly LCCS Report. Each LCCS Report is a separate CDRL-020. The first report is due one month after the Government's first fielding of ENVG systems under this contract. The content of the LCCS Report may require updates as agreed by the IPPT. Additionally, if LCCS is implemented, the Office of the Assistant Secretary of the Army (Manpower & Reserve Affairs) operates and maintains a secure Army data collection site where the contractor will submit a Contractor Manpower Report (CMR), reporting ALL contractor manpower (including subcontractor manpower) required for performance of the LCCS CLIN on this contract. The contractor is required to completely fill in all the information in the format using the following web address: https://cmra.army.mil. CMR submission is CDRL-019**. The required information includes: (1) Contracting Office, Contracting Officer, Contracting Officer's Technical Representative; (2) Contract number, including task and delivery order number; (3) Beginning and ending dates covered by reporting period; (4) Contractor name, address, phone number, e-mail address, identity of contractor employee entering data; (5) Estimated direct labor hours (including subcontractors); (6) Estimated direct labor dollars paid this reporting period (including subcontractors); (7) Total payments (including subcontractors); (8) Predominant Federal Service Code (FSC) reflecting services provided by contractor (and separate predominant FSC for each subcontractor if different); (9) Organizational title associated with the Unit Identification Code (UIC) for the Army Requiring Activity (the Army Requiring Activity is responsible for providing the contractor with its UIC for the purposes of reporting this information); (10) Locations where contractor and subcontractors perform the work (specified by zip code in the United States and nearest city, country, when in an overseas location, using standardized nomenclature provided on website); (11) Presence of deployment or contingency contract language; and (12) Number of contractor and subcontractor employees deployed in theater this reporting period (by country). As part of its submission, the contractor will also provide the estimated total cost (if any) incurred to comply with this reporting requirement.

3.3.2.1 Level of Repair Analysis (LORA). The contractor shall perform a LORA to determine the optimum maintenance concept for the ENVG. The LORA is used to determine the repair level within the Army maintenance system . The initial LORA shall be submitted as part of the contractor's proposal. The LORA is CDRL-021.

3.3.2.1.1 A LORA shall be performed on all materiel to include Test, Measurement, and Diagnostic Equipment (TMDE), if required.

3.3.2.1.2 The LORA is used to determine the optimum maintenance levels for repair actions and recovery of the end item and components. The LORA considers availability and requirements for additional tools, support equipment, and skills in intended supporting units.

3.3.2.1.3 The LORA shall address the requirement to minimize additional special tools and test equipment for new equipment.

3.3.2.1.4 The LORA process shall be initiated as early in the life cycle as possible to aid in assessing the supportability of a system. Repair can be evaluated as the system matures. As part of the post deployment evaluation, the LORA will be rerun no earlier than 1 year and no later than 3 years from First Unit Equipped Date (FUED), using actual reliability data from fielded equipment.

3.3.2.1.5 The Maintenance Allocation Charts (MACs) are an output of the LORA, and reflect the approved maintenance concept.

3.3.2.2 Definitions.

3.3.2.2.1 End Item. A final combination of end products, assemblies/materials which is ready for its intended use.

3.3.2.2.2 Spare Parts. Throughout this Statement of Work, the term "spares" or "spare parts" refers to all Line Replaceable Units (LRUs) and Shop Replaceable Units (SRUs) applicable to the ENVG proposed. The offeror shall describe the method of validation/certification of each spare item to ensure when the item is correctly utilized in a maintenance action, it will function properly, meeting the system and component (if applicable) performance requirements.

3.3.2.2.2.1 Line Replaceable Units (LRUs). Item removed and replaced "on the Line", usually by Unit to repair the end item. LRU item can be reparable or non-reparable.

3.3.2.2.2.2 Shop Replaceable Units (SRUs). Item removed and replaced "in a repair Shop" to repair a reparable LRU or, in the case of ENVG, to repair the end item. SRU removal and replacement requires skills and tools not available at the Crew level. SRU item can be reparable or non-reparable.

3.3.2.2.3 Piece Parts. Minor consumable parts required for the maintenance, overhaul, or repair of a component, assembly, equipment or end item.

3.3.2.3 Logistics Cost Estimating Tools. The contractor is required to utilize the Army Computerized Optimization Model for Predicting and Analyzing Support Structures (COMPASS) and the Logistics Cost Estimating Tool (LCET) model as the logistics cost estimating tools under this contract. The Government will provide executable copies of the models either by download instructions or on disc. The Government will provide baseline input data and instructions as required to the contractor.

3.3.3 Special Tools, Fixtures, Test, Measurement, and Diagnostic Equipment (TMDE). No special tools or TMDE, shall be required to repair the ENVG at the Crew-level. If TMDE is required for Maintainer-Level maintenance, the contractor shall prepare and submit a supportability strategy for the TMDE, special tools, and fixtures to include the contractor's plan to deliver training materials (both crew level and maintainer level), technical manuals (both crew level and maintainer level), warranty, calibration standards and levels, configuration control, and long-term (20-year) supportability plan. The Special Tools, Fixtures, TMDE Supportability Strategy shall be submitted as part of the Offeror's proposal. The Special Tools, Fixtures, TMDE Supportability Strategy is CDRL-022. If special tools/fixtures/TMDE are required for organic Maintainer-level (above the Crew-level) maintenance, they shall:

3.3.3.1 function with the ENVG design that successfully completes Government DT/OT and the contractor IPT.

3.3.3.2 allow for active adjustment/setting of LRUs, SRUs, and piece parts to complete the repair of the ENVG without the use of a dark room.

3.3.3.3 not exceed 50 lb.

3.3.3.4 meet the requirements of the "SOW – Attachment 1 - ENVG TMDE (4 SEPTEMBER 2009).doc" attachment.

The Government anticipates a maximum of 500 sets of TMDE, special tools, and fixtures shall be needed to achieve organic Maintainer-level maintenance.

3.3.4 Logistics/Maintainability/MANPRINT Demonstrations (LMMD). The objective of the LMMD is to demonstrate the ENVG meets all logistics/maintainability and MANPRINT requirements and to identify any system design changes needed for improved supportability and/or reduced life cycle cost. The contractor shall plan and conduct the LMMD for the ENVG prior to Government OT using: a LMMD Plan which has been concurred to by the IPPT, Government personnel representative of the target audience trained by the contractor, and contractor-provided training material and technical manuals. The LMMD Plan is CDRL-023. The contractor shall also provide test systems, a System Support Package Component List (SSPCL), and System Support Package (SSP) items required to support the LMMD in accordance with the schedule in Table 3.1. The SSPs provided will be returned (less consumables) to the contractor at the conclusion of the LMMD. The contractor shall provide a LMMD report for the ENVG. The LMMD Report is CDRL-024. The LMMD for the ENVG, along with events leading to the LMMD, shall be shown in the IPMS.

3.3.4.1 Logistics/Maintainability/MANPRINT Demonstrations (LMMD) for TMDE. The objective and the requirements of the LMMD for the TMDE are identical to the ENVG. For the TMDE, the Offeror shall provide all of the same documentation listed in paragraph 3.3.4 to include a separate LMMD Plan, LMMD Report, SSPCL, and SSP, The LMMD for the TMDE, along with events leading to the LMMD, shall be shown in the IPMS. The LMMD Plan for the TMDE is also CDRL-024. All the documentation for the TMDE shall have in parenthesis the word "(TMDE)" at the end (e.g. CDRL-024: LMMD Report (TMDE); CDRL-023: LMMD Plan (TMDE), CDRL-025: SSPCL (TMDE), etc…).

3.3.5 System Support Package (SSP). The SSP is comprised of Technical Manuals, Training, common and any required special tools and TMDE, and Spares and Repair Parts, lubricating/cleaning items, and any other item required to support the system during the LMMD and any required Operational Test. The SSP will be verified by the Government during the LMMD and OT events, to include the Air Jump. The contractor shall be prepared to provide the SSP items required to support OT events for the ENVG to the Government test site as early as 60 days prior to the start of testing. The availability of the SSP for the LMMD and for each OT shall be included in the IPMS.

3.3.5.1 System Support Package Component List (SSPCL). The SSPCL is a list comprised of all the items contained in the SSP to include the Technical Manuals, Training, common and any required special tools and TMDE, Spares and Repair Parts, lubricating/cleaning items, and any other item required to support the system during the LMMD and any required Operational Test. The SSPCL will be verified by the Government during the LMMD and OT events, to include the Air Jump. The contractor shall be prepared to provide the SSPCL required to support OT events for the ENVG to the Government test site as early as 90 days prior to the start of testing. The SSPCL is CDRL-025 for the ENVG and CDRL-025 (TMDE) for the TMDE.

3.3.6 Instructor and Key Personnel Training (I&KPT). The objective of the ENVG I&KPT is to provide operators and maintainers the required skills to operate and support the systems in a structured school environment, in garrison, and in a field environment. The contractor shall conduct I&KPT in conjunction with the LMMD. I&KPT is CRDL-050 for the ENVG and CDRL-050 (TMDE) for the TMDE.

3.3.6.1 Training. The contractor shall provide training material required to adequately reflect the ENVG and the TMDE being provided under this contract and in accordance with the approved maintenance concept. The contractor shall conduct a Crew-level training course and a Maintainer-level training course. Training shall be conducted at CONUS Government-selected sites. Training shall provide students with the skills necessary to operate and maintain the ENVG system. Training shall include, but is not limited to, all tasks contained in the Crew-level technical manual and Maintainer-level technical manual. The contractor shall also prepare and deliver a CD or DVD of the training presentations for use as a reach-back or refresher training tool. The training material is CDRL-026 for the ENVG and CDRL-026 (TMDE) for the TMDE. The anticipated Government Training and Tech Manual review schedule is included in Table 3.1. The contractor shall provide updates to the Training for all configuration changes that occur through Contractor PQT, Government DT/OT, and verification of the ENVG maintenance concept.

3.3.6.2 Training Material to be Delivered to the Government. The contractor shall deliver to the Government all training materials reviewed and concurred to by the Government for use during the conduct of each course. The contractor shall provide drafts available for review per the SOW with updated drafts for training, as required. Finals as updated during the conduct of the training course are due 30 days after completion of the last training class. Final submission shall be submitted with a DD Form 250. Final submissions shall be in electronic media format**.**

3.3.7 Technical Manuals (TMs). The contractor shall develop TMs to adequately reflect the ENVG being provided under this contract and in accordance with the approved maintenance concept. TMs shall be provided for the ENVG in accordance with MIL-STD-40051.2 and as tailored by the Government IPPT. The IPMS shall include development through final delivery of the TM material. The contractor shall provide updates to the TM for all configuration changes that occur through Contractor PQT, Government DT/OT, and verification of the ENVG maintenance concept.

3.3.7.1 Types of Manuals. TMs for the ENVG and TMDE shall consist of a pocket-sized Crew-Level Manual (-10) (CDRL-028 and CDRL-028 (TMDE)) and a Maintainer-Level Manual (-23&P) (CDRL-029 and CDRL-029 (TMDE)), including a Maintenance Allocation Chart (MAC), Repair Parts and Special Tools Lists (RPSTL), Component of End Item (COEI), Additional Authorized List (AAL), and an Expendable and Durable Items List. The Crew-Level (-10) and Maintainer-Level Manual (-23&P) shall be in Work Package Format. If an alternate maintenance concept is proposed that includes depot level tasks or repairs to the end items, SRUs or LRUs, the contractor shall include supplemental information to the -23&P as part of the alternate proposal. If Life-Cycle Contract Support is proposed, the -23&P may not be required. The contractor shall also deliver a laminated Quick Reference Cards (CDRL-030 and **CDRL-030 (TMDE)**) for the ENVG and TMDE providing basic operating procedures per paragraph 3.3.7.5. Each manual and the Quick Reference Card shall reflect the configuration of the ENVG and TMDE deliverd under this contract, and shall be prepared at the reading grade level (i.e., 8th grade reading level) and comprehension level described in the target audience description provided by the Government after contract award.

3.3.7.2 Digital Files. The contractor shall deliver the TMs and Quick Reference Card digital files in native (editable) format (MS Word) in page orientation. The Crew-Level (-10) and Maintainer-Level Manual (-23&P) shall be in Work Package Format. All TMs shall also be delivered in Portable Document Format (PDF) with all fonts embedded. **There is a CLIN for Interactive Electronic Technical Manuals (IETMs) for both the -10 and -23&P . The IETM (optional) is CDRL-031 and CDRL-031 (TMDE). The authoring/reader software (IADS, for example) shall also be delivered as part of the IETM and shall be based upon native Standard Generalized Markup Language (SGML). IADS or equivalent is required. Delivery of the IETM shall be 150 days after option award.** The Government requires 30 days for review and approval or comment. Final is due 30 days after receipt of Government approval and/or comments.

3.3.7.3 TM Validation and Verification. The contractor shall schedule and conduct a TM Validation at the contractor's facility prior to a Government-run TM Verification at a Government location (i.e. Ft Bragg, NC). Contractor personnel performing operating and maintenance procedures on the equipment during validation shall be independent of the contractor's TM preparation activity. The contractor shall certify validation of the TMs to the Government in writing. The Government will perform all of the operating and maintenance procedures in each publication during Verification. The contractor shall provide the following support to the verification:

- Schedule sufficient time and materials (i.e. special and common tools, consumables, etc.) as needed for the Government to successfully complete its verification effort.
- Record and maintain records during the verification process.
- Maintain a master copy of each publication that shall be corrected during the verification process.
- Assist the contracting activity, as requested, during the verification process.
- Provide the contracting activity with a report of the corrective actions taken.

The contractor shall provide, as a minimum, at the verification site: ten copies of each validated TM to be verified; personnel necessary to document needed changes and resolve hardware issues; the subject equipment in each TM to be verified; all tools, expendables, and test equipment required, according to the MAC and maintenance

procedures, to perform all procedures in each TM. The Government IPPT will verify that the TMs are suitable and that the content and features are correct. The manuals will be reviewed for the accuracy and completeness of all operating and maintenance procedures using a Government-provided target audience**.** The Quick Reference Cards for the ENVG will also be verified at this time. The verification shall be at a site to be determined by the Government.

3.3.7.4 Digital Files Verification. The Government will verify that the digital files (formatted for final output, MS Word and PDF) delivered allow the Government to print paper copies of the ENVG Crew-Level and Maintainer-Level maintenance manuals. **If the CLIN for IETM is exercised, the contractor shall provide the following for IETM verification: three digital files of each IETM, operational systems, and the required tools and test equipment. The SGML tags shall be verified for proper parsing.**

3.3.7.5 Pack-Up of Crew Level TMs with Equipment. The contractor shall pack one paper copy of the TM containing Crew-level instructions and a laminated Quick Reference Card (QRC) with basic system operating instructions, with each ENVG system delivered under this contract. The contractor shall print both the TM and the laminated QRC through initial qualification (3.2.8). Upon successful initial qualification, the contractor shall print only the laminated QRC.

3.3.8 Human Factors Engineering (HFE). The contractor shall implement a Human Factors Engineering program to assure the ENVG conforms to the requirements of its Performance Specification and to address any HFE issues found during Government DT/OT (3.2.8.1). The HFE program shall focus on Soldier portability, Soldier/system interface, system set-up and tear-down, and maintenance operations. The HFE program progress and current findings shall be presented at each IPPT review. The HFE Program Progress and Current Findings are CDRL-032 and CDRL-032 (TMDE) for the TMDE..

3.3.9 Provisioning Technical Documentation (PTD). The contractor shall work with the IPPT to develop and provide a Provisioning Parts List (PPL) suitable for submission to the Provisioning Master Record (PMR) of the Commodity Command Standards System. PPL is CDRL-033 for the ENVG and CDRL-033 (TMDE) for the TMDE. The PPL shall be structured at the end item, component, or assembly level as specified by the Maintenance Allocation Chart in a top-down breakdown sequence. The PPL shall contain the end item, component, or assembly equipment and all support items which can be disassembled, reassembled, or replaced and which when combined, constitute the end item, component or assembly equipment and any special tools and/or kits. The PPL shall provide all data and information required to support the Repair Parts and Special Tools List (RPSTL) portion of the Technical Manuals. The contractor shall allow for up to 6 months for Government NSN assignment, which commences upon Government receipt of the proper PTD and associated drawings. The PTD, drawings, and NSN assignment are required to be completed prior to TM verification. The submission and approval process of the PTD and associated drawings shall be reflected in the IPMS. The contractor shall provide Engineering Data for Provisioning (EDFP) for all maintenance-significant items (SMR1='P') on the PPL which do not have National Stock Numbers (NSNs). EDFP is CDRL-034 for the ENVG and CDRL-034 (TMDE) for the TMDE. Engineering Data for Provisioning shall be data such as specifications, sketches or drawings with descriptions necessary to indicate the physical characteristics, location, and function of the item to permit proper cataloging. Data within the PPL shall permit spares requirements calculations so that the provisioning parts buy can be initiated upon receipt of the stock number assignments. The contractor shall provide updates to the PPL, with accompanying EDFP, for all configuration changes that occur through final hardware delivery. The PTD and EDFP shall be developed in accordance with MIL-PRF-49506 and delivery of the PPL and the EDFP shall be as agreed to by the IPPT and documented in the IPMS. Upon acceptance by Government, the contractor shall submit by DD250. The contractor shall provide updates to the PPL, with accompanying EDFP, for all configuration changes that occur through final hardware delivery. Delivery of the PPL shall be in ASCII text format electronic media (fixed length 80 card format) together with accompanying hardcopy listing. Delivery of the EDFP shall be in electronic media where available. As a minimum, hardcopy EDFP is acceptable and must be of reproducible quality. See Provisioning Data Requirements Forms for PPL content information below.

ENVG Program Data Requirements Form for Provisioning Guidance

DATA REQUIREMENTS FORM					
PROVISIONING REQUIREMENTS **DATA ELEMENT TITLE**	**LSA 036 CARD BLOCK**	**REQD**	**SFPPL**	**PPL**	**DCN**
CROSS FUNCTIONAL REQUIREMENT (SEE SOW)					
PCCN (Government provides)	1	X		X	X
PLISN	2	X		X	X
TYPE OF CHANGE CODE	3	X			X
INDENTURE CODE	A-4	X		X	X
CAGE CODE	A-5	X		X	X
REFERENCE NUMBER	A-6	X		X	X
ADDITIONAL CAGE CODE	A-5	X		X	X
ADDITIONAL REFERENCE NUMBER	A-6	X		X	X
ESSENTIALITY CODE	A-11	X		X	X
ITEM NAME	A-12	X		X	X
SHELF LIFE	A-13	X		X	X
UNIT OF MEASURE	B-16	X		X	X
UNIT OF MEASURE (UM) PRICE	B-17	X		X	X
SOURCE,MAINT AND RECOVER CODE	B-22	X		X	X
DEMILITARIZATION CODE	B-23	X		X	X
PRODUCTION LEAD TIME	B-24	X		X	X
PHYSICAL SECURITY PILFERAGE CODE	B-26	X		X	X
PRECIOUS METAL INDICATOR CODE	B-27	X		X	X
NEXT HIGHER ASSEMBLY (NHA) PLISN	C-29	X		X	X
QUANTITY PER ASSEMBLY	C-32	X		X	X
QUANTITY PER END ITEM	C-33	X		X	X
MAINTENANCE REPLACEMENT RATE I	C-34	X		X	X
MAINTENANCE REPLACEMENT RATE II	C-35	X		X	X
MAINT REPLACEMENT RATE MODIFIER	C-36	X		X	X
SAME AS PLISN	C-38	X		X	X
USABLE ON CODE (Government provides code)	D-43	X		X	X
MAINTENANCE TASK DISTRIBUTION (for reparable items only)	E-58	X		X	X
REPLACEMENT TASK DISTRIBUTION	E-60	X		X	X
CHANGE AUTHORITY NUMBER	F-67	X			X
INTERCHANGEABILITY CODE	F-68	X			X
SERIAL NUMBER EFFECTIVITY	F-69	X			X
REPLACED OR SUPERSEDING (R/S) PLISN	F-71	X			X
R/S PLISN INDICATOR	F-72	X			X

OPTIONAL: Additional information may be included for “H” Remarks card and “J” and “K” RPSTL cards as useful for contractor and government provisioning and RPSTL reviews.

3.3.10 (Intentionally left blank)

3.3.11 Configuration Management.

3.3.11.1 Configuration Management Objective. The objectives of the Configuration Management requirements are to assure the Government the contractor maintains a structured approach to controlling the configuration integrity of the production systems, maintains interchangeability of hardware, and assures the functional baseline of the ENVG is maintained throughout the contract life.

3.3.11.2 Configuration Management Plan (CMP). The Configuration Management Plan (CMP) shall describe the contractor's configuration management program, how it is organized, how it will be conducted, and the methods, procedures and controls relative to the ENVG program. The content of the CMP shall define the technical and administrative guidelines for change control, status accounting, and audits of the total configuration. Also included shall be the implementation of the use of firmware, relative to contactor test stations. The Contractor will submit electronic engineering change control documents for DD1692 Engineering Change Proposal, DD1695 Notice of Revision, and DD1696 Specification Change Notice. The Government can supply the Contractor with these Government forms in Microsoft Word format, if requested. The Contractor shall use, as guidance, DI-CMAN-80858 "Contractor's Configuration Management Plan" and MIL-HDBK-61 "Configuration Management Guidance" in the preparation of the CMP. The CMP shall be prepared using contractor format. The CMP for ENVG is CDRL-035 and the CMP for TMDE is CDRL-035(TMDE).

3.3.11.3 System Baseline. The ENVG Performance Specification shall represent the Functional Baseline which will be maintained by the Government. The Product Baseline shall be established for the ENVG at the successful completion of all testing including the contractor PQT and Government DT/OT, and the Physical Configuration Audit/Functional Configuration Audit (PCA/FCA) and shall be maintained by the contractor. The contractor shall provide, at the next IPPT review after the system's successful PQT, a complete drawing and performance specification list for the system and major components (3.2.7.1 through 3.2.7.8.) which reflect the Product Baseline and includes the drawing/specification revision number and drawing/specification date. The Product Baseline is defined by the system and major component (3.2.7.1 through 3.2.7.8) performance specifications, engineering drawings, parts lists, and process specifications down to the spare parts level, which shall all be in contractor formats.

3.3.11.3.1 Spared Item Product Performance Specifications. The Offeror shall submit an ENVG Performance Specification and major component (3.2.7.1 through 3.2.7.8) performance specifications that capture the performance of the offeror's proposed system in response to the Government's ENVG Purchase Description. Following completion of PQT and Government DT/OT, the ENVG IPPT shall finalize the performance specifications. These specifications shall become Government documents and may be used in conjunction with the contractually required spare parts ICDs to support competitive procurement of spared items during the life cycle of the proposed ENVG. These performance specifications for the major spared items/replacement parts shall contain all information necessary to define the operation/performance of each of the individual spared items/replacement parts. Performance Specifications are CDRL-036 and Performance Specifications for TMDE are CDRL-036(TMDE). The contractor's initial Performance specifications for the system and major components shall be included as part of offeror's proposal in response to the Request For Proposal.

3.3.11.3.1.1 Test Requirements. The Quality Assurance Provisions shall include a description of the specific test requirements to assure performance of the item at the next higher assembly level and/or system level. Input and output signals or stresses and tolerances shall be specified. The drawings shall include a complete description of any unique or unusual test procedures/methods and all data required to duplicate electrical test set-ups, jigs, fixtures or tests stations.

3.3.11.3.1.1.1. When special test/inspection equipment is required, the contractor will create Special Inspection Equipment Drawings and Associated Lists as required by applicable Notices of Revision.

3.3.11.3.1.1.2 When environmental conditions are specified, tests to assure conformance shall be included. These tests shall describe the nature of the environmental stress and the parameters to be measured during or after (as appropriate) application of the environmental stress.

3.3.11.4 Configuration Control. Any changes to the Product Baseline shall result in a common configuration for Government operational use and maintenance activities that provides interchangeability and interoperability to the replaceable part level. The Product Baseline shall be documented in the contractor's configuration status accounting database. Any changes to the Functional and/or Product Baselines shall be made via Engineering Change Proposal (ECP) per paragraph 3.3.11.7.1 of this statement of work. At any time during the period of performance of the contract, the contractor shall provide upon Government request within 30 days, an allocated baseline of all hardware delivered as of the date of request. The allocated baseline will include, at a minimum for each serial numbered system, the relevant functional and product baseline, and any discriminating information down to the spare level (serial numbers, item revision and/or lot number, date of manufacture).

3.3.11.5 Engineering Drawings. The contractor shall prepare and submit drawings down to the spare part-level for the ENVG and TMDE in accordance with the requirements of this paragraph. Any TMDE items or special tools, if required (3.3.3), associated with the proposed ENVG and TMDE must also be included in the drawing package submittal in accordance with the same requirements as the spared item drawings for the ENVG and TMDE. The contractor shall prepare and submit product drawings and associated lists as Interface Control Drawings (ICDs) at the spare part/assembly-level that assure 100% form, fit, and function interchangeability IAW CDRL-037 for the ENVG and CDRL-037 (TMDE) for the TMDE. Dimensioning and tolerances shall be IAW ASME Y14.5M-1994 or equivalent. The drawings shall provide sufficient information to enable the procurement of an interchangeable item that duplicates the physical and performance characteristics of the original product, without additional design engineering effort or recourse to the original design activity. The interface control drawings shall include:

a. Configuration and interface dimensional data applicable to the envelope, mounting and interconnection of the related items;

b. Complete interface engineering requirements (mechanical, electrical, electronic, optical, human, etc.) which affect the physical or functional characteristics of the cofunctioning items;

c. Any items referred to in paragraphs 3.3.11.5.1through 3.3.11.5.8.

d. Any other characteristics which cannot be changed without affecting system interfaces or interfering down to the spareable level.

Drawing types to be submitted are as follows:

3.3.11.5.1 Assembly Drawings. Assembly drawings shall be prepared for each instance in which two or more parts are connected by means which permit disassembly without destruction of any parts. The following data shall be provided:

- Sufficient views to demonstrate the relationship of each part comprising the assembly.
- Part or other identifying number for each part.
- Quantity of each part required for one assembly.
- All required assembly operations, including clearance data, required adjustments, hand or machine fitting, etc. Assembly interchangeability control dimensions and tolerances shall also be included. Such dimensions shall be referenced by the following note:

NOTE: Assembly of parts shall be adjusted to meet these requirements.

- Cross references to Parts List, Next Assembly, Wiring Schematic Diagrams and Test Procedures.

In addition, Assembly Drawings will be referenced by corresponding Parts List and Connection or Wiring Diagrams, as described below.

3.3.11.5.2 Parts List. Parts lists identify all subordinate assemblies and parts that apply to the corresponding assembly drawing. Such assemblies and parts will be referenced by name and quantity required to assembly a single assembly, unit, module, etc. All replaceable parts needed for operation of the assembly under consideration, such as tubes, fuses, pilot lamps, etc., will be included. Items listed on a subordinate assembly parts list shall not be repeated or referenced on the Parts List for the next-higher assembly.

3.3.11.5.2.1 A separate or integral Parts List shall be prepared for each assembly that requires a call-out of parts. The contractor will determine separate or integral Parts Lists are used. However, the entire drawing package will use a consistent Parts List format, i.e., all separate or all integral.

3.3.11.5.2.2 When Parts Lists are integral with the assembly drawings, the list shall contain, as a minimum, the following columns:

- Find Number.
- Quantity Required.
- Code Identification.
- part or Identifying Number.
- Nomenclature or Item Description.
- Specification.
- Notes.

3.3.11.5.2.3 Drawings of approved alternate designs or alternate parts shall not be listed in Parts Lists. The alternate drawings shall be referenced as an alternate on the approved design drawing.

3.3.11.5.3 Schematic Drawings. Electrical or electronic schematic drawings in accordance with ASME Y14.15 shall be prepared for each unit, module and assembly. Schematics shall show electrical connections to each part and assembly, without regard to their physical location.

3.3.11.5.4 Specification Data. Data shall provide all performance requirements and parameters to characterize and quantify the function and operation of the end-item, in addition to each unit, assembly and module at the operating level for which it was designed. Such data shall include the environmental conditions under which the performance requirements are to be met. This requirement shall not result in a duplication of the overall equipment or unit specification(s) reference by this contract. However, all specification data necessary for fabrication, evaluation and acceptance of subordinate units, assemblies, and modules shall be included as part of the drawings.

3.3.11.5.4.1 Module Data. Module drawings shall include all input and output parameters necessary to define and evaluate the module's operation in the next higher assembly. Sufficient identification data (i.e., specification and drawings) for all parts of the test setup shall be furnished. At a minimum, the data shall include:

- A description of the module's function.
- Input power.
- Input and output signal characteristics in terms of voltage levels.
- Wave shapes, pulse widths, rise and delay times and settling time.
- Complete test methods and procedures, including schematic diagrams of all test equipment setups required to evaluate all module operational parameters. The use of a unit or operating assembly as a test bed or fixture to evaluate module performance is not acceptable.

3.3.11.5.4.2 Digital Signal Processing Circuits. Testing requirements for digital circuits shall specify all possible combinations of inputs and resulting outputs. Inputs and output signal parameters shall be explicitly defined. Truth tables alone are not sufficient to specify the input/output characteristics of a given digital circuit, but may be provided as supplementary information. GO/NO-GO type acceptance criteria shall be acceptable only for those measurements where test effectiveness is not compromised AND must be agreed upon by the IPPT.

3.3.11.5.4.2.1 The following data shall be specified as applicable:

- Rise and fall times.
- Amplitude and levels.
- Phase relationships to other inputs.
- Pulse widths.
- Overshoot and ringing.
- Source impedance characteristics if non-linear.
- Jitter.
- Frequency and stability.
- Bit Patterns or "words".
- Interface circuitry required.

3.3.11.5.4.2.2 System clocks that reference generated test signals shall meet the same frequency accuracy and short term stability requirements as the end item clock or the system clock used to generate input signals for the end item.

3.3.11.5.4.3 Digital-to-Analog (D/A) and Analog-to-Digital (A/D) Mix Circuits. Applicable requirements for digital circuits shall be specified to define the test requirements for D/A and A/D circuits.

3.3.11.5.4.4 Alignment Procedures. Alignment procedures and drawings shall provide all data required to functionally duplicate electrical and mechanical test set-ups (e.g. jigs, fixtures and test stations) including all alignment procedures used to adjust and evaluate the performance of the major components (3.2.7.1 through 3.2.7.8), modules, assemblies and units. Such data shall be provided on the assembly drawing. These procedures and drawings shall duplicate those used by the contractor's personnel and include the attributes listed below. .

3.3.11.5.4.4.1 Performance Objectives. Define all parameters and reference all associated drawings and/or specifications (by number and title) that specify the performance of the item to be tested. All alignment requirements shall be defined through the use Government-approved contractor test equipment, or standard equipment.

3.3.11.5.4.4.2 Alignment Equipment. Identify test equipment (electrical, mechanical, etc.) by manufacturer's name and model number, e.g., Crystal Detector, Ajax Electronics AE 36-4 including power supplies, supplementary plug-in leads and special probes.

3.3.11.5.4.4.3 Initial Conditions. Specify all steps to be taken by the test operator prior to connection in the test set-up or insertion in a jig, fixture, or gage. For example, the operator may be required to perform a visual examination of the item prior to power-up to assure proper polarization of diodes and tantalum capacitors, alignment of connector pins, adjustment of shafts and rotors, etc.

3.3.11.5.4.4.4 Alignment Set-Up. The alignment procedure drawing(s) will include a step-by-step block diagram, all dial and meter settings, a description of the interconnections with the item to be aligned and a description of the actual alignment set-up fixture or gage. When the contractor uses an electrical test fixture designed for a specific purpose, the drawing shall include a complete schematic diagram of the fixture and all information required to calibrate it using standard test equipment. When the contractor is required to furnish electrical test fixtures and test procedures as a separate item on this contract, the test procedure (requiring use of the fixture) shall be referenced on the assembly drawing of the applicable unit, assembly, or module.

3.3.11.5.4.4.5 Alignment Data. Define the purpose of the test and/or alignment, including a description of the required adjustments and all precautionary and special handling notices to prevent damage and ensure safety. Alignment data shall be provided for each tunable module, assembly, and/or unit, and will completely detail following example as provided for reference. Note that the alignment data is provided, followed by a description of the sequences of operations.

EXAMPLE

Set scope to full deflection (bottom grid line is base line, top grid line is peak), adjust R4, R5, and R6 to obtain plus 7.0 volts DC, -.0 volts DC and plus 7.0 volts DC at test points TP2, TP3, and

TP4 respectively and adjust L1 for an output frequency of 72.30MHz plus or minus .05MHz.

VC and Buffer Amplifier Reference Figure (Block diagram). Through the two-way power divider, connect the RF output jack. Using a probe, apply 12 volts DC to the junction of R16 and R21. Adjust C35 for maximum power output. Adjust C37 to R21. Adjust C35 for maximum power output. Adjust C37 to 76.25MHz plus or minus 0.12MHz. Read just C35 and C37 for maximum power and correct frequency.

3.3.11.5.6 Dimensions, Tolerances, and Electrical Characteristics. Actual dimensions and tolerances required for manufacture shall be provided. All dimensions that determine interchangeability of parts, modules, assemblies, and units shall use positional and other tolerancing in accordance with ASME Y14.5. Electrical characteristics and performance parameters of parts, modules, assemblies, and units shall be expressed as numerical values with tolerances specifying upper and lower (or maximum and minimum) limits.

3.3.11.5.7 Materials. The materials used to manufacture all parts and all required treatments shall be described completely on the applicable drawing(s), or referenced by a specification or standard for the material. When specification or standards do not exist, the description shall include common trade name, chemical composition and name and address of the manufacturer or licensor. Alternate materials approved design may be specified on the drawings in addition to the original material.

3.3.11.5.8 Finishes. Protective coatings, paintings, and other finishes, include prior treatment, shall be referenced by the finish designations described in MIL-DTL-14072. When protective finishes are used that are not included in MIL-DTL-14072, the finish shall be completely defined on the drawing, or referenced by other specifications or standards.

3.3.11.5.9 Production Drawing Package for Second Source. The Government may establish an additional source for the ENVG and/or major ENVG replacement assemblies/spare parts (3.2.7.1 through 3.2.7.8) and/or any TMDE items or special tools (3.3.3) required to support/sustain the ENVG. The contractor shall support this by providing a production drawing package including sufficient detailed assembly and component data, to include, but not limited to specifications) to build, qualify, and support/sustain ENVG systems of the approved configuration. The contractor shall provide drawings and associated specifications for all system parts except for details below the image intensifier tube and power supply, thermal sensor, and micro-display which will be at Interface Control Documentation level. The Production Drawing Package for TMDE is CDRL-045 and CDRL-045(TMDE) for TMDE.

3.3.11.6 Physical Configuration Audit (PCA)/Functional Configuration Audit (FCA). A PCA/FCA shall be conducted for the ENVG design, down to the spareable level, that successfully completes contractor PQT and Government DT/OT. The PCA/FCA shall also include any TMDE, special tools, and fixtures required to support/sustain the ENVG. The contractor shall host and support a PCA/FCA of equipment to be delivered under this contract. The PCA/FCA shall include all hardware and software developed for this contract and any hardware or software that is to be modified as a result of this contract. The contractor shall prepare a PCA/FCA plan in contractor format that shall be approved by the IPPT prior to the commencement of the PCA/FCA. The PCA/FCA shall be conducted no later than 60 days after the contractor submits the final PCA/FCA plan. The PCA/FCA shall be conducted on all interface, mating and interconnection dimensions, and shall include a visual inspection of all subcomponents, as a minimum. In the event the IPPT finds evidence the drawings do not adequately represent the equipment design and details of construction, acceptance of the equipment on order may be stopped until corrective action, acceptable to the IPPT, has been accomplished. The contractor shall prepare a report recording the result of the PCA/FCA. The PCA/FCA Plan & Report is CDRL-046 for the ENVG and CDRL-046 (TMDE) for the TMDE.

3.3.11.7 Engineering and Configuration Control Documentation. For all requested configuration changes, the contractor shall prepare and submit Engineering Change Proposals (ECPs), Value Engineering Change Proposals

(VECPs), Requests for Deviation (RFD), and Requests for Waiver (RFW) to the IPPT for concurrence. Electronic submittal of ECPs, VECPs, RFDs, and RFWs shall be Microsoft Office 2000 compatible digital files. Delivery shall include merged text and graphics. Each ECP, VECP, RFD, and RFW is a CDRL-048 item.

3.3.11.7.1 Engineering Change Proposal (ECP). The contractor shall prepare a separate ECP for each engineering change that has its own distinct objective and is against a Government approved baseline. The contractor shall prepare and submit ECPs to the Government that shall include appropriate Notices of Revision, Specification Change Notices, and technical manual change pages, as necessary in accordance with the CMP.

3.3.11.7.2 Value Engineering Change Proposal (VECP). The contractor shall submit VECPs in accordance with the value engineering clause of this contract.

3.3.11.8 Tolerance Analysis Report. The contractor shall include a tolerance analysis as backup data for all configuration control document submittals.

3.3.12 Safety. The contractor shall ensure the ENVG presents no uncontrolled safety hazards to operators or maintainers.

3.3.12.1 Safety Assessment Report (SAR). The contractor shall prepare and submit a SAR for the ENVG addressing items detailed in the SOW, contractor format is acceptable. The SAR shall evaluate the safety risks being assumed prior to test or operation of the system and provide specific controls or precautions to be followed. The SAR shall document the safety risk being assumed during operation. The SAR shall identify all safety features of the system, specific controls or precautions to be followed during use, and shall provide verification of compliance to safety requirements identified in this specification. The contractor shall provide updates to the SAR for all configuration changes that occur during initial qualification of the ENVG. As stated in 3.2.8, initial qualification of the ENVG requires successful completion of the Government witnessed PQT to include Reliability Testing, successful completion of Government conducted Developmental Testing (DT) and Operational Testing (OT), including Follow-on Testing (FOT) if required, in accordance with paragraph 3.2.8.1, as well as meeting all paragraph 3.3 (Integrated Logistics Support & MANPRINT) sub-paragraph requirements for the system. If toxic/hazardous materials are utilized, the contractor shall provide the technical information required to complete Part II of the DRMS Form 1930, Hazardous Waste Profile Sheet. The contractor shall obtain an AKO account as sponsored by the U.S. Army ENVG APM. Once this account is established the Government will provide the contractor with the proper account information for entry into the eHATS system. The contractor shall enter all system hazards into the CECOM Hazard Tracking System (eHATS), located on-line at:
https://cecom100 monmouth.army.mil/safety/ehts/index html .
The hazard tracking log, created from this site, shall be attached to the SAR. The SAR is CDRL-049.

3.3.12.1.1 Toxic Substances. The SAR shall identify toxic and environmentally unacceptable materials used in the design and production of the systems and components, any possible alternative materials, and recommended actions to eliminate or reduce the use of hazardous materials. The SAR shall address any exposure concerns to personnel during operational or maintenance procedures to include fabrication, transportation, setup and tear down, or resulting from damage to the equipment. The contractor shall identify any material used in the system design that requires disposal as a hazardous waste. Radioactive material shall NOT be utilized in the system design and production without prior approval by the Government. The SAR shall specifically describe control measures taken to ensure that the hardware is free of any radioactive materials, including optical glass and lens coatings.

3.3.12.1.2 Safety Inspection/Verification. The contractor shall schedule sufficient time in the program schedule to permit a safety inspection of the system by the Government prior to Soldier involved technical or user testing and associated training, or contract completion. The inspections will be used to verify the information contained in the SAR. The contractor must allow sufficient time to correct any unresolved high or medium risk hazards prior to testing or delivery of the system to the Government.

3.3.12.1.3 Hazard Tracking. The contractor shall obtain an AKO account as sponsored by the U.S. Army ENVG APM. Once this account is established we will provide the contractor with the proper account information

for entry into the eHATS system. The contractor shall enter all system hazards into the CECOM Hazard Tracking System (eHATS), located on-line at: https://cecom100.monmouth.army.mil/safety/ehts/index html .
The hazard tracking log, created from this site, shall be attached to the SAR.

3.3.12.1.4 Pollution Prevention. The contractor shall implement a hazardous material and pollution prevention program ensuring compliance with all Local, State, and Federal laws.

APPENDIX A

ENVG SOW

TEST REQUIREMENTS

1) For Production Qualification Test (PQT) and First Article Test (FAT), the contractor shall test to ALL requirements of the ENVG Performance Specification offered in response to the Government's ENVG Purchase Description. Once PQT and FAT have been successfully completed, the following table outlines the groups, frequency, and sampling plans for Conformance Inspections (CI) and 100% unit Acceptance Tests (AT) for the ENVG at the system level, and shall be used as a baseline in establishing the ENVG QVP matrix at the system level.

FREQUENCY

M - Monthly
Q – Quarterly
B – Biannually
A - Annually

2) The table is an established lot-by-lot sampling inspection in accordance with ANSI/ASQ Z1.4-2008: Sampling Procedures and Tables for Inspection by Attributes. The contractor may also consider continuous sampling inspection in accordance with MIL-STD-1916, DoD Test Method Standard, DoD Preferred Methods for Acceptance of Product. For continuous sampling, the contractor shall start out using, as a minimum, a Verification Level II as defined in MIL-STD-1916. Samples shall be randomly selected from the entire lot during the month's where testing is required.

3) Tests marked with an "*" shall be performed as pre-tests and post-tests for each test outlined in Group C (Subgroups 1 and 2) and Group D.

4) Tests marked with an "**" shall use systems that have successfully completed the Group C testing for the month that the test is scheduled.

5) Reliability test sample size may increase to greater than 5 systems, as long as the minimum number of hours on each system under test is 400 operating hours or greater on average.

Table Appendix 1. ENVG Test Requirements

Test	*Requirement*	*Freq.*	*Sample*
Inspections			
Major Components	3.3.2		100%
Finishes *	3.4.4		100%
Product Marking *	3.4.6		100%
Workmanship *	3.4.5		100%
Group A			
Low Battery Indicator *	3.3.3.2.3		100%
High Light Cut-off *	3.3.4.12		100%
Image Alignment *	3.3.7.2		100%
Interoperability *	3.3.3.11		100%
Eyepiece Diopter Adjustment *	3.3.3.7		100%
Image Intensified ResoIOTion *	3.3.4.14		100%
Focus Adjustment	3.3.4.9		100%
Brightness Gain *	3.3.4.17		100%
Display Brightness *	3.3.6.4		100%
Auto Shut-off Capability *	3.3.8.3		100%
Thermal Imagery Color *	3.3.6.5		100%
Polarity *	3.3.5.6.14		100%

Test	*Requirement*	*Freq.*	*Sample*
Light Emitting Diode (LED) *	3.3.4.5		100%
Image Quality *	3.3.3.14		100%
Image Presentation *	3.3.3.13		100%
Display Defective Pixels *	3.3.6.3		100%
Image Uniformity *	3.3.5.6.2		100%
Large Area Uniformity (LAU) *	3.3.5.6.3		100%
Small Area Uniformity (SAU) *	3.3.5.6.4		100%
Minimum Resolvable Temperature (MRT) *	3.3.5.2		100%
Signal Transfer Function (SiTF) *	3.3.5.6.13		100%
Spatial Noise	3.3.5.6.10		100%
ESS	ENVG SOW 3.2.9		100%
Group B			
Battery Life	3.3.3.2.1, 3.3.3.2.2	Q	Level I, 2.5%
Off Axis Veiling Glare	3.3.4.16	Q	Level I, 2.5%
Response Outside FOV	3.3.5.6.12	Q	Level I, 2.5%
Noise Equivalent Temperature (NET)	3.3.5.6.9	Q	Level I, 2.5%
Weight	3.3.3.1	Q	Level I, 2.5%
Group C			
Subgroup 1 (Tested in order listed)			
Vibration	3.5.1	M	Level S-4, 1.5%
High Temperature	3.5.1.1	M	Level S-4, 1.5%
Low Temperature	3.5.1.2	M	Level S-4, 1.5%
Temperature Shock	3.5.1.3	M	Level S-4, 1.5%
Immersion	3.5.7	M	Level S-4, 1.5%
Humidity	3.5.4	M	Level S-4, 1.5%
Subgroup 2			
Altitude	3.5.3	Q	Level S-4, 1.5%
Blowing Rain	3.5.16	Q	Level S-4, 1.5%
EMI **	3.5.15.1	A	Three Systems
Audibility **	3.3.3.10.2	A	Three Systems
Group D			
Reliability	3.6	M	Five systems

CDRL PRICING - BASE YEAR

CLIN	DESCRIPTION	QTY	UNIT PRICE	EXTENDED
1001AC	CDRL-001: Integrated Program Master Schedule(IPMS) - NSP			
1001AC	CDRL-002: Risk Management Document + 3 IPPT Updates- NSP			
1001AC	CDRL-003/-004: IPPT Meeting Documentation - NSP			
1001AC	CDRL-006: System Engineering Plan(SEP) initial & Final- NSP			
1001AC	CDRL-008: Quality Validation Plans (Initial proposal, component QVPs & updates) - NSP			
1001AC	CDRL-009: Test Procedures (ENVG System & Major Components) - NSP			

1001AC	CDRL-010: Production Qualification Test (PQT) Report	1	$100,000.00	$100,000.00
1001AC	CDRL-011: Production Reliability Acceptance Test (PRAT) Reports (A/R) - NSP			
1001AC	CDRL-012: Failed Item Analysis Reports (FIAR)(A/R) - NSP			
1001AC	CDRL-013: Test Failure Notification(A/R) - NSP			
1001AC	CDRL-016: Warranty Process Flow Chart - NSP			
1001AC	CDRL-018: Logistics Plan (initial + 5 updates) - NSP			
1001AC	CDRL-021: Level of Repair Analysis (LORA) (initial + PY4 versions) - NSP			
1001AC	CDRL-023: Logistics/Maintainability/ MANPRINT Demonstrations (LMMD) Plan	1	$20,000.00	$20,000.00
1001AC	CDRL-025: LMMD System Support Component List (SSPCL)	1	$5,000.00	$5,000.00
1001AC	CDRL-026: Training Materials	1	$5,000.00	$5,000.00
1001AC	CDRL-028: Technical Manual (TM) Crew Level (-10)	1	$5,000.00	$5,000.00
1001AC	CDRL-029: Technical Manual(TM) - Maintainer Level (-23&P)	1	$5,000.00	$5,000.00
1001AC	CDRL-030: Technical Manual (TM) - Quick Reference Card (QRC) - NSP			
1001AC	CDRL-031: Technical Manual (TM) - Interactive Electronic Technical Manual (IETM)(option)	1	$50,000.00	$50,000.00
1001AC	CDRL-032: Human Factors Engineering (HFE)Program Progress and Current Findings (Post Award &IPPTs) - NSP			
1001AC	CDRL-033: Provisioning Technical Documentation (PTD) - Provisioning Parts List (PLL)	1	$10,000.00	$10,000.00
1001AC	CDRL-034: Provisioning Technical Documentation (PTD) and Engineering Data for Provisioning (]EDFP)	1	$10,000.00	$10,000.00
1001AC	CDRL-035: Configuration Management Plan (CMP) - NSP			
1001AC	CDRL-036 Performance Specifications (Initial & Final) - NSP			
1001AC	CDRL-037a: Engineering Drawings and Alignment Procedures (Initial)	1	$10,000.00	$10,000.00
1001AC	CDRL-048: Engineering Change/Configuration Control Documentation (ECP, VECP, RFD, RFW, tolerance analysis) - NSP			
1001AC	CDRL-049a: Safety Assessment Report (SAR) (initial & Final)	1	$10,000.00	$10,000.00
1001AC	CDRL-050: I&KPT			
	TOTAL 1001AC			$230,000.00
1002	CDRL-022: Special Tools, Fixtures, TMDE Supportability Strategy (Initial)	1	$20,000.00	$20,000.00
1002	CDRL-023: Logistics/Maintainability/ MANPRINT Demonstrations (LMMD) Plan (TMDE)	1	$10,000.00	$10,000.00
1002	CDRL-025: LMMD System Support Component List (SSPCL) (TMDE)	1	$5,000.00	$5,000.00
1002	CDRL-026: Training Materials (TMDE)	1	$5,000.00	$5,000.00
1002	CDRL-028: Technical Manual (TM) Crew Level (-10) (TMDE)	1	$5,000.00	$5,000.00
1002	CDRL-029: Technical Manual(TM) - Maintainer Level (-23&P) (TMDE)	1	$5,000.00	$5,000.00
1002	CDRL-030: Technical Manual (TM) - Quick Reference Card (QRC) (TMDE) - NSP			
1002	CDRL-031: Technical Manual (TM) - Interactive	1	$50,000.00	$50,000.00

	Electronic Technical Manual (IETM)(option) (TMDE)			
1002	CDRL-033: Provisioning Technical Documentation (PTD) - Provisioning Parts List (PLL) (TMDE)	1	$10,000.00	$10,000.00
1002	CDRL-034: Provisioning Technical Documentation (PTD) and Engineering Data for Provisioning (]EDFP) (TMDE)	1	$10,000.00	$10,000.00
1002	CDRL-037b: Engineering Drawings - Interface Control Drawings (ICD) (TMDE) (Initial)	1	$10,000.00	$10,000.00
1002	CDRL-049b: Safety Assessment Report (SAR) (Initial & Final) (TMDE)	1	$10,000.00	$10,000.00
	TOTAL 1002			$140,000.00

CDRL PRICING - PY2

CLIN	DESCRIPTION	QTY	UNIT PRICE	EXT PRICE
2003	CDRL-001: Integrated Program Master Schedule(IPMS)		NSP	$0.00
2003	CDRL-002: Risk Management Document IPPT Updates x4		NSP	$0.00
2003	CDRL-003/-004: IPPT Meeting Documentation		NSP	$0.00
2003	CDRL-011: Production Reliability Acceptance Test Reports (PRAT) (A/R)			$0.00
2003	CDRL-012: Failed Item Analysis Reports (FIAR)(A/R)		NSP	$0.00
2003	CDRL-013: Test Failure Notification (A/R)		NSP	$0.00
2003	CDRL-024a: Logistics/Maintainability/MANPRINT Demonstrations Report	1	(b) (4)	(b) (4)
2003	CDRL-024b: Logistics/Maintainability/MANPRINT Demonstrations Report (TMDE)	1	(b) (4)	(b) (4)
2003	CDRL-025a: LUT/Air Jump System Support Component List (SSPCL)	1	(b) (4)	(b) (4)
2003	CDRL-025b: LUT/Air Jump System Support Component List (SSPCL) (TMDE)	1	(b) (4)	(b) (4)
2003	CDRL-032: Human Factors Engineering (HFE)Program Progress and Current Findings (IPPTx4)	1	(b) (4)	(b) (4)
2003	CDRL-048: Engineering Change/Configuration Control Documentation (ECP, VECP, RFD, RFW, tolerance analysis)			$0.00
	TOTAL CLIN 2003			(b) (4)

CDRL PRICING - PY3

CLIN	DESCRIPTION	QTY	UNIT PRICE	EXT PRICE
3004	CDRL-001: Integrated Program Master Schedule(IPMS)		NSP	NSP
3004	CDRL-002: Risk Management Document - IPPT Update x 4		NSP	NSP
3004	CDRL-003/-004: IPPT Meeting Documentation - IPPT x 4		NSP	NSP
3004	CDRL-006: System Engineering Plan(SEP) - (Final)		NSP	NSP
3004	CDRL-011: Production Reliability Acceptance Test (PRAT) Reports (A/R)		NSP	NSP
3004	CDRL-012: Failed Item Analysis Reports (FIAR)(A/R)		NSP	NSP
3004	CDRL-013: Test Failure Notification (A/R)		NSP	NSP
3004	CDRL-014: First Article Test (FAT) Report	1	(b) (4)	(b) (4)
3004	CDRL-016: Warranty Process Flow Chart (Final)		NSP	NSP
3004	CDRL-017: Warranty Status Reports (monthly)		NSP	NSP
3004	CDRL-018: Logistics Plan (Final)		NSP	NSP
3004	CDRL-032: Human Factors Engineering (HFE)Program Progress and Current Findings (IPPTx4)		NSP	NSP
3004	CDRL-036 Performance Specifications (Final)		NSP	NSP
3004	CDRL-037a: Engineering Drawings and Alignment Procedures (Final)	1	(b) (4)	(b) (4)
3004	CDRL-037b: Engineering Drawings - Interface Control Drawings (ICD) (TMDE) (Final)	1	(b) (4)	(b) (4)
3004	CDRL-046a: Physical Configuration Audit/Functional Configuration Audit (PCA/FCA) Plan & Report	1	(b) (4)	(b) (4)
3004	CDRL-046b: Physical Configuration Audit/Functional Configuration Audit (PCA/FCA) Plan & Report (TMDE)	1	(b) (4)	(b) (4)
3004	CDRL-048: Engineering Change/Configuration Control Documentation (ECP, VECP, RFD, RFW, tolerance analysis)		NSP	NSP
3004	CDRL-049a: Safety Assessment Report (SAR) (Final)	1	(b) (4)	(b) (4)
3004	CDRL-049b: Safety Assessment Report (SAR) (Final) (TMDE)	1	(b) (4)	(b) (4)
			TOTAL CLIN 3004	(b) (4)
[redacted]				
3005	CDRL-019: Contractor Manpower Reporting (LCCS Maintenance Only)		NSP	NSP
3005	CDRL-020: Life-Cycle Contract Support (LCCS)Report		NSP	NSP
3005	CDRL-022: Special Tools, Fixtures, TMDE Supportability Strategy (Final)	1	(b) (4)	(b) (4)
3005	CDRL-045: Production Drawing Package for Second Source (Optional)	1	(b) (4)	(b) (4)
			TOTAL CLIN 3005	(b) (4)

PRODUCT DESCRIPTION

PD-ENVG
11 July 2011

PURCHASE DESCRIPTION

ENHANCED NIGHT VISION GOGGLE

This purchase description is approved for use by the Program Executive Office-Soldier (PEO-SOLDIER), Department of the Army and is available for use by all Departments and Agencies of the Department of Defense. The Offeror shall submit an ENVG Performance Specification and major component performance specifications that capture the performance of the offeror's proposed system. The Offeror can propose performance above any of the stated requirements included in this purchase description. For each requirement, the Offeror shall commit to one level of performance for the duration of the contract. The Offeror's ENVG System Performance Specification and major component performance specifications shall become Government documents.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Product Manager Soldier Sensors and Lasers, 10170 Beach Road, Building 325, ATTN: SFAE-SDR-SSL, Fort Belvoir, VA 22060-5862.

DISTRIBUTION STATEMENT C. Distribution is authorized to U.S. Government Agencies and their contractors for official use or for administrative and operational use, Other requests for this document shall be referred to PM Soldier Sensors and Lasers, ATTN: SFAE-SDR-SSL, 10170 Beach Road, Building 325, Fort Belvoir, VA 22060-5862.

AMSC N/A FSC 5855

1. SCOPE

1.1 Identification. This purchase description covers the requirements for the Enhanced Night Vision Goggle (ENVG).

2. APPLICABLE DOCUMENTS

2.1 General. The documents referenced in this purchase description are needed to meet the requirements specified in Section 3. This section does not include documents cited in other sections of this description or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned they must meet the requirements of this description, whether or not they are listed in this section.

2.2 Government Documents.

2.2.1 Specifications, Standards, and Handbooks. The latest approved versions of the following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitations.

Specifications

Department of Defense

MIL-PRF-49257	-	Coated optical elements
MIL-PRF-31013	-	Spectacles, Special Protective Eyewear Cylindrical System (SPECS)
MIL-PRF-44366	-	Spectacles, Protective, Laser, Ballistic (BLPS)
MIL-PRF-13830	-	Optical components for fire control instruments; general specification governing the manufacture, assembly, and inspection of

Memorandum

Updated Authorization to Requisition and Use Commercial Eyewear as Alternatives to the Special Protective Eyewear, Cylindrical System (SPECS), Ballistic Laser Protective Spectacles (BLPS), and the Sun, Wind and Dust Goggles (SWDG) for Non-laser Missions and Training Scenarios, dated 11 April 2008

Standards

MIL-STD-461	-	Requirements for the control of electromagnetic interference characteristics of subsystems and equipment
MIL-STD-464	-	Electromagnetic Environmental Effects Requirements for Systems
MIL-STD-810	-	Environmental engineering considerations and laboratory tests
MIL-STD-1474	-	Noise limits
MIL-STD-2169	-	High Altitude Electromagnetic Pulse (Classified)

Federal

FED-STD-595	-	Colors Used in Government Procurement

Army Regulations

AR 70-38	-	Research, Development, Test, and Evaluation of Materiel for Extreme Climatic Conditions

Miscellaneous

STP 21-1-SMCT	-	Soldier's Manual of Common Tasks, Warrior Skills, Level 1

STP 21-24-SMCT	-	Soldier's Manual of Common Tasks, Warrior Leader, Skill Levels 2, 3, and 4

Interface Control Documents

A3187445	-	3X Magnifier Lens
A3314826	-	AN/PAS-13A&B(V) 7 Socket Connector Assembly, Rev -
A3314827	-	AN/PAS-13A&B(V) 7 Socket Connector Interfaces, Rev -
A3314824	-	AN/PAS-13C&D(V) 19 Socket Connector Assembly, Rev -
A3314825	-	AN/PAS-13C&D(V) 19 Socket Connector Interfaces, Rev –
TBD	-	AN/PAS-13E(V) 19 Socket Connector Interfaces

3. REQUIREMENTS

3.1 Description. The Enhanced Night Vision Goggle, herein identified as the ENVG, is a helmet-mounted device, presenting imagery from image intensification and thermal sensors simultaneously or individually to allow the individual Soldier to perform missions during all light levels and in all terrains, in clear air (3.7.1), adverse weather (3.7.2), and dirty battlefield (3.7.3) conditions, including Mobile Operations in Urban Terrain (MOUT). The ENVG shall be compatible with currently fielded rifle-mounted aiming lights as indicated herein.

The ENVG shall be used by Soldiers and others engaged in close combat operations, combat support, and combat service support operations. The thermal sensor allows the Soldier to rapidly detect targets under all light levels and battlefield conditions, while the image intensifier sensor allows the Soldier to see detail and to use rifle-mounted aiming lasers. The combination of the two sensors shall significantly improve Soldier situational awareness. Other jobs performed by Soldiers wearing ENVG will include driving vehicles, performing operator maintenance, combat lifesaving, and other missions required of Soldiers involved in close combat.

3.1 1 Interface Definition.

3.1.1.1 Helmet Interface. The ENVG shall be designed for use with the Advanced Combat Helmet (ACH) and the modified ACH camouflage cover. The ENVG and helmet mount components (3.3.8.1.1 – 3.3.8.1.3) will not affect the protective qualities of the helmets. (ACH drawings are available, but are for reference only. Actual hardware may deviate from the drawings.)

3.1.1.2 Protective Mask Interface. While helmet-mounted, the ENVG shall be designed for use with the M40, M45, and the joint service general purpose mask (JSGPM) M50 protective masks without affecting the protective qualities of the masks. System field of view may be reduced when this interface requires an eye relief greater than specified in 3.3.3.9.

3.1.1.3 Eyewear/Goggle Interface. While helmet-mounted, the ENVG shall be compatible with the Ballistic Laser Protective Spectacles (BLPS) [MIL-PRF-44366B], the Spectacles, Special Protective Eyewear Cylindrical System (SPECS) [MIL-PRF-31013], and Authorized Commercial Eyewear [Updated Authorization to Requisition and Use Commercial Eyewear as Alternatives to the Special Protective Eyewear, Cylindrical System (SPECS), Ballistic Laser Protective Spectacles (BLPS), and the Sun, Wind and Dust Goggles (SWDG) for Non-laser Missions and Training

Scenarios, dated 22 October 2007]. System field of view may be reduced when this interface requires an eye relief greater than specified in 3.3.3.9.

3.1.1.4 Helmet-Mounted Equipment Interface. While helmet-mounted, the ENVG shall be mechanically compatible with helmet-mounted Multiple Integrated Laser Engagement System 2000 (MILES 2000) equipment, communication equipment (helmet mounted microphone) and other head/helmet-mounted accessories.

3.1.1.5 Helmet Mount Interface. The ENVG shall interface with the helmet mount (3.3.8.1) assembly as defined by the Offeror's proposed helmet mount Interface Control Documents.

3.1.1.6 Dismounted (Handheld) Cable-Free Interface. The ENVG's battery pack shall be capable of connecting directly to the ENVG imaging system (3.3.2.1.a) without the incorporation of the helmet mount assembly or cabling.

3.2 Certification. Unless otherwise specified by the contract or purchase order, ENVG systems furnished under this specification shall be products approved as certified products (3.7.4 and 6.3). If a product is not certified at time of award, the contract shall require certifications prior to first delivery. The activity responsible for approving certified products is the Project Manager, Soldier Sensors and Lasers, ATTN: Director, Quality and Test, 10170 Beach Road, Building 325, Fort Belvoir, Virginia 22060-5862. Information pertaining to certification of products may be obtained from that activity.

3.2.1 Initial Production Testing (IPT). When specified in the contract or purchase order, the supplier shall furnish and test ENVG systems in accordance with the requirements of 4.2.

3.3 Construction. The ENVG shall be constructed in accordance with the contract or purchase order and all the requirements of this specification.

3.3.1 Parts and Materials. Parts and materials shall be as specified herein. The contractor shall select parts and materials that shall be capable of meeting all of the operational and environmental requirements specified. Any change of a part, material, process, procedure, equipment, and facility after certification requires notification of the procuring activity and submittal of proposed re-certification. Recovered materials shall be used to the maximum extent possible.

3.3.2 Major Components. The major components of the ENVG consists of the following:

3.3.2.1 The ENVG System.

a. Imaging System
   1) Image Intensification Objective Lens
   2) Thermal Objective Lens
   3) Eyepiece Lens
   4) Image Intensifier Assembly
   5) Thermal Camera Module
   6) Display Beam Combiner Assembly
   7) Systems Electronics
   8) Imaging System Housing
   9) IR Illuminator

b. Helmet Mount Sub-Assembly
   1) Helmet Mount
   2) Helmet Mount Wiring Assembly (brackets, cables, etc.) with Ballistic Hardware

c. Battery Pack (no more than 4 AA Lithium)

d. Ancillary Equipment

1) Light Interference Filter
2) Objective Lens Cover
3) Retaining Lanyard
4) Eyecup
5) Sacrificial Window
6) Operator's & Unit Level Maintenance Manual
7) Anti-fog Wipes
8) Thermal Weapon Sight (TWS) Interface Cable(s)*
9) Quick Reference Card

* Note: Additional Allowance List (AAL) item

e. Soft Carrying Case

f. Transit/Storage Case

3.3.3 System Performance.

3.3.3.1 Weight (Key Performance Parameter). The ENVG system shall have a helmet-borne weight of no more than (907 grams) 2.0 pounds (threshold) (680 grams) 1.5 pounds (objective). This weight limit includes the batteries, the components and sub-components listed in subparagraphs a., b., c., d.1), d.2), d.3), and d.4) of 3.3.2.1.

3.3.3.2. Power Source and Consumption. The ENVG shall be powered by no more than 4 Lithium AA batteries. Batteries must be easily replaced with one hand and without tools. The ENVG shall not be damaged (3.7.5) by incorrect insertion of the batteries.

3.3.3.2.1 Fused Operation (Key Performance Parameter). With the display set at a minimum of 4 footlamberts brightness, the ENVG shall operate continuously fused for a minimum of 7.5 hours (threshold) 15 hours (objective) on one set of new batteries, at all temperatures from –20° C to +49° C. At all temperatures from -20° C to -40° C (threshold) -46° C (objective), the ENVG shall operate continuously fused for 5 hours on one set of new batteries. Throughout the continuous operation, the ENVG shall satisfy all operational requirements.

3.3.3.2.2 Image Intensifier Operation. After the fused operation of 3.3.3.2.1 ceases, the ENVG's image intensifier shall continue to operate for an additional 7.5 hours on the same set of batteries.

3.3.3.2.3 Low Battery Indicator (LBI). The ENVG shall display a visual low battery indicator to inform the user the power source is low and should be replaced.

3.3.3.2.3.1 Fused/Thermal Only LBI.

3.3.3.2.3.1.1 Low Battery. The ENVG shall display "LOW BAT" when there is approximately 30 minutes of fused operation remaining. "LOW BAT" shall appear for 10 seconds every 5 minutes until the critical battery threshold is reached.

3.3.3.2.3.1.2 Critical Battery Warning. The ENVG shall display "CRIT BAT" when there is approximately 5 minutes of fused operation remaining. "CRIT BAT" shall appear at 1 Hz rate for 20 seconds.

3.3.3.2.3.2 I^2 LBI. The ENVG shall display a visual low battery indicator even when the thermal sensor is turned off when approximately 30 minutes of I^2 only operation remains.

3.3.3.2.3.3 Battery Charge Indicator. The Thermal Camera shall have a visual battery charge indicator visible in the ENVG display to inform the user of the total amount of charge remaining in a set of batteries. The battery charge indicator shall assist the user in determining when a set of batteries should be changed. The indicator shall appear when the thermal camera symbology is displayed.

3.3.3.3 Inter-eye Operability. The ENVG shall have the capability to be used by either eye. Switching between eyes shall require no tools.

3.3.3.4 Forward Projection. The ENVG, with the image intensifier objective at the near-focus position and the eyepiece at the +1 diopter setting, shall have a maximum forward projection from the exit pupil (3.7.6) of 135 mm.

3.3.3.5 Center of Gravity. The ENVG center of gravity in a horizontal plane shall be a minimum of 55 mm behind the last element of the eyepiece lens and the eyepiece lens flange, and shall be tested under the following conditions:

a) Mounted on the Advanced Combat Helmet (Size: Medium)
b) The fore/aft position of the ENVG on the helmet mount is set full aft, which is as close to the face as possible
c) The ENVG objective lens is set to the infinity focus position
d) The ENVG eyepiece diopter adjustment is set to 0 +/- 0.5
e) The eyecup is attached to the ENVG
f) The lanyard and objective lens cap are not attached to the ENVG, and they are not a part of the measurement
g) Lithium batteries are in the ENVG battery pack

3.3.3.6 Eyepiece Lens. The eyepiece lens shall meet all requirements of PRF-ENVG-Eyepiece. The eyepiece lens specification shall be proposed by the Offeror and shall ensure the requirements of this system level purchase description are met. The specification shall become a Government document.

3.3.3.7 Eyepiece Diopter Adjustment. The ENVG shall have the integrated capability to simultaneously change the diopter focus of both the image intensification and thermal displays from +1 to –2 diopters. The ((I2 focus diopter)-(IR focus diopter)) shall be 0.0+/-0.2diopter at all times.

3.3.3.8 Exit Pupil. The diameter of the exit pupil (3.7.6) shall be no less than 14 mm. Off-axis exit pupil (3.7.31) for field images may approach a minimum of 6 mm at a 25 mm eye relief (3.7.7). This full field exit pupil (3.7.32) shall be larger than 6 mm at any shorter eye relief. The performance as specified in this specification shall be referenced to a 5 mm diameter aperture placed in the exit pupil, and shall apply to all horizontal and vertical displacements of the 5 mm aperture within the exit pupil.

3.3.3.9 Eye Relief. The eye relief from the vertex of the eye to the vertex of the nearest eyepiece optical element surface along the optical axis shall be not less than 25 mm. The minimum flange eye relief shall be not less than 23 mm when measured from the rear most mechanical feature of the eyepiece to the vertex of the eye.

3.3.3.10 Survivability (Key Performance Parameter)

3.3.3.10.1 Light Security. With the ENVG operating and the eyecup (3.4.3.4) in use, the ENVG shall not emit stray light, cause facial reflections, or contain light sources or indicators which are detectable by the unaided human eye at a distance greater than or equal to 10 meters (threshold) 5 meters (objective) under all scene lighting conditions, except when the Light Emitting Diode (3.3.4.5) is activated.

3.3.3.10.2 Audio Security Audibility. Under all operating conditions, the ENVG shall meet the Level II Aural Nondetectability requirements for 10 meters (threshold) 5 meters (objective) nondetectability as specified in Requirement 2 of MIL-STD-1474. For Level II Aural Nondetectability requirements at 5 meters, use Table C-1 of Appendix C.

3.3.3.10.3 Laser Hardening. The ENVG shall be hardened or protected (see 3.4.3.1.1 and 3.4.3.1.2) to provide the same or better protection against laser threats as the AN/PVS-14 Monocular Night Vision Device and AN/PAS - 13 Thermal Weapon Sight (threshold) and be provided passive security against optical detection (objective).

3.3.3.11 Interoperability. The ENVG shall have the capability to receive and display imagery from the family of AN/PAS-13 Thermal Weapon Sight (TWS) to effectively track and engage targets. The ENVG user shall have the capability to toggle between ENVG imagery and TWS imagery. Imported TWS imagery shall meet the image quality requirements of 3.3.3.14. The connections to the family of TWSs shall be as specified in drawings

A3314826, A3314827, A3314824, A3314825, and the AN/PAS-13E(V) 19 Socket Connector Interface Drawing in development. The connector used on the ENVG end of the cable shall be as developed by the Contractor. This capability may be achieved using a separate cable for each configuration, or a single cable with multiple adapters.

3.3.3.11.1 Interoperability Cable(s). Cable(s) used for interoperability (3.3.3.11) shall include breakaway feature(s) that will release the cable in the event of a snag. The breakaway force shall be no less than 6 lbs and no greater than 15 lbs.

3.3.3.11.2 Video Output. The ENVG shall incorporate a video output port that will output video signals from the thermal channel containing video information and symbology. The video signal shall be compatible with SMPTE 170M resolution (monochrome output is acceptable) and equivalent to the signal driving the display.

3.3.3.12 Color. Except for light transmitting and paper elements, all external surfaces of the system and ancillary items (3.3.2.1) that are exposed to light from external sources shall be comparable to one or more of the Universal Camouflage colors Foliage Green 502 (FED STD-595C color #24165), Desert Sand 500 (#23525), and Urban Gray 501 (#26260) unless otherwise specified by Government Agreement, Contract, or Purchase Order. Compliance with Universal Camouflage coloring does not require the ENVG to be camouflaged or patterned, nor are the external surfaces of the ENVG required to contain all three colors. Buttons, screws, mount assemblies, and similar small area items on the exterior may also be black in color, with approval of the IPPT. External surfaces and coatings used on all external parts of the ENVG must comply with the surface finish requirements of 3.4.4 and shall be in accordance with MIL-F-14072.

3.3.3.13 Image Presentation. The ENVG shall have the capability to present imagery to the ENVG user from the image intensification and thermal camera sensors simultaneously, or from each sensor individually. All imagery shall meet the image quality requirements of 3.3.3.14. The imagery shall not have a statistically significant negative impact on the warfighter's ability to move as described in the Soldier Common Task Manual.

3.3.3.14 Image Quality. Spurious images and noise patterns shall not degrade the small area uniformity specified in 3.3.5.6.4 or the large area uniformity specified in
3.3.5.6.3. There shall be no discernible image persistence, pulsing, or vibration. The ENVG shall have no degradation of performance (3.7.12) when used to observe, track, and/or fire at stationary or moving targets under all illumination levels and operating conditions. The ENVG shall provide imagery to the operator that does not exhibit any visible level of flicker, flashing (3.7.20), modulation bars, image artifacts, or intermittent operation under all illumination levels and operating conditions.

3.3.4 Image Intensification Performance.

3.3.4.1 Image Intensifier Assembly. The ENVG image intensifier assembly shall use an 18 mm image intensifier format (threshold) MX-10160, MX-10130, or MX-11769 image tube (objective). The image intensifier assembly specification shall be proposed by the Offeror and shall ensure the requirements of this system level purchase description are met.

3.3.4.2 Image Intensification Man-sized Target Recognition. The ENVG shall have a 50% or greater probability of recognition of a stationary man-sized target out to a range of 150 meters in clear air (3.7.1) under clear starlight conditions. The following parameters shall be utilized for the modeling:

a. Target Characteristic Dimension: 0.87 m
b. Maximum Tube Brightness: 3.0 fl
c. V50 Recognition cycles on Target: 14.5
d. Probability to Recognize: 50%
e. Target Reflectivity: User Defined: (3) points: 400nm - 30%, 660nm - 30%, 920nm - 30%
f. Background Reflectivity: User Defined: (3) points: 400nm - 70%, 660nm - 70%, 920nm - 70%

3.3.4.3 Image Intensifier Objective Lens Assembly. The image intensifier objective lens assembly shall meet all requirements of PRF-ENVG-Objective (I2)-Assembly. The image intensifier objective lens assembly specification

shall be proposed by the Offeror and shall ensure the requirements of this system level purchase description are met. The specification shall become a Government document.

3.3.4.4 Aiming Light Compatibility (Key Performance Parameter). The ENVG shall be compatible with current laser aiming lights such as the AN/PAQ-4, AN/PEQ-2, AN/PEQ-15, and AN/PSQ-23 (820 – 850 nm) out to the ENVG's target recognition requirements (3.3.4.2 and 3.3.5.1).

3.3.4.5 Light Emitting Diode. The ENVG shall have a forward projecting Light Emitting Diode (LED) infrared source possessing a wavelength of 880 nm ± 20 nm. The LED will have a positive control switch to preclude inadvertent activation. A visual warning indicator in the eyepiece will inform the ENVG user when the LED is activated. The visual warning indicator must not impair the user's vision or mission accomplishment.

3.3.4.6 Image Intensified Field-of-View. The ENVG shall have a Field-of-View (FOV) equivalent or greater than a circular FOV of at least 38°.

3.3.4.7 Image Intensified Magnification.

3.3.4.7.1 Far Focus Magnification The ENVG shall have a paraxial, image-intensified, system magnification of 1.0 ± 0.03 for a paraxially located (3.7.8) object at infinite object distance. Paraxial Magnification (Mp) is defined as:

$$Mp = \tan(\Theta') / \tan(\Theta)$$

Where:

Θ' = image space angle from optical axis of ENVG system to image of test object
Θ = object space angle from test object to optical axis of the ENVG system

The far focus, image-intensified magnification shall be measured with the ENVG at a temperature of 21ºC – 2ºC/+3ºC.

3.3.4.7.2 Close Focus Magnification The ENVG shall have a paraxial, image-intensified, system magnification of 1.0 ± 0.08 for a paraxially located (3.7.8) object at 1-meter object distance. Paraxial magnification is defined as in paragraph 3.3.4.7.1.

3.3.4.7.3 Additional Internal or Add-on Magnification. The ENVG shall have internal or add on 3X power or greater zoom capability.

3.3.4.7.3.1 Image Intensifier Magnification. The ENVG shall have the capability of interfacing to the 3X magnifier, A3187445.

3.3.4.7.3.2 Deleted

3.3.4.8 Image Intensified Distortion. The ENVG shall have an Image-Intensified system distortion of less than 3 percent across the entire field of view of the ENVG for objective lens infinite object focus and each eyepiece diopter focus position (3.3.3.7). System Distortion is defined as:

$$\text{Distortion} = ((\tan\Theta'/M\tan\Theta) - 1) * 100\%$$

Where:

M = Paraxial system magnification, as defined in paragraph 3.3.4.7.1
Θ = Input object angle, both right and left of the optical axis in object space
Θ' = Average of output angular position, right and left, relative to the optical axis in image space, for an input object angle of Θ

3.3.4.9 Focus Adjustment. The ENVG shall provide focus adjustment for the image-intensified objective lens over the range from 25 cm to infinity from the outermost surface of the objective lens. The image intensifier channel shall have an infinity focus stop that complies with 3.3.4.14.1. All focus adjustment rings shall be continuously adjustable with one hand, including when the ENVG user is wearing MOPP-IV gloves, and/or trigger finger mittens.

3.3.4.10 Eyepiece Line of Sight. The line of sight (3.7.10) of the ENVG image intensifier image to the eye shall match the ENVG image intensifier objective lens line of sight to less than 2.0 degrees for all possible combinations of each possible diopter focus position of the eyepiece lens (3.3.3.6) and each possible focus position of the objective lens (3.3.4.9).

3.3.4.11 Not used.

3.3.4.12 Image Intensification High Light Cut-Off. The high light cut-off electronic control shall turn off the image intensifier of the ENVG within 70 ±30 seconds when ambient illumination exceeds 100 fc +100/-50 fc (threshold) 75 fc +/- 20 fc (objective) at the image intensifier objective.

3.3.4.13 Image Intensification Exposure to External Light Sources. The image intensifier of the ENVG shall not be damaged (3.7.5) or significantly degraded (3.7.12) when exposed to high intensity, short duration, intermittent light sources, both within and outside the FOV, such as flares, weapon fire, and those typical of urban terrain operations such as headlights and streetlights.

3.3.4.14 Image Intensified Resolution.

3.3.4.14.1 Far Focus Resolution. The ENVG intensified image shall have an on-axis, resolution of an axially located (3.7.13) object at infinite object distance (3.7.14) of not less than 1.14 cycles (threshold) 1.30 (objective) per milliradian and not less than 0.72 cycles (threshold) 0.85 (objective) cycles per milliradian for an object at infinite object distance located 14 degrees off-axis (3.7.15). The off-axis measurement shall be made at the same focus setting as the on-axis measurement at optimum target illumination. The infinity focus stop shall be set to ensure that through focus adjustment is obtained for an object at infinite object distance. The on-axis resolution at the infinity focus stop position shall not be less than 0.49 cycles per milliradian.

3.3.4.14.2 Close Focus Resolution. The ENVG intensified image shall have an on-axis resolution of an object located at 25 cm of not less than 0.70 cycles per milliradian.

3.3.4.15 Stray light. The stray light of the objective shall be no greater than 1.70%.

3.3.4.16 Off-Axis Veiling Glare. The off-axis veiling glare (3.7.16) exhibited by the ENVG shall not exceed the limits of Table I when a point light source illuminates the image intensification objective's entrance pupil at a level of $2.0 \pm 0.5 \times 10^{-4}$ fc. The point source shall subtend less than 0.7 milliradians. The average tube (phosphor) background brightness shall be less than or equal to 1.5×10^{-3} fL. The off-axis veiling glare requirement shall apply from 2° to 70° beyond the FOV of the objective lens. The maximum background brightness cited above, and the maximum intensity values listed in Table I below, shall be adjusted by a multiplicative factor which equals the actual luminance gain of the tube under test (G_{act}) divided by 50,000 fl/fc (i.e. G_{act}/50,000 fl/fc).

Table I. Off-Axis Veiling Glare.

Point source angle (degrees beyond FOV)	Maximum intensity of veiling glare image (foot-lamberts)
2°	0.625
3°	0.375
4°	0.25
5°	0.20
6° - 70°	0.15

3.3.4.17 Image Intensification Brightness Gain. The range of the brightness gain of the ENVG shall be ≥ 5,500 fl per fl at the maximum gain setting when subjected to input illumination of $1x10^{-4}$ fl and ≤ 55 fl per fl at the minimum gain setting when subjected to input illumination of $1x10^{-2}$ fl following no more than 30 seconds of steady state exposure to these conditions, there shall be no change in brightness gain greater than 3% of the average gain.

3.3.4.18 Halo. For a 40° Field-of-View (FOV) system (or scaled linearly for other FOVs), system halo in target space shall be no greater than 1.40 degrees for a point light source. This essentially equates to an 18 mm image intensifier tube halo requirement of 1.0 mm when using a 0.35 mm input spot, a 40° FOV system, with an objective lens EFL of 27.03 mm.

3.3.5 Thermal Sensor Performance

3.3.5.1 Thermal Sensor Man-Sized Target Recognition (Key Performance Parameter). The following target data shall be used for all requirements in 3.3.5.1.1 and 3.3.5.1.2:

a. Target Contrast (RSS): 2.0 Delta Celsius
b. Target Size: Square Root Target Area = 0.75 meters
c. Display Brightness: 4 footlamberts
d. V50 Recognition: 1.53 cycles
e. Model Version: NVTherm IP dated Jan/Feb 2007

3.3.5.1.1 Target Recognition (threshold). The ENVG shall provide the following minimum capabilities:

a. ENVG will have an 80% or greater probability of recognition of personnel (upright and moving), given a detection, out to a range of 300 meters in clear air (3.7.1) at all light levels.

b. ENVG will have an 80% or greater probability of recognition of personnel (upright and moving), given a detection, out to a range of 150 m in adverse weather (3.7.2) and dirty battlefield (3.7.3) conditions at all light levels.

c. ENVG will have a 50% or greater probability of recognition of personnel (upright and moving), given a detection, out to a range of 450 m in clear air (3.7.1) at all light levels.

d. ENVG will have a. 50% or greater probability of recognition of personnel (upright and moving), given a detection, out to a range of 300 m in adverse weather (3.7.2) and dirty battlefield (3.7.3) conditions at all light levels.

3.3.5.1.2 Target Recognition (objective). The ENVG shall provide the following minimum capabilities:

a. ENVG will have an 80% or greater probability of recognition of personnel (upright and moving), given a detection, out to a range of 450 meters in clear air (3.7.1) at all light levels.

b. ENVG will have an 80% or greater probability of recognition of personnel (upright and moving), given a detection, out to a range of 300 m in adverse weather (3.7.2) and dirty battlefield (3.7.3) conditions at all light levels.

c. ENVG will have a 50% or greater probability of recognition of personnel (upright and moving), given a detection, out to a range of 600 m in clear air (3.7.1) at all light levels.

d. ENVG will have a. 50% or greater probability of recognition of personnel (upright and moving), given a detection, out to a range of 550 m in adverse weather (3.7.2) and dirty battlefield (3.7.3) conditions at all light levels.

3.3.5.2 Minimum Resolvable Temperature (MRT). The two-dimensional MRT (3.7.18) with the image intensifier off shall not exceed the values listed below in Table II. The below-listed MRT requirements are a composite of the vertical and horizontal MRT.

Table II. MRT.

Spatial Frequencies (cycles/milliradian)	Temperature Difference (°C)
0.15	0.12
0.30	0.25
0.38	0.47

3.3.5.3 Thermal Non-Uniformity Correction (NUC). An automatic NUC for the ENVG, should it be required to maintain image quality, shall occur no more often than every 4 (four) minutes. The user shall have the ability to manually calibrate the ENVG thermal sensor at any time using one-hand only. During automatic or manual NUC, no imagery will be displayed. The user will see the temporary symbology indicator "CALIBRATION" in the ENVG display during the calibration process, which will result in no more than a ½ second loss of thermal imagery.

3.3.5.4 Thermal Field-of-View. The ENVG will have a rectangular, thermal field-of-view with a diagonal of ≥25°.

3.3.5.5 Thermal Magnification. The ENVG shall present thermal imagery with a paraxial magnification that is equal to the intensified image magnification in the far-focus position (3.3.4.7.1) ± 3%. The ENVG Thermal Magnification measurement and the ENVG Image-Intensified Far Focus Magnification measurement (3.3.4.7.1) shall be performed with the ENVG system at the same temperature for both measurements.

3.3.5.6 Image Characteristics.

3.3.5.6.1 Thermal Time Constant. The thermal time constant shall be ≤ 16 ms.

3.3.5.6.2 Image Uniformity. Both large and small area uniformity requirements specified below shall be measured using the methodology described in Appendix B with the ENVG viewing a uniform irradiance background. Uniformity shall be met within the minimum thermal channel dynamic range (3.3.5.6.13). Uniformity shall be met over all specified SiTF (3.3.5.6.13 and 3.7.33) settings.

3.3.5.6.3 Large Area Uniformity. The system luminance uniformity level, with the image intensifier off, across the entire display area shall not vary by more than 40 percent over the full display luminance output range as measured off of the signal that is equivalent to the signal driving the display.

3.3.5.6.4 Small Area Uniformity. The system luminance uniformity, with the image intensifier off, in any local area (3.7.19), shall not vary by more than 20 percent over the full display luminance output range as measured off of the signal that is equivalent to the signal driving the display.

3.3.5.6.5 NOT USED.

3.3.5.6.6 NOT USED.

3.3.5.6.7 No-Information Pixels for Thermal Detector. This requirement applies to the ENVG sensor defective channels at the focal plane array output before uniformity correction/normalization. The ENVG shall meet the defective pixel (3.7.36) and no-information pixel (3.7.21) requirements specified in Appendix A.

3.3.5.6.8 Thermal Frame Rate. The ENVG thermal sensor shall have a minimum frame rate of 59 Hz progressive.

3.3.5.6.9 Noise Equivalent Temperature (NET). The ENVG thermal detector shall have a normalized (f/1.0 @ 30 Hz) NET of no greater than 0.05° C. All NET measurements specified in this document shall be normalized at f/1.0 @ 30 Hz.

3.3.5.6.10 Spatial Noise. The pre-sample fixed pattern image non-uniformity (spatial noise) between single point image interrupting calibrations for the central 20% of the image shall not degrade (3.7.12) system performance more than the requirements stated in Table III. The pre-sample is defined as the objective optic, the detector array, and the support electronics.

Table III. Spatial Noise.

Scene Temperature Delta from ENVG Housing	SigmaVH Noise Allowed in °Kelvin	SigmaV/H Noise Allowed in °Kelvin
± 15° C	0.050	0.030
± 30° C	0.100	0.060

3.3.5.6.11 Operational Readiness. Over the operating temperature range between the high temperature (3.5.1.1) and -20 ºC, the ENVG shall provide a recognizable image within 15 seconds (threshold) 1 second (objective) after ENVG power is applied. The image is recognizable if an observer, 15 seconds (threshold) 1 second (objective) after the ENVG has been turned on, is able to resolve the middle spatial frequency 4 bar target called out in Table II, set at twice the specified temperature.

Over the operating temperature range between -20 ºC and the low temperature limit (3.5.1.2), the ENVG shall provide a recognizable image within 20 seconds (threshold) 1 second (objective) after ENVG power is applied. The image is recognizable if an observer, 20 seconds (threshold) 1 second (objective) after the ENVG has been turned on, is able to resolve a 0.30 cy/mrad 4 bar target set at 3.0 degree C delta T.

3.3.5.6.12 Response Outside FOV. The response of the ENVG to sources of radiation (T<1000°C) outside the displayed FOV by more than 0.5° shall be less than 1 shade of gray (3.7.23) over the total range of operator controls.

3.3.5.6.13 Signal Transfer Function (SiTF). For any brightness control setting and maximum gain control setting, the display luminance shall be equal to 90 or greater percent of the maximum luminance for a target ΔT of 2.5°C or less. For any brightness control setting and minimum gain control setting, the display luminance shall be equal to 90 or less percent of the maximum luminance for a scene ΔT of 50°C or greater.

3.3.5.6.14 Polarity. The ENVG shall have an image contrast polarity control such that targets of increasing temperature have increasing brightness in the “white” hot position and decreasing brightness in the “black” hot position. The image polarity shall change completely from one state to the other within 0.5 seconds of initial activation. The ENVG shall provide a temporary indicator of the status of the polarity control in the eyepiece with the “white”-hot position labeled “WHT HOT” and the “black”-hot position labeled “BLK HOT”.

3.3.5.6.15 Thermal Magnification Zoom. With the image intensifier turned off, the ENVG thermal sensor shall be capable of electronically zooming the thermal image by 3X and will be activated by a control switch.

3.3.5.7 Thermal Sensor. The thermal sensor assembly shall include gamma correction and shall meet the requirements of the PRF-ENVG-Thermal Assembly. The thermal sensor assembly specification shall be proposed by the Offeror and shall ensure the requirements of this system level purchase description are met. The specification shall become a Government document.

3.3.5.8 Thermal Sensor Objective Lens. The thermal sensor objective lens assembly shall meet all requirements of PRF-ENVG-Objective (Thermal) Assembly. The thermal sensor objective lens assembly specification shall be proposed by the Offeror and shall ensure the requirements of this system level purchase description are met. The specification shall become a Government document.

3.3.5.9 Thermal Sensor Defective Pixels. The ENVG thermal sensor shall meet the defective pixel (3.7.36) and no-information pixel (3.7.21) requirements specified in Appendix A.

3.3.6 Display Performance.

3.3.6.1 Display Frame Rate. The ENVG display shall have a frame rate of ≥ 59 Hz progressive.

3.3.6.2 Display Response Time. The display response time shall be ≤ 16 ms for all gray shade transitions.

3.3.6.3 Display Defective Pixels. The ENVG display shall meet the defective pixel (3.7.36) and no-information pixel (3.7.21) requirements specified in Appendix A.

3.3.6.4 Display Brightness. The ENVG shall have variable display brightness (or level) to allow viewing in ambient illumination conditions from bright sunshine to total darkness without degrading system performance or inhibiting the operator's dark adapted vision. When viewed through the eyepiece, the display shall be capable of adjusting from 0.05 fL to at least 30 fL.

3.3.6.5 Thermal Imagery Color. The ENVG shall display thermal imagery at a color contrasting from the image intensifier imagery.

3.3.6.6 Display Shades of Gray.
The display shall present at least 256 gray levels. Levels 0, 1, ..., 254, 255 shall progress monotonically from the lowest available video (black) level to the highest available video
(white) level. Upon application of a test pattern containing all Shades of Gray indicated in 3.7.23, an observer shall visually perceive each shade of gray as a different shade when viewed through the eyepiece of the ENVG

3.3.6.7 Display. The display assembly shall meet the requirements of the PRF-ENVG-Display Assembly. The display assembly specification shall be proposed by the Offeror and shall ensure the requirements of this system level purchase description are met. The specification shall become a Government document.

3.3.7 Additional Performance Attributes.

3.3.7.1 Image Latency. The thermal channel latency (3.7.35), defined as latency of the sensor and thermal channel display, shall be less than 30 milliseconds (threshold) 15 milliseconds (objective).

3.3.7.2 Image Alignment. The image of any in-focus, multispectral (3.7.24), point object (3.7.25) lying anywhere within the field of view of the thermal sensor (3.3.5.4) shall be imaged on the thermal sensor and displayed to the user through the eyepiece (3.3.3.6) such that the centroid of the thermal image shall be no greater than the distances listed in Table IV from the centroid of the image-intensified image of the same point object when both the image-intensified and thermal images are being displayed simultaneously. This image alignment (3.3.7.2) shall be met for all environmental requirements defined in paragraphs and sub-paragraphs 3.5 (3.5.1 to 3.5.16) and 3.6 (3.6.1 to 3.6.2) of this document.

Table IV. Image Alignment Specifications (threshold)

Object Range	Paraxial FOV to ≥ ¼ FOV	➢ ¼ to ≥ 2/3 Thermal Display FOV	≥2/3 Thermal Display FOV
Infinity	1.7 mrad	2.6 mrad	2.6 mrad
5 m	9.6 mrad	10.5 mrad	10.5 mrad
3 m	14.0 mrad	15.7 mrad	16.5 mrad

3.3.7.3 Eyepiece Through-Focus Alignment. The Image Alignment (3.3.7.2) shall be met for all diopter focus positions of the eyepiece per 3.3.3.7.

3.3.7.4 Eyepiece Image Intensified Field Curvature. When the eyepiece is optimally focused to the axial portion of the intensified image, the field curvature of the intensified image shall deviate no more than +0.25 to –0.33 diopters over the entire active, intensified image.

3.3.7.5 Eyepiece Thermal Field Curvature. When the ENVG is simultaneously imaging intensified and thermal imagery and the ENVG eyepiece is optimally focused to the axial portion of the intensified image, the field curvature of the thermal image shall deviate no more than +0.25 to –0.33 diopters over the entire active thermal display area.

3.3.7.6 Image Wash-out. The ENVG shall minimize all "wash-out" (3.7.27) effects.

3.3.8 Helmet Mount Performance.

3.3.8.1 Helmet Mounting. The ENVG Imaging System shall securely mount to the helmet during operation. The ENVG imaging system shall be fully functional while helmet mounted. The helmet mount assembly shall meet the requirements of the PRF-ENVG-Helmet Mount Assembly. The helmet mount assembly specification shall be proposed by the Offeror and shall ensure the requirements of this system level purchase description are met. The specification shall become a Government document.

3.3.8.1.1 Helmet Mount Horn. The helmet mount horn shall have two latched positions: flip-up (out of sight) and flip-down (system operation). Adjustments shall be provided for line-of-sight (tilt), eye relief, and to center the eyepiece optical axis with the viewing eye (horizontal and vertical adjustment or equivalent). Adjustments shall be accomplished with one hand. The stowing mechanism(s) will not require the user to push, pull, or twist any button, lever, or knob.

3.3.8.1.1.1 Flip-up Force. The force required to move the mount out of the flip-down position and into the flip-up position shall be greater than or equal to 4 lbf but less than or equal to 17.6 lbf.

3.3.8.1.1.2 Flip-down Force. The force required to move the mount out of the flip-up position and into the flip-down position shall be greater than or equal to 6 lbf but less than or equal to 17.6 lbf.

3.3.8.1.2 Helmet Mount Wiring Assembly. The helmet mount wiring assembly shall not modify, damage, or reduce the protective qualities of the helmet. The front bracket for the helmet mount horn (3.3.8.1.1) shall use ballistic protection hardware (3.3.8.1.3). The mounting/installation of any additional bracket to the helmet shall not require the use of any holes,including those pre-existing in the helmet, and shall not create a snag hazard. All cables shall run on the inside of the helmet shell underneath the helmet pads.

3.3.8.1.3 Ballistic Protection Hardware. The ENVG helmet mounting hardware shall not modify, damage, or reduce the protective qualities of the helmet. The fasteners (bolts, nuts, retainers, etc.) used to attach the front bracket for the helmet mount horn to the helmet shall be resistant to penetration from a 9mm Full Metal Jacketed Round Nose with a nominal mass of 124 grains in accordance with NIJ 0106.01 and International Test Operating Procedures (ITOP) 4-2-805 at 1400 (+50 -0) ft/sec at 0 deg Obliquity when tested in accordance with the Advance Combat Helmet (ACH) purchase description, ACH CO/PD-05-04, dated 30 Oct 07 with changes dated 24 Mar 09.

3.3.8.2 Backwards Compatibility. The front bracket shall accept the helmet mount horns for the AN/PVS-7 and AN/PVS-14 without removal or addition of any hardware requiring tools. When an AN/PVS-7 or AN/PVS-14 is mounted, it shall not short the ENVG system power.

3.3.8.3 Auto -off/Quick Start Capability. When helmet mounted (3.3.8.1), the ENVG shall automatically shut-off or go into a "stand-by" mode (3.7.11) and have zero luminance when moved into any stowed position. When the ENVG is moved back to the in-use position, the I2 channel shall return to full-on within 3 seconds without activation of any other control. When the ENVG is moved back to the in-use position at ambient temperatures from -20 ºC to

+49 ºC, the thermal channel shall return to full-on within 3 seconds without activation of any other control. When the ENVG is moved back to the in use position at ambient temperatures in the range from -20 ºC to -40 ºC , the thermal channel shall provide a recognizable thermal image within 10 seconds without activation of any other control. The image is recognizable if an observer, 10 seconds after the ENVG has been turned on, is able to resolve a 0.30 cy/mrad 4 bar target set at 3.0 degree C delta T. There is no time limit on this requirement; the requirement shall apply until the end of the useful life of the batteries powering the system.

3.3.9 Integrated Logistics Support/Manpower and Personnel Integration (ILS/MANPRINT).

3.3.9.1 Maintainability. Required maintainability and system support strategy must support the reliability (3.6) and Availability (3.3.9.2) criteria. The Wartime Mission Profile for the ENVG specifies 1,248 total hours of operation during the year.

3.3.9.1.1 Crew-Level Maintenance. Maintenance support provided by Crew-level maintainers shall not exceed 0.25 man-hours per action for repair of the ENVG.

3.3.9.1.2 Maintainer-Level Maintenance. Maintenance support provided by Maintainer-level maintainers shall not exceed 2.3 direct production man-hours over the course of a year for repair of the ENVG.

3.3.9.2 Availability. The ENVG shall have an operational availability ≥ 90%.

3.4 Physical Characteristics.

3.4.1 Controls. The ENVG controls (knobs, switches, buttons) shall be:

a. mutually independent

b. have positive stops for the on/off switch(es)

c. not allow accidental adjustment of the controls in all environmental conditions

d. be adjustable using bare hands, MOPP-IV gloves, and/or trigger finger mittens. Some degradation in ENVG/Soldier interface is expected while in cold weather clothing.

3.4.2 Interchangeability. All components of the Offeror's ENVG shall be interchangeable (3.7.28) to the repairable level, regardless of manufacturer, in accordance with the ENVG maintenance philosophy and technical manual(s).

3.4.3 Ancillary/Additional Items. The ENVG shall come equipped with ancillary/additional equipment per 3.3.2.1 (d, e and f).

3.4.3.1 Laser Protection.

3.4.3.1.1 Image Intensifier Laser Protection. A removable Light Interference Filter (LIF) which meets the requirements of MIL-PRF-49257 shall be provided with each system. The LIF shall screw onto the image intensification objective lens when needed.

3.4.3.1.2 Thermal Camera Laser Protection. No laser protection is required for the thermal camera.

3.4.3.2 Objective Lens Cover(s). A lens cover shall be provided for all objective lenses. The cover(s) shall be secured to the ENVG system when the system is in use.

3.4.3.3 Retaining Lanyard. A lanyard shall be provided that can be worn around the neck or secured to the user's clothing when the ENVG is helmet-mounted.

3.4.3.4 Eyecup. A removable eyecup shall be provided to prevent glare, the emission of stray light, and facial reflections when the ENVG is helmet-mounted.

3.4.3.5 Anti-fog wipes. Anti-fog wipes shall be provided for the ENVG eyepiece to reduce fogging.

3.4.3.6 Sacrificial Window. A sacrificial window shall be provided for the image-intensifier objective lens, for protection against sand and dust. The window shall provide at least 90 percent transmittance.

3.4.3.7 Operator's & Unit Level Maintenance Manual. An operator's and unit level maintenance manual shall be provided that provides the user with guidance and instructions on operating the ENVG. The Manual shall also include basic care, cleaning, battery replacement, maintenance procedures, and Preventive Maintenance Checks and Services (PMCS) for the ENVG at the Operator and unit level.

3.4.3.8 Soft-Carrying Case. A lightweight carrying case shall be provided to provide protection in a field environment. The carrying case shall be capable of storing the ENVG, the helmet mount, the battery pack assembly, Light Interference filter (LIF), objective lens cover, retaining lanyard, eyecup, anti-fog wipes, Sacrificial Window and the quick reference card. Operators manual may be in soft carrying case or Transit/storage case. It is desired that it is in the soft carrying case. The carrying case shall provide the means to attach the case to the Soldier's Load Bearing Equipment (LBE). The ENVG, in its carrying case shall survive without damage (3.7.5) or degradation of performance (3.7.12) field handling, airborne/air assault operations/air jump or when packed inside a MOLLE, ruck-sack, or as loose cargo in tactical vehicles.

3.4.3.9 Transit/Storage Case. A transit/storage case shall be provided which holds one or more ENVG systems, in soft carrying case (3.4.3.8), including all ancillary equipment described in paragraphs 3.4.3.1 to 3.4.3.7. The ENVG, in its transit/storage case, shall survive, without damage (3.7.5) or degradation of performance (3.7.12), normal commercial and military modes and methods of transportation (i.e., shipment by highway, rail, marine, or air, including infantry fighting vehicle, cargo aircraft, helicopters, field handling, and airborne/air assault/air jump operations with individual Soldiers).

3.4.3.10 Quick Reference Card. A laminated quick reference card shall be provided which shows and explains as a minimum the buttons and their functions, Low Battery Indicators, battery life, modes of operations, calibration procedures, focusing, basic troubleshooting procedures, correct sight alignment information, Sacrificial Lens and Light Interference Filter use and other pertinent information as required. The quick reference card shall be a single page, no larger than 8.5" x 5.5" when folded (L x W). Information can be included on both the back and front of the quick reference card.

3.4.4 Finishes. All internal and external surfaces except for light transmitting elements that are exposed to light from external and internal sources shall have a flat, non-specular finish to achieve the lowest feasible light reflectance.

3.4.5 Workmanship. Joints and seams shall be tight and electrical wiring shall be secure with unbroken insulation. Padding shall be free of gouges, tears, excess adhesive, or imbedded foreign matter and shall be attached firmly to the proper surface. All plastic parts shall be free from cracks, splits, cold flow, shrinkage, inclusions, porosity, or any similar characteristics. Threads shall be full and undamaged for their entire length or depth. The ENVG shall be free from burrs, chips, dirt, rust, corrosion, or any embedded or surface foreign material. All moving parts and adjustments shall move freely throughout their entire range without sticking, binding, or creeping. Parts shall not be missing or damaged (3.7.5). Optical elements shall be free from imperfections, including delamination of coated optical surfaces, that adversely affect the performance as defined in this specification. Adverse affects include, but are not limited to, transmission values falling below 90% for the I2 objective, 85% for the IR objective, and 90% for the eyepiece. Optical element surface quality shall meet the specifications as stated in MIL-PRF-13830.

3.4.6 Product Marking. Product marking shall be legible and permanent for the life of the ENVG system. Direct marking or labeling is permitted. The following items shall be marked:

3.4.6.1 Soft-Carrying Case Marking. No markings will appear on the soft carrying case.

3.4.6.2 ENVG Marking. The following information is required on the ENVG Imaging System:

ENHANCED NIGHT VISION GOGGLE, AN/PSQ-20
MFR IDENT: [manufacturer's CAGE code]
CONTRACT NO.: [contract number]
NSN: [national stocker number]
SERIAL NO.: [serial number]
U.S. Government Property (– shall be etched into the body)

3.4.6.3 Warranty Expiration Date. The warranty expiration date shall be located on the ENVG housing.

WARRANTED ITEM
EXPIRES: MMMYYYY

3.5 Environmental Characteristics. The ENVG system, comprised of the components and sub-components listed in subparagraphs a., b., c., d.1), d.2), d.3), and d.4) of 3.3.2.1., shall not exhibit damage (3.7.5) or suffer degradation of performance (3.7.12) and shall meet the performance requirements specified herein when subjected to the environmental conditions specified in paragraphs 3.5.1 to 3.5.16. The Offeror shall submit a Quality Validation Plan to include additional details necessary to fully define the Offeror's test methods to prove compliance with the stated environmental requirements.

3.5.1 Temperature Extremes.

3.5.1.1 High Temperature. The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) by continuous operation at +49°C, or under storage conditions at +71°C, when tested in accordance with MIL-STD-810, Method 501.5, Procedure I (Storage) and II (Operational).

3.5.1.2 Low Temperature. The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) by continuous operation at -40°C (threshold) -46°C (objective), or under storage conditions at -46°C, when tested in accordance with MIL-STD-810, Method 502.5, Procedure I (Storage) and II (Operational).

3.5.1.3 Temperature Shock. The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) after exposure to sudden temperature changes (within 1 minute) from -46°C to +71°C and tested in accordance with MIL-STD-810, Method 503.5, Procedure I-C.

3.5.2 Vibration. The ENVG system shall not exhibit damage (3.7.5) or suffer degradation of performance (3.7.12) when subjected to vibrations in the frequency range of 5 to 55 Hz and acceleration up to 2.5 G peak (3.7.29) for a minimum period of 90 minutes on each of three orthogonal axes. Measurement of the forces applied to the ENVG system shall be as close to the helmet mount horn/imaging system interface as possible.

3.5.3 Altitude. The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) by continuous operation throughout altitudes of sea level to 15,000 feet or non-operating altitudes up to 40,000 feet, when tested in accordance with
MIL-STD-810, Method 500.5, Procedure I (Storage) & Procedure II (Operational).

3.5.4 Humidity. The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) either during or after being subjected to relative humidity as tested in accordance with MIL-STD-810, Method 507.5, Procedure II. In addition, fogging on the inside of glass or plastic elements shall not occur.

3.5.5 Sand and Dust. The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) in both operating and non-operating conditions after exposure to blowing fine sand and dust particles as tested in accordance with MIL-STD-810, Method 510.5 Procedure I (Dust) and Procedure II (Sand). Exposed optical lenses only shall be protected.

3.5.6 Fungus. The ENVG system (in addition to the soft carrying case, transit/storage case, and other ancillary equipment), shall neither support fungal growth, be damaged (3.7.5), nor suffer degradation of performance (3.7.12) by the presence of fungus spores or adjacent fungal growth when tested in accordance with MIL-STD-810, Method 508.6.

3.5.7 Immersion. The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) when tested in accordance with MIL-STD-810, Method 512.5, Procedure I. The depth of fresh water shall be 1 meter (threshold) 22 meters (objective) and the duration shall be a minimum of 30 minutes (threshold) 2 hours (objective). The ENVG shall be pre-conditioned at a temperature of 27° higher than the water temperature for a period of not less than two hours prior to performing the immersion test.

3.5.8 Salt Fog. The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) when tested in accordance with MIL-STD-810, Method 509.5.

3.5.9 Explosive atmosphere. The ENVG system shall not cause ignition of a gaseous air mixture when operating in an explosive atmosphere and tested in accordance with
MIL-STD-810, Method 511.5, Procedure 1.

3.5.10 Bounce, Loose Cargo. The ENVG, while in its soft-carrying case shall not be damaged (3.7.5) and shall operate without degradation of performance (3.7.12) when tested in accordance with MIL-STD-810, Method 514.6, Procedure II for a minimum duration of three (3) hours.

3.5.11 Transit Drop. The ENVG, in its soft-carrying case shall not be damaged (3.7.5) and shall operate without degradation of performance (3.7.12) when tested in accordance with MIL-STD-810, Method 516.6, Procedure IV.

3.5.11.1 Air Jump. The ENVG shall survive without damage (3.7.5) and shall operate without degradation of performance (3.7.12) during field handling, and during airborne/air assault operations when packed inside a MOLLE type ruck-sack.

3.5.11.2 Unpackaged Transit Drop (Objective). The ENVG, outside of the soft carrying case shall be fully operational after being subjected to drop shock from 48 inches onto ¾ inch plywood backed by concrete when tested to Method 516.6, Procedure IV of MIL-STD-810. The ENVG shall also be fully operational, less cosmetic damage, after being dropped three times from a height of two feet onto dirt.

3.5.12 Solar Radiation. The ENVG system shall be fully operable and exhibit neither damage (3.7.5) or degradation of performance (3.7.12) either during or after being subjected to MIL-STD-810, Method 505.5, Procedure I, Cycle A1.

3.5.13 Nuclear, Biological, and Chemical (NBC) Contamination Survivability. The exposed components of the ENVG system shall be NBC contamination and decontamination survivable, with the exception of rubber and canvas field replaceable items. The ENVG shall use chemical and biological agent resistant materials/paints that will facilitate decontamination and/or allow use of the device in a toxic environment. Also, decontamination must be considered in the design, shape, (contour) of the outer surfaces of the device. Parts and components that cannot be decontaminated will be easily replaced.

3.5.14 NOT USED.

3.5.15 Electromagnetic Environment. The ENVG system shall be capable of operating in an electromagnetic rich battlefield. This includes not causing interference with other electronic equipment as well as not being affected when operated in proximity to other equipment.

3.5.15.1 Electromagnetic Interference. The ENVG shall not be damaged (3.7.5), suffer degradation of performance (3.7.12), nor be susceptible (3.7.30) when tested to the requirements of MIL-STD-461, as defined for Army, Ground Systems. The ENVG shall be oriented such that the position(s) that produce maximum radiated emissions and respond most readily to radiated signals are facing the measurement antennas. The ENVG shall meet these requirements when operated in all light levels and tested in a Government/industry approved facility, using suitable tools and equipment as detailed in a test method approved by the Government. Electromagnetic Compatibility (EMC) shall be performed, when required by the Government, to ensure compatibility with specified electronic equipment.

3.5.15.2 NOT USED.

3.5.15.3 High Altitude Electromagnetic Pulse (HEMP). The ENVG system, while packaged in its soft carrying case or transit case and/or in an operational configuration, shall withstand the effects of HEMP as described in MIL-STD-2169, early time (E-1), and as defined in MIL-STD-2169 (Paragraph 4.1). System upset during the event is allowed provided the system can meet requirements without damage (3.7.5) or degradation of performance (3.7.12) after being manually reset by the user.
3.5.15.4 Electrostatic Discharge. The ENVG system shall be capable of surviving exposure to electrostatic discharge.

3.5.15.4.1 Personnel Electrostatic Discharge (PESD) (threshold). The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) when tested to the PESD requirements of MIL-STD-464 (Paragraph 5.7) and Test Operations Procedure (TOP) 1-2-511 Electromagnetic Environmental Effects System Testing, PESD, http://handle.dtic mil/100.2/ADA506300.

3.5.15.4.2 Helicopter Electrostatic Discharge (HESD) (objective). The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) when tested to the HESD requirements illustrated and conducted in-accordance with MIL-STD-464 (Paragraph 5.7.1) and Test Operations Procedures (TOP) 1-2-511 respectively, having the parameters shown in Table VII.

Table VII. Helicopter Electrostatic Discharge Levels

Voltage (V)	Capacitance (pF)	Series Resistance (Ω)
± 300,000 ± 500 V	1000 ± 5%	≤ 1

3.5.16 Blowing Rain Test. The ENVG system shall not be damaged (3.7.5) nor suffer degradation of performance (3.7.12) during and after exposure to rain, when tested in accordance with the requirements of MIL-STD 810, method 506.5 Procedure 1..

3.6 Reliability (Key Performance Parameter). The ENVG comprised of the components and sub-components listed in subparagraphs a., b., c., d.1), d.2), d.3), and d.4) of 3.3.2.1 shall demonstrate a mean time between failure (MTBF) of 800 hours (threshold) 1,200 hours (objective) with 80% confidence when tested under the operational and environmental conditions specified in 3.6.1 and 3.6.2. A failure is defined as damage (3.7.5) or degradation of performance (3.7.12). When tested in an operational environment under field conditions, the system shall demonstrate a reliability of 250 hours mean time between essential function failure (MTBEFF) and 360 hours Mean Time Between System Abort (MTBSA) with 80% confidence, with failures as defined per the ENVG failure definition/scoring criteria (FD/SC).

3.6.1 Environmental Conditions. During each 24-hour cycle, the system shall be operated 50% at the hot operating extreme (3.5.1.1), 30% at the cold operating extreme (3.5.1.2), and 20% at ambient temperature. Once during each 24-hr cycle the system shall be subjected to storage conditions, alternating between hot and cold storage. Vibration in the frequency range of 5 to 55 Hz and acceleration up to 2.5 G peak shall be applied for 15 minutes on each of three orthogonal axes, once every six cycles. Voltage shall be varied throughout the possible range of voltages the system may see in service.

3.6.2 Operational Conditions. Systems under test shall be tested a minimum of 400 operating hours each on average. The systems shall be continuously monitored to ensure proper operation. In addition, each 24-hr cycle shall include three operational checks, one at cold operating extreme (3.5.1.2), one at hot operating extreme (3.5.1.1), and one at ambient temperature. The operational check shall include the following: manipulation of control switches, buttons and knobs and verification of functionality of controls; switching system from OFF to ON; check of the IR LED; running eyepiece and objective focus and diopter adjustment mechanisms through extremes; functionality of all helmet adjustments; verification of auto-shut off capability per 3.3.3.13; remove/replacement of ENVG from the helmet mount; and removal replacement of the battery pack and batteries. Entire assembly shall be removed from the helmet and replaced once per week.

3.7 Technical Interpretations.

3.7.1 Clear Air. Atmospheric conditions that provide seven (7) kilometer visibility along an unobstructed line of sight. Use the Beer's Law approximation with a value of 0.9/km.

3.7.2 Adverse Weather. Moderate rain, light fog, salt fog, and snow. Use the Beer's Law approximation with a value of 0.7/km for adverse weather.

3.7.3 Dirty Battlefield. Dirty battlefield contains elements from adverse weather (3.7.2), as well as dust and smoke from fog oil (α=0.03, CL=2), white phosphorous (α=0.38, CL=1.9), and hexachloro-ethane-zinc oxide (α =0.02, CL=20). Use the Beer's Law approximation with a value of 0.7/km.

3.7.4 Certified Product. A product that has successfully met all the requirements of a Production Qualification Test or First Article Test witnessed by the Product Manager, Sensors and Lasers, or its designated representative. Should the supplier make changes in the material, process, procedure, equipment, and facility used to produce a certified product, or have not delivered the certified product to the Federal Government within 12 months of contract award, a PQT shall be performed to the extent necessary to verify continued compliance to specification requirements for all characteristics of the product affected by the changes.

3.7.5 Damage. An operational failure or malfunction, including but not limited to arcing, corona, intermittent operation, flickering (3.7.20), brittleness, cracking, corrosion, separation, or failure of any finish, adhesive, coating, material, hardware, or fasteners; condensation, residue, fogging, or moisture on any internal surface; dent, cracks or breakage of any hardware, connection, switch, or component; any change in alignment of any and all optics.

3.7.6 Exit Pupil. The diameter of a circle at the established eye relief distance within which the eye pupil is presented a full view of the image area, and optical performance meeting all the resolution specifications in this document. The exit pupil is axially centered, located at the eye relief. The exit pupil is also orthogonal to the optical axis and tangent to the vertices of the eyepiece lens.

3.7.7 Eye Relief. The distance along the optical axis from the vertex of the last optical element to the plane in which is located the vertex of the eye of the user.

3.7.8 Paraxial. Lying on or near the optical axis sufficiently so that the angular distance from the axis is almost negligible. This position is typically used to measure axial magnification of a lens. Paraxial angles shall be less than 2 degrees from the optical axis.

3.7.9 NOT USED.

3.7.10 Line of Sight. The center of the optical field of view. The axial, chief ray in object space.

3.7.11 Stand-By. The condition at which an item is energized yet not intended to provide full operating performance, but is at a state of readiness and enabled to provide full-on mode performance within a specified time upon the operator's command. In stand-by mode, the thermal camera shutter shall close.

3.7.12 Degradation of Performance. A cumulative change of the measured level of performance that can result in the assembly no longer meeting specified requirements. Cumulative changes are that which occur either during, or as the result of, any one test or series of tests.

3.7.13 Axially Located. Lying on the optical axis of the objective lens of the system.

3.7.14 Object Distance. The distance that an object of interest lies from the optical entrance pupil of an optical imaging system.

3.7.15 Off-Axis. Lying at an angular distance from the optical axis of a lens system.

3.7.16 Veiling Glare. Ghost image(s), crescents or other geometrical shaped images appearing in the system's field-of-view when a bright source is outside the field-of-view and illuminating the entrance pupil of the objective lens.

3.7.17 Brightness Gain. The output brightness divided by the input brightness, after correction for the no-input system output luminance.

3.7.18 Minimum Resolvable Temperature (MRT). The minimum temperature difference required between light and dark bars in a standard bar target pattern (4-bar, 7:1 aspect ratio) at which a trained observer with normal vision (20/20, corrected if necessary) and unlimited viewing time can distinguish the bar pattern as four bars.

3.7.19 Local Area. A rectangular area of one-fourth of the vertical display field-of-view by one-fourth the horizontal field-of-view.

3.7.20 Flickering or Flashing. A non-operator-induced change in the device's output brightness, while viewing a uniformly illuminated background at any light level, that is either periodic, aperiodic or random in nature, and occurs more than one time while being viewed by an unaided eye for any duration of time.

3.7.21 No-information Pixels (for Staring Systems). Detector elements that have responsivities (volts/degrees Celsius) greater than 200 percent or less than 50 percent of the mean responsivity of the entire array.

3.7.22 Defective Channels for Scanning Systems. A channel which is dead (inactive), or exhibits an NET greater than twice the requirement of paragraph of 3.3.5.6.9, or a channel which is connected to a good channel internal to the detector-dewar.

3.7.23 Shade of Gray. The Government interprets "addressable gray levels" as being the software/hardware encoded levels - i.e. for an 8 bit display system, "0-255 addressable gray levels". Furthermore, "gray levels" (in the hardware/software address space) are considered to be separable from "shades of gray" which are interpreted as being in the human perceptual space i.e. "17 simultaneously perceptible shades of gray, as viewed by the observer

through the ENVG eyepiece. The ENVG system shall present a test pattern consisting of 17 monotonically increasing gray bars where the addressed gray levels are: 0, 15, 31, 47, 63, 79, 95, 111, 127, 143, 159, 175, 191, 207, 223, 239, and 255 (level 0 is the lowest available video (black) level, and level 255 is the highest available video (white) level). When the gray bar test pattern is viewed through the eyepiece of the ENVG the observer shall be able to simultaneously discern all seventeen (17) shades of gray.

3.7.24 Multispectral. Emitting or transmitting radiation in all wavelengths within both the near-infrared (0.6-0.9 μm) and long-wave infrared (8-12 μm) wavebands.

3.7.25 Point Object. A source object that subtends only one pixel on a sensor focal plane array. The physical size of this object is limited by the focal length of the objective lens and the size of a focal plane pixel.

3.7.26 Alignment Distance. The physical range in object space at which the line of sight of each the image intensifier sensor and the thermal sensor coincide. This distance may be infinity or any finite distance.

3.7.27 Wash-out. "Wash-out" occurs when information from one sensor dominates the combined image from multiple sensors, resulting in a significant loss of image detail.

3.7.28 Interchangeable Item. An item which possesses such functional and physical characteristics as to be equivalent in performance, reliability, and maintainability, to another item of similar or identical purposes; and capable of being exchanged for the other item without selection for fit or performance, and without alteration of the items themselves or of adjoining items, except for adjustment.

3.7.29 g. The nominal acceleration due to gravity at the earth's surface (i.e. 32.2 feet/second^2 or 9.81 meters/second^2).

3.7.30 Susceptibility. Any malfunction of the system that is caused by an electromagnetic field, as well as the system being damaged (3.7.5) or having a degradation of performance (3.7.12) to include modulation bars or other image artifacts. For image intensified, thermal, or fused operation, susceptibility is also considered to be a change in output brightness greater than ±5 percent from a steady state condition.

3.7.31 Off-Axis Exit Pupil. The exit pupil (3.7.6) for any single, non-axial field of view.

3.7.32 Full Field Exit Pupil. The diameter of the overlapping area of all off-axis exit pupils (3.7.31) for all field points within the full field of view of the ENVG.

3.7.33 Signal Transfer Function (SiTF). A curve or family of curves which describe the output display luminance in foot-lamberts (fL) of a device as a function of the input target temperature difference (ΔT) for various system gain and brightness control settings.

3.7.34 Field Curvature. A lens aberration that causes a flat object surface to be imaged onto a curved surface rather than a plane.

3.7.35 Image Latency. The delay between the change of position of an object in the FOV of the system and that object's image displaying to the user with at least 50% of final intensity.

3.7.36 Defective Pixel. Defective Pixels are pixels that operate improperly when addressed with video information. For example, a pixel addressed to turn black may remain white. If it never changes state, it is said to be a stuck pixel. If it changes state without the proper addressing signal, it may be intermittent. Therefore for measurement purposes, a defective pixel is defined as a pixel whose output value is constant no matter the input, or one that does not track its closest (functioning pixel) neighbors to within 50% given a uniform input.

4. VERIFICATION

4.1 Classification of Inspections. The inspection requirements specified herein are classified as follows:

a. Initial production testing (IPT) [see 4.2]
b. Conformance inspection (CI) [see 4.3]

4.2 Initial Production Testing (IPT). Unless otherwise specified in the contract or purchase order, the IPT shall be performed by the contractor. IPT shall consist of the inspections/tests as specified in the approved Quality Validation Plan. The presence of one or more defects shall be cause for rejection of that assembly and may be cause for rejection of all IPT assemblies. Disposition of IPT samples shall be as specified in the contract or purchase order.

4.3 Conformance Inspection. Unless otherwise specified in the contract or purchase order the requirements for conformance inspection shall be as specified in the approved Quality Validation Plan. Contractors are encouraged to propose like, innovative and/or streamlined test methods and procedures which balance Government quality conformance requirements, optimize resource considerations, and are of sufficient detail to enable the Government to evaluate them and make risk assessments as to their adequacy in meeting the specification requirements.

5. PACKAGING

5.1 Packaging Requirements. For acquisition purposes, the packaging requirements shall be as specified in the contract or order. When actual packaging of material is to be performed by DOD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military's Department's System command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The ENVG system is intended for general purpose viewing and weapon firing in scenarios of limited visibility or during periods of darkness.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number and date of the specification.

b. Schedule for IPT Testing for all line items and disposition of IPT samples less reliability samples.

c. Issue of DODISS to be cited in the solicitation.

d. Packaging requirements.

e. Requirements for conformance inspection.

6.3 Certification. With respect to products requiring certification, unless otherwise specified by the contract or purchase order, if a product is not certified at time of award, the contract shall require certifications prior to first delivery. The activity responsible for approving certified products is the Project Manager, Soldier Sensors and Lasers, ATTN: Director, Quality and Test, 10170 Beach Road, Building 325, Fort Belvoir, VA 22060-5862. Information pertaining to certification of products may be obtained from that activity.

6.4 Subject term (key word) listing.
ENVG

APPENDIX A
DEFECTIVE/NO-INFORMATION PIXELS

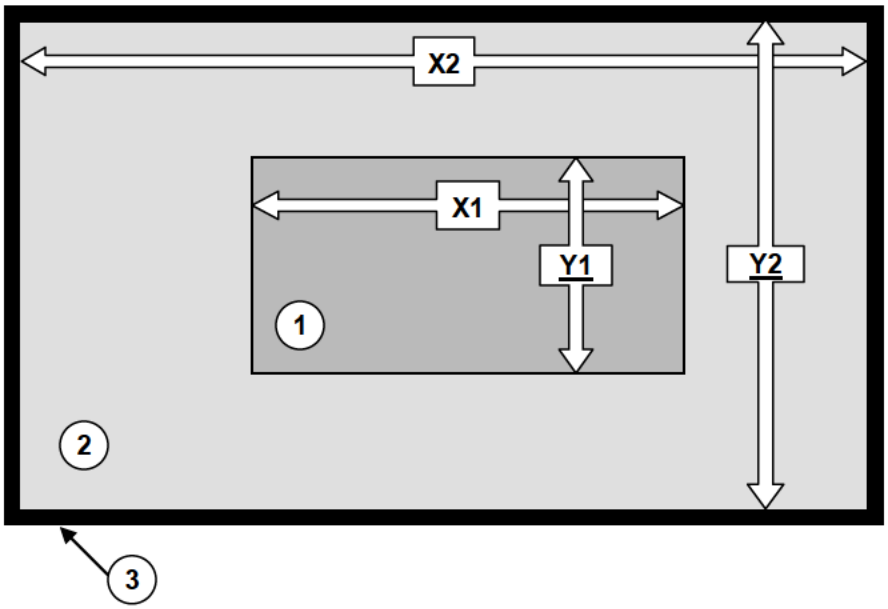

Figure A.1: Defective/No-Information Pixel Regions

Array	Region 1		Region 2		Region 3
	X1	Y1	X2	Y2	
Thermal	Center 50%	Center 50%	Center 98%	Center 98%	Border
Display	Center 50%	Center 50%	Center 98%	Center 98%	Border

Table A-1. Defective Pixel Regions

A.1 Defective/No-Information Pixels. The defective/no-information pixel requirements are described in the following paragraphs. A defective pixel is defined in 3.7.36, and a no-information pixel is defined in 3.7.21. The number of defective/no-information pixels shall be less than or equal to the values specified in Table A-1. All defective/no-information pixels shall be substituted for with adjacent pixels.

A.1.1 Regions.

A.1.1.1 Region 1. Region 1 is defined as the central pixel area (See Figure A.1 and Table A-1). The number of defective/no-information pixels in Region 1 shall be less than or equal to the value specified in Tables A-2 to A-3.

A.1.1.2 Region 2. Region 2 is defined as the area outside of Region 1 (See Figure A.1 and Table A.1). The number of defective/no-information pixels in Region 2 shall be less than or equal to the value specified in Tables A-2 to A-3.

A.1.1.3 Region 3. Region 3 is defined as the border of each side of the Focal Plane Array (See Figure A.1). There is no specified limit of defective/no-information pixels in Region 3 as shown in Tables A-2 to A-3.

A.1.2 Defect Categories. For the purpose of determining an acceptable number of defective/no-information pixels, five categories of defects have been defined as described in the following paragraphs.

A.1.2.1 Total Percentage. The Total Percentage category is defined as the percentage of the number of defective/no-information pixels in a region as compared to total number of pixels in that region. The Total Percentage acceptable for each region is specified in Tables A-2 to A-3.

A.1.2.2 Row/Column Outage. The Row/Column Outage category is defined as an entire row or column made up of defective/no-information pixels. The number of Row/Column Outages acceptable for each region is specified in Tables A-2 to A-3.

A.1.2.3 Type I Cluster. The Type 1 Cluster category is defined as any grouping of 2 – 3 adjacent pixels. An adjacent pixel is any pixel contiguous horizontally, vertically, or diagonally to another pixel. The number of Type 1 Clusters acceptable for each region is specified in Tables A-2 to A-3.

A.1.2.4 Type 2 Cluster. The Type 2 Cluster category is defined as any grouping of 4 – 5 adjacent pixels. An adjacent pixel is any pixel contiguous horizontally, vertically, or diagonally to another pixel. The number of Type 2 Clusters acceptable for each region is specified in Tables A-2 to A-3.

A.1.2.5 Type 3 Cluster. The Type 3 Cluster is defined as any grouping of 6 – 12 adjacent pixels. An adjacent pixel is any pixel contiguous horizontally, vertically, or diagonally to another pixel. The number of Type 3 Clusters acceptable for each region is specified in Tables A-2 to A-3.

Category	Region 1	Region 2	Region 3
Total Percentage	1%	2%	No Requirement
Row/Column Outages	0	1	No Requirement
Type 1 Clusters	≤5	≤25	No Requirement
Type 2 Clusters	≤3	≤13	No Requirement
Type 3 Clusters	≤1	≤3	No Requirement

Table A-2. Thermal Defective/No-Information Pixel Limits

Category	Region 1	Region 2	Region 3
Row/Column Outages	0	0	0
Single Pixel Outages	2	2	No Requirement
Type 1 Clusters	0	2	No Requirement
Type 2 Clusters	0	1	No Requirement
Type 3 Clusters	0	0	No Requirement

Table A-3. Display Defective/No-Information Pixel Limits

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APPENDIX B
UNIFORMITY MEASUREMENT PROCEDURE

The following assumptions/procedures must be made on the imager in order to get an adequate measurement.
Procedure:

1) Once a system is adequately "warmed up", an imager system is placed such that it views a uniform temperature target. Examples of such targets are large blackbodies and dense packing foam that has not been recently handled.

2) Upon a NUC (non-uniformity correcting), digital or digitized frames are captured from the system. If temporary symbology is in the field of view, an operator will typically wait until that temporary symbology is gone from the screen. The typical number of frames that are captured and averaged for a uniformity measurement is 128, though any number of frames more than 64 is probably adequate for removing any temporal components.

3) The image uniformity should not use permanent symbology in the calculation. Temporary symbology is a secondary issue, as a system operator should wait until that symbology is turned off before they take an image uniformity measurement. Only when a system has a significant image drift after a NUC or the imager system has an especially long delay before the symbology is turned off should an operator consider cropping out temporary symbology.

4) Temporal components of image non-uniformity are removed from the image by averaging the frame cube.

5) If the image is not a pure digital signal (i.e. RS-170), the region of interest may need to be modified to only include active pixel response regions and not regions where the timing causes non-responsive bands along the edges of the image. If the imagery is purely digital, then additional signal processing may be necessary in order to determine the signal that is equivalent to that which drives the display. Otherwise, the digital uniformity will give values that are meaningless for the specification.

6) Next a blur kernel is created from the original image by averaging a pixel and its neighbors. For example, for a three point blur kernel, a given pixel will be averaged by its eight (3^2-1) nearest neighbors. The purpose of a blur kernel is to average out outlier pixels. Typically, a blur kernel will be between 8 (63 nearest neighbors) and 10 (99 nearest neighbors) pixels deep.

7) For pixels along an edge, a larger image is created whereby those edge pixels can still have an appropriate number of samples for their blur. The blurred image will be the same number of rows and columns as the original un-blurred image, but the larger intermediate image will be useful for a simple calculation.

8) Once the blurred image is created, the uniformity is a simple measurement of three values leads to all relevant numbers for a blur kernel: the average pixel value, the maximum pixel value, and the minimum pixel value.

9) The peak-to-peak uniformity in terms of percentage is defined as:

$$Percentage_{Var}$$

10) If regions of interest other than the full frame are needed to be measured, the procedure is the same. For that particular sub-region, the average pixel value, the maximum pixel value, and the minimum pixel value in that region are used to create a sub-uniformity across that region. It is noted that the values for percentage variation will be smaller or equal to the full field uniformity measured values. Specifications for performance should reflect this principle. It is also noted that the blurred image that is used to create the full scene uniformity is also used to create the sub-region uniformities.

APPENDIX C
5 METER AURAL NON-DETECTABILITY LIMITS

Freq (Hz)	Limit (dB)
50	**47.5**
63	**40.8**
80	**34.0**
100	**27.6**
125	**20.5**
160	**17.8**
200	**23.5**
250	**30.3**
315	**27.9**
400	**13.2**
500	**10.4**
630	**11.7**
800	**15.2**
1000	**11.7**
1250	**10.4**
1600	**11.1**
2000	**9.8**
2500	**6.8**
3150	**4.1**
4000	**4.0**
5000	**6.8**
6300	**14.8**
8000	**23.4**
10000	**24.5**

Table C-1. Level II Aural Non-detectability Limits at 5 Meters

CLAUSES INCORPORATED BY FULL TEXT

AMCAC 52.0204-4001, IDENTIFICATION OF OZONE DEPLETING SUBSTANCES (OCT 1999)

a. The following required Class I Ozone Depleting Substances (ODS) have been identified and approved for use under performance of any resultant contract.

(X) None.

(_) (List any approved ODS requirements): _____

_____

_____

b. If during performance of the contract, an approved Class I ODS is discovered, the contractor is encouraged to notify the contracting officer immediately.

c. The ODS restrictions apply to subcontracts as well.

AMCAC 52.0223-4001, OSHA STANDARDS (OCT 1999)

Contractor must comply with all applicable OSHA standards.

WARRANTY INFORMATION

COMMERCIAL WARRANTY

Seller warrants that all goods delivered under this contract shall be conveyed to government with good title, that their transfer to government shall be rightful and free from any security interest or other lien or encumbrance or rightful claim of any third person by way of infringement or the like. Seller agrees to indemnify government and hold government harmless against any expense, loss or liability for any breach of this warranty.

Seller warrants that all products furnished hereunder, will be free from defects in material and workmanship under normal use and service for a period of twelve (12) months after delivery to the Buyer. Seller's obligation is limited to the repair and/or replacement of such products returned to the Seller, transportation charges prepaid, within twelve (12) months after delivery to the Buyer and when examination thereof shall disclose them, to Seller's satisfaction, to have been defective. This Warranty does not apply to any of Seller's products which have been disassembled, repaired or altered by anyone other than Seller or subjected to misuse or abuse. Following return to the Buyer of a product repaired or replaced under the Seller's warranty obligation, such product shall, in accordance with the foregoing conditions, be warranted for the unexpired portion of the stated Warranty period. The time between the Buyer's return of the product to the Seller and the Seller's return of the product to the Buyer shall not be counted as part of the Warranty period. In addition to the foregoing, all products furnished, hereunder are warranted with respect to title. Unless otherwise specifically agreed in writing by Seller, the obligation of SELLER is limited, in the case of material breach of warranties set forth above, to the prompt replacement of the products with conforming products. THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE AND NONINFRINGEMENT EXCEPT AS SET FORTH ABOVE. In no event shall Seller be liable for special, incidental or consequential damages for any breach of Warranty including, but not limited to, cost of removal and reinstallation of goods, loss of goodwill, loss of profits or loss of use.

This warranty remains in effect for PY 1. The Government and vendor will engage to discuss PY 2 and PY 3 warranty implementation TBD.

Section D - Packaging and Marking

CLAUSES INCORPORATED BY FULL TEXT

AMCAC 52.0247-4002, MARKING AND CONSIGNMENT INSTRUCTIONS (AUG 1999)

Marking and consignment instructions for military shipments shall conform to the current issue of MIL-STD-129 (Military Standard Marking for Shipment and Storage).

Section E - Inspection and Acceptance

INSPECTION/ACCEPTANCE

Delivery, Conditional Acceptance, and Failure of Items Subject to Product Qualification Test (PQT), First Article Test (FAT) and Conformance Inspections (CI).

Delivery of contract items which are subject to PQT, FAT, CI shall not be made until successful completion of the inspections as outlined in the QVP, and compliance with the applicable performance specification, except as provided below. The term "periodic CI" refers to all CI testing accomplished on a sample basis to include performance, environmental, and reliability testing, as opposed to the 100% CI acceptance test (AT) and Environmental Stress Screening (ESS).

- When a PQT or FAT is required, no contract items shall be delivered until the item has successfully completed the PQT or FAT per the QVP, and the IPPT has concurred on the PQT or FAT Report.

- After successful completion of the PQT, FAT, or initial periodic CI, delivery to the Government of lots between those where periodic CI is required is authorized, but acceptance is conditional pending the results of the subsequent CI. Delivery of product related to the lot that has been selected for the periodic CI shall not be delivered to the Government until all tests associated with the lot have been successfully completed. Every unit shall pass AT prior to delivery.

- In the event of a CI lot failure, the contractor shall perform a failure analysis and report each failure as required in the statement of work. Government acceptance is discontinued until satisfactory resolution of the failure, and concurrence by the IPPT on the failed item analysis report (FIAR); release under any other conditions is subject to approval of the contracting officer. The Government shall have the right to revoke acceptance of any and all items that may contain the root cause failure mode and to require the contractor to replace or correct at his expense any and all affected units. If corrective action is authorized, any such action may be performed by the contractor at destination, or the affected items may be returned to the contractor subject to approval of the contracting officer, with transportation costs to and from destination at the contractor's expense.

- When shipment has been made of items represented by samples which have failed a periodic CI, the contractor shall notify the contracting officer in writing, with a copy to the ACO and PM representative; notification shall indicate the nature of the failure and shipments made, to include consignees, date of shipments, carriers, waybill numbers, serial numbers of all affected items and total quantity. The government reserves the right to return the shipments or any portion thereof to the contractor at contractor's expense.

- The contractor shall provide the cognizant Government quality assurance representative (QAR) with written notice of the time and place for each periodic CI. This notice shall be provided at least two (2) working days prior to start of each CI if the QAR is in residence at the contractor’s facility or seven (7) working days prior to start of each CI if the QAR is not in residence at the contractor’s facility. The contractor shall provide within forty-eight (48) hours of completion of each CI, written notification to the QAR the time and date of completion, and whether or not the inspections have been passed.

- Periodic CI, to include approval and Government acceptance of any associated failure reports, shall be completed within sixty (60) days of sample selection for periodic environmental and performance CI, and within one hundred and twenty (120) days of sample selection for reliability CI. Failure to complete CI within these time periods shall be grounds for revoking acceptance of all units accepted since the last successful periodic CI and shall be deemed a failure to make delivery within the meaning of the Default clause of this contract and the contract may be subject to termination for default.

- In the event of a CI (Reliability) lot failure, the Government may, with contractor concurrence, agree to accept consideration in lieu of correcting units that have already been delivered to the Government. The following calculation shall be used to determine the amount of consideration. The number of units in the below calculation shall be all units delivered since the last successful CI (Reliability) test, or any other number of units as agreed to by the Government. For image tubes, the hours used on each tube in calculating $MTTF_{demonstrated}$ shall not exceed the required MTTF.

$$\text{Consideration} = \frac{(MTTF_{required} - MTTF_{demonstrated})}{MTBF_{required}} * \#\text{units} * \text{cost per unit}$$

The rights and remedies of the Government provided in this clause shall not be exclusive, and are in addition to any other rights and remedies provided by law under this contract.

CLAUSES INCORPORATED BY REFERENCE

52.246-2	Inspection Of Supplies--Fixed Price	AUG 1996
52.246-16	Responsibility For Supplies	APR 1984
252.246-7000	Material Inspection And Receiving Report	MAR 2008

CLAUSES INCORPORATED BY FULL TEXT

52.246-11 HIGHER-LEVEL CONTRACT QUALITY (FEB 1999)

The Contractor shall comply with the higher-level quality standard selected below.

Title	Number	Date	Tailoring
Quality Management Systems - Requirements	ISO 9001:2008	2008	N/A

(End of clause)

Section F - Deliveries or Performance

SHIPPING INSTRUCTIONS

F-1 PQT hardware shall be delivered in accordance with the agreed upon qualification schedule in the Quality Validation Plan and in accordance to the timeline provided in the ENVG Statement of work unless otherwise agreed upon by the Government. All other deliveries will be specified in contract modifications when options are exercised.

F-2 FAR 52.247-29 FOB ORIGIN is acceptable for hardware deliverables. Spares that meet the requirement of F-4 of this section shall be shipped FOB ORIGIN.

FAR 52.247-34 FOB DESTINATION – Documentation deliverables will be FOB Destination

F-3 REMOVED

F-4 - All Night Vision Systems and Image Intensifier Tubes will be Category IV Items for shipment purposes in accordance with Defense Transportation Regulation (DTR) DOD Regulation 4500.9-R (Nov 2004) – Part II Cargo Movement, Chapter 205-Movement of Sensitive Conventional Arms, Ammunition and Explosives, Classified (Secret and Confidential) and Controlled Cryptographic Items Sensitive Items.

F-5 PLACE OF PERFORMANCE AND SHIPPING POINT MAR/1999
TO BE COMPLETED AT TIME OF AWARD

1. The work called for herein will be performed by the contractor at the following location(s):
Location of Final Manufacture, packaging and packing, and producing facility:

DRS RSTA, Inc.
100 N. Babcock St.
Melbourne, FL

DODAAC CG0TJP

Contractor's office which will receive payment, supervise and administer the contract:

DRS Systems, Inc.
5 Sylvan Way Ste 325
Parsippany, NJ 07054-3818

2. Contractor's address on the face page of the contract will be considered as the location of any of the above elements which are not completed to indicate a different address.

3. UNCLASSIFIED CONTRACTS. Unless the prior written approval of the Procuring Contracting Officer (PCO) is obtained, the contractor shall not change the specified place of manufacture, packaging and packing, shipping point and/or producing facilities. Additionally, if such a change is made, the Government shall have the right to deduct from the contract price any increased costs (shipping, administration, etc.) which the Government may incur as a result of the change as well as any savings (labor costs, etc.) that the Government may be entitled to under the Changes clause.

F-6 Delivery will be specified on contract modifications when options are exercised.

All hardware will be shipped in place unless modification specifies shipment directly to testing facility.

All documentation deliverables will be posted electronically to contractor secure sites.

CDRL DISTRIBUTION STATEMENT
DISTRIBUTION STATEMENT C

Distribution authorized to the Department of Defense & DOD contractors only, Critical Technology. This determination was made on 23 April 91. Other requests for this document shall be referred to PM-SSL (ATTN: SFAE-SDR-SSL-SMS), 10170 Beach Road – Bldg 325, Fort Belvoir, VA 22060-5800.

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CLAUSES INCORPORATED BY REFERENCE

52.211-17	Delivery of Excess Quantities	SEP 1989
52.242-15	Stop-Work Order	AUG 1989
52.242-17	Government Delay Of Work	APR 1984
52.247-34	F.O.B. Destination	NOV 1991
52.247-48	F.O.B. Destination--Evidence Of Shipment	FEB 1999

52.214-14 PLACE OF PERFORMANCE

DRS RSTA, Inc.
100 N. Babcock St.
Melbourne, FL 32935

(End of provision)

CAT IV ITEMS
All Night Vision Systems and Image Intensifier Tubes will be Category IV Items for shipment purposes in accordance with Defense Transportation Regulation (DTR) DOD Regulation 4500.9-R (June 2008) – Part II Cargo Movement, Chapter 205-Movement of Sensitive Conventional Arms, Ammunition and Explosives, Classified (Secret and Confidential), Sensitive and Controlled Cryptographic Items and Material Under a Transportation Protective Service (TPS). The Night Vision Systems and Image Intensifier Tubes will only be required to ship as Category IV items following post DD-250 acceptance by the customer. These items are not required to be stored at contractor facilities in accordance with DoD Regulation 5100.76-M Physical Security of Conventional Sensitive Arms, Ammunition, and Explosives. This exception only applies to the Arms, Ammunition, and Explosives security aspects of this contract.

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 2102035000001D1DB252860140.0031CA744R00MIPR0JAPGJ00710S41LES19130
COST CODE: 744R00
AMOUNT: $16,474,000.00
CIN W91231201080291001AA: (b) (4)
CIN W91231201080291001AC: (b) (4)
CIN W91231201080291002: (b) (4)

CLIN	JOB ORDER	FUNDS EXP. DATE	FUNDED QTY	FUNDED AMT
1001AA	0S41LE	30-SEP-2012		
1001AC	0S41LE	30-SEP-2012		
1002	0S41LE	30-SEP-2012		

AB: 2102035000001D1DB2528601400031CA744100MIPR0MAPGJ00890S41LES19130744100
AMOUNT: $222,847.81
CIN 00000000000000000000000000000000: (b) (4)

CLAUSES INCORPORATED BY REFERENCE

AMCAC 52.0242-4001	Instructions to Paying Office and Administrative Contracting Office	OCT 2002

CLAUSES INCORPORATED BY FULL TEXT

WIDE AREA WORKFLOW (WAWF) INFORMATION AND INSTRUCTION (MAY 2009)

As prescribed in DFARS 252.232-7003, Electronic Submission of Payment Requests and Receiving Reports, contractors shall submit payment requests and receiving reports using WAWF. WAWF is a secure web-based system for electronic invoicing, receipt and acceptance located at https://wawf.eb mil. Contractors can register to use WAWF on the Internet for no charge and ensure an electronic business point of contact (POC) is designated in the Central Contractor Registration site at http://www.ccr.gov within ten (10) calendar days after award. WAWF training is provided at http://www.wawftraining.com/. This application allows contractor submittal and tracking of invoices and receipt/acceptance documents. Questions relating to system setup and training can be directed to the associated site help desks and the Army WAWF Help Desk which provides support for all users as follows. Questions can also be sent via email to: cco-ec-army-wawf-helpdesk@dfas mil:

Hours of Operation: Monday – Friday, 0630-1800 EDT
Phone Numbers: Toll Free: 1-877-232-9293
Comm: 1-317-510-0625 or DSN: 699-0625

Important Information:

Please submit your invoice/receiving report in WAWF when you ship your items. Otherwise, when your delivery arrives, there is nothing to receive your shipment against if the information has not been entered in WAWF.

Include the Purchase Request (PR) number in the Line Item Description. This is found under the Line Item Description on this contract/order.

WAWF is the preferred method to electronically process vendor request for payment. It allows vendors to submit and track invoices and receipt/acceptance documents electronically.

WAWF Instructions:

Questions concerning payments should be directed to the Defense Finance and Accounting Service (DFAS):

DFAS Columbus Center South – HQ0338
South Entitlement Operations
P.O. Box 182264
Columbus, OH 43218-2264
Telephone Inquiries: 1-800-756-4571
Fax: 877-426-4270

Note: Vendor, please have your purchase/contract/delivery order number(s) ready when calling about payments.

The following Codes and information will be required to assure successful flow of WAWF comments:

TYPE OF DOCUMENT *(Check the appropriate block)*

[ ] Commercial Item Financing

[ ] Construction Invoice *(Contractor Only)*

[ ] Invoice *(Contractor Only)*

[X] Invoice and Receiving Report Combo (Supplies) - OR - Supplies and FFP Services *(check one)*

[ ] Invoice as 2-in-1 (Services Only)

[ ] Performance Based Payment *(Government Only)*

[ ] Progress Payment *(Government Only)*

[ ] Cost Voucher (All Cost Reimbursable or T&M)*(Government Only)*

[ ] Receiving Report *(Government Only)*

[X] Receiving Report With Unique Identification (UID) Data *(Government Only)*
UID is a new globally unique "art identifier" containing data elements used to track DoD parts Through their life cycle.

[ ] Summary Cost Voucher *(Government Only)*

Cage Code: 1V3ER

Issue By DoDAAC: W91CRB

Admin By DoDAAC: S1002A

Inspect By DoDAAC: S1002A

Accept By DoDAAC: W1002A

Accept Reviewer/Approver DoDAAC: _____ *(Enter DCAA Office for Cost Reimbursable and T&M contracts (HAAXXX – in lieu of "X" – enter digits of the assigned DCAA office)*

Ship to DoDAAC: ENVG Ship in Place. Documentation posted to secure site.

Payment Office Fiscal Station Code: HQ0338

Email Addresses for Points of Contact (when determined):

Inspector: _____
Acceptor: _____
Receiving Office: (b) (6)
Contract Administrator: _____
Contracting Officer: susan.greider@us.army.mil
Addition POC: debra.morrow@us.army mil

PERFORMANCE BASED PAYMENT PLAN

CLIN 1001AA Hardware Total		$ 16,104,000.00
CLIN 1001AC CDRL Total		$ 230,000.00
CLIN 1002 CDRL Option Total		$ 140,000.00
CLIN 1001AA Performance Based Payment	80%	$ 12,883,200.00
CLIN 1001AA Hardware (System Deliveries)	20%	$ 3,220,800.00
Total		**$ 16,104,000.00**

	%	Cumulative %	Verification	Hardware Payment
1 Preliminary Design Review (PDR)	10%	10%	Meeting Minutes	$ 1,610,400.00
2 Critical Design Review (CDR)	10%	20%	Meeting Minutes	$ 1,610,400.00
3 *Receipt of Long Lead Item(s)as defined below	10%	30%	Acceptance by DCMA	$ 1,610,400.00
4 Final Approval of Test Procedures (CDRL009)	5%	35%	Acceptance by COR	$ 805,200.00
5 Initiate PQT Lot Assembly (68 units)	10%	45%	Acceptance by DCMA	$ 1,610,400.00
6 Production Readiness Review (PRR)	5%	50%	Meeting Minutes	$ 805,200.00
7 PQT Start	10%	60%	Acceptance by DCMA	$ 1,610,400.00
8 100% TM and Training Review	10%	70%	Meeting Minutes	$ 1,610,400.00
9 TM - Validation	10%	80%	Acceptance by	$ 1,610,400.00

		COR	

Total $ 12,883,200.00

*Long Lead Items:
Image Intensifier Channel Subassembly
Shutters
Calibrated Sensor Assembly
I/R Objective Lense Assembly
System Flex Assembly
Kopin Interface CCA
Housing Rear Cover Assembly

Section H - Special Contract Requirements

DISCLOSURE OF UNIT PRICE INFO

This constitutes notification pursuant to Executive Order 12600, Pre-Disclosure Notification Procedures for Confidential Commercial Information (June 23, 1987), of our intention to release unit prices in response to a request under the Freedom of Information Act, 5 USC 552. Unit price is defined as the contract price per unit or item purchased and that data is located at Section B. THE GOVERNMENT CONSIDERS ALL OBJECTION TO BE WAIVED UNLESS THE CONTRACTING OFFICER IS NOTIFIED (IN WRITING WITH A STATEMENT OF ALL GROUNDS UPON WHICH DISCLOSURE IS OPPOSED) OF YOUR OBJECTION TO SUCH RELEASE PRIOR TO SOLICITATION CLOSING DATE.

CLAUSES INCORPORATED BY REFERENCE

252.204-7005	Oral Attestation of Security Responsibilities	NOV 2001

Section I - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	JUL 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	SEP 2006
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	SEP 2007
52.203-13	Contractor Code of Business Ethics and Conduct	DEC 2008
52.204-2	Security Requirements	AUG 1996
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	APR 2008
52.204-10	Reporting Subcontract Awards	SEP 2007
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	SEP 2006
52.211-5	Material Requirements	AUG 2000
52.211-15	Defense Priority And Allocation Requirements	APR 2008
52.215-2	Audit and Records--Negotiation	MAR 2009
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-11	Price Reduction for Defective Cost or Pricing Data--Modifications	OCT 1997
52.215-13	Subcontractor Cost or Pricing Data--Modifications	OCT 1997
52.215-14	Integrity of Unit Prices	OCT 1997
52.219-4	Notice of Price Evaluation Preference for HUBZone Small Business Concerns	JUL 2005
52.219-8	Utilization of Small Business Concerns	MAY 2004
52.219-9 Alt II (Dev)	Small Business Subcontracting Plan (Apr 2008) Alternate II (Devation)	OCT 2001
52.219-16	Liquidated Damages-Subcontracting Plan	JAN 1999
52.219-28	Post-Award Small Business Program Rerepresentation	APR 2009
52.222-3	Convict Labor	JUN 2003
52.222-19	Child Labor -- Cooperation with Authorities and Remedies	FEB 2008
52.222-20	Walsh-Healey Public Contracts Act	DEC 1996
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	MAR 2007
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	SEP 2006
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	SEP 2006
52.222-39	Notification of Employee Rights Concerning Payment of Union Dues or Fees	DEC 2004
52.222-50	Combating Trafficking in Persons	FEB 2009
52.222-54	Employment Eligibility Verification	JAN 2009
52.223-6	Drug-Free Workplace	MAY 2001

52.223-14	Toxic Chemical Release Reporting	AUG 2003
52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.227-1	Authorization and Consent	DEC 2007
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	DEC 2007
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
52.232-11	Extras	APR 1984
52.232-17	Interest	OCT 2008
52.232-23 Alt I	Assignment of Claims (Jan 1986) - Alternate I	APR 1984
52.232-25	Prompt Payment	OCT 2008
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
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
52.242-2	Production Progress Reports	APR 1991
52.242-13	Bankruptcy	JUL 1995
52.243-1	Changes--Fixed Price	AUG 1987
52.244-2	Subcontracts	JUN 2007
52.244-6	Subcontracts for Commercial Items	MAR 2009
52.245-1	Government Property	JUN 2007
52.245-9	Use And Charges	JUN 2007
52.246-23	Limitation Of Liability	FEB 1997
52.247-68	Report of Shipment (REPSHIP)	FEB 2006
52.249-2	Termination For Convenience Of The Government (Fixed-Price)	MAY 2004
52.249-8	Default (Fixed-Price Supply & Service)	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7000	Requirements Relating to Compensation of Former DoD Officials	JAN 2009
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2008
252.203-7002	Requirement to Inform Employees of Whistleblower Rights	JAN 2009
252.204-7000	Disclosure Of Information	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7004 Alt A	Central Contractor Registration (52.204-7) Alternate A	SEP 2007
252.204-7005	Oral Attestation of Security Responsibilities	NOV 2001
252.204-7006	Billing Instructions	OCT 2005
252.205-7000	Provision Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	DEC 2006
252.211-7005	Substitutions for Military or Federal Specifications and Standards	NOV 2005
252.211-7006	Radio Frequency Identification	FEB 2007
252.211-7007	Reporting of Government-Furnished Equipment in the DoD Item Unique Identification (IUID) Registry	NOV 2008
252.215-7000	Pricing Adjustments	DEC 1991
252.217-7001	Surge Option	AUG 1992
252.219-7003	Small Business Subcontracting Plan (DOD Contracts)	APR 2007
252.223-7004	Drug Free Work Force	SEP 1988
252.225-7001	Buy American Act And Balance Of Payments Program	JAN 2009

252.225-7002	Qualifying Country Sources As Subcontractors	APR 2003
252.225-7004	Report of Contract Performance Outside the United States and Canada--Submission after Award	MAY 2007
252.225-7006	Quarterly Reporting of Actual Contract Performance Outside the United States	MAY 2007
252.225-7012	Preference For Certain Domestic Commodities	DEC 2008
252.226-7001	Utilization of Indian Organizations and Indian-Owned Economic Enterprises, and Native Hawaiian Small Business Concerns	SEP 2004
252.227-7013	Rights in Technical Data--Noncommercial Items	NOV 1995
252.227-7016	Rights in Bid or Proposal Information	JUN 1995
252.227-7025	Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends	JUN 1995
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 1999
252.232-7003	Electronic Submission of Payment Requests and Receiving Reports	MAR 2008
252.232-7010	Levies on Contract Payments	DEC 2006
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	AUG 2009
252.246-7001 Alt II	Warranty Of Data (Dec 1991) - Alternate II	DEC 1991
252.247-7023	Transportation of Supplies by Sea	MAY 2002
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

CLAUSES INCORPORATED BY FULL TEXT

52.203-14 DISPLAY OF HOTLINE POSTER(S) (DEC 2007)

(a) Definition.

United States, as used in this clause, means the 50 States, the District of Columbia, and outlying areas.

(b) Display of fraud hotline poster(s). Except as provided in paragraph (c)--

(1) During contract performance in the United States, the Contractor shall prominently display in common work areas within business segments performing work under this contract and at contract work sites--

(i) Any agency fraud hotline poster or Department of Homeland Security (DHS) fraud hotline poster identified in paragraph (b)(3) of this clause; and

(ii) Any DHS fraud hotline poster subsequently identified by the Contracting Officer.

(2) Additionally, if the Contractor maintains a company website as a method of providing information to employees, the Contractor shall display an electronic version of the poster(s) at the website.

(3) Any required posters may be obtained as follows:

Dowloadable Poster(s) may be Obtained from:

http://www.us-cert.gov/reading_room/distributable html

(c) If the Contractor has implemented a business ethics and conduct awareness program, including a reporting mechanism, such as a hotline poster, then the Contractor need not display any agency fraud hotline posters as required in paragraph (b) of this clause, other than any required DHS posters.

(d) Subcontracts. The Contractor shall include the substance of this clause, including this paragraph (d), in all subcontracts that exceed $5,000,000, except when the subcontract--

(1) Is for the acquisition of a commercial item; or

(2) Is performed entirely outside the United States.

(End of clause)

52.209-3 FIRST ARTICLE APPROVAL -- CONTRACTOR TESTING (SEP 1989) - ALTERNATE II (SEP 1989)

(a) The Contractor shall test the number of unit(s) of Lot/Item specified in the SOW as specified in the Quality Validation Plan (QVP) of this contract. At least 10 calendar days before the beginning of first article tests, 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.

(b) For information regarding report submission requirements, refer to CDRL-014. The Contractor shall submit the first article test report within 21 days after completion of tests/inspections to PEO PM-SSL/PM Soldier Maneuver Sensors (SMS), PEO Soldier, Ft. Belvoir, VA 22060-5800 marked "FIRST ARTICLE TEST REPORT: Contract No. , Lot/Item No. " Within 21 calendar days after the Government receives the test report, the Contracting Officer shall notify the Contractor, in writing, of the conditional approval, approval, or disapproval of the first article. The notice of conditional approval or approval shall not relieve the Contractor from complying with all requirements of the specifications and all other terms and conditions of this contract. A notice of conditional approval shall state any further action required of the Contractor. A notice of disapproval shall cite reasons for the disapproval.

(c) If the first article is disapproved, the Contractor, upon Government request, shall repeat any or all first article tests. After each request for additional tests, the Contractor shall make any necessary changes, modifications, or repairs to the first article or select another first article for testing. All costs related to these tests are to be borne by the Contractor, including any and all costs for additional tests following a disapproval. The Contractor shall then conduct the tests and deliver another report to the Government under the terms and conditions and within the time specified by the Government. The Government shall take action on this report within the time specified in paragraph (b) above. The Government reserves the right to require an equitable adjustment of the contract price for any extension of the delivery schedule, or for any additional costs to the Government related to these tests.

(d) If the Contractor fails to deliver any first article report on time, or the Contracting Officer disapproves any first article, the Contractor shall be deemed to have failed to make delivery within the meaning of the Default clause of this contract.

(e) Unless otherwise provided in the contract, and if the approved first article is not consumed or destroyed in testing, the Contractor may deliver the approved first article as part of the contract quantity if it meets all contract requirements for acceptance.

(f) If the Government does not act within the time specified in paragraph (b) or (c) above, the Contracting Officer shall, upon timely written request from the Contractor, equitably adjust under the changes clause of this contract the delivery or performance dates and/or the contract price, and any other contractual term affected by the delay.

(g) Before first article approval, the Contracting Officer may, by written authorization, authorize the Contractor to acquire specific materials or components or to commence production to the extent essential to meet the delivery schedules. Until first article approval is granted, only costs for the first article and costs incurred under this authorization are allocable to this contract for (1) progress payments, or (2) termination settlements if the contract is terminated for the convenience of the Government. If first article tests reveal deviations from contract requirements, the Contractor shall, at the location designated by the Government, make the required changes or replace all items produced under this contract at no change in the contract price.

(h) The Government may waive the requirement for first article approval test where supplies identical or similar to those called for in the schedule have been previously furnished by the offeror/contractor and have been accepted by the Government. The offeror/contractor may request a waiver.

(End of clause)

52.217-7 OPTION FOR INCREASED QUANTITY--SEPARATELY PRICED LINE ITEM (MAR 1989)

The Government may require the delivery of the numbered line item, identified in the Schedule as an option item, in the quantity and at the price stated in the Schedule. The Contracting Officer may exercise the option by written notice to the Contractor within 30 days. Delivery of added items shall continue at the same rate that like items are called for under the contract, unless the parties otherwise agree.

(End of clause)

52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor within 30 days; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed three years.

(End of clause)

52.232-32 PERFORMANCE-BASED PAYMENTS (AUG 2010)

(a) Amount of payments and limitations on payments. Subject to such other limitations and conditions as are specified in this contract and this clause, the amount of payments and limitations on payments shall be specified in the contract's description of the basis for payment.

(b) Contractor request for performance-based payment. The Contractor may submit requests for payment of performance-based payments not more frequently than monthly, in a form and manner acceptable to the Contracting Officer. Unless otherwise authorized by the Contracting Officer, all performance-based payments in any period for which payment is being requested shall be included in a single request, appropriately itemized and totaled. The Contractor's request shall contain the information and certification detailed in paragraphs (l) and (m) of this clause.

(c) Approval and payment of requests.

(1) The Contractor shall not be entitled to payment of a request for performance-based payment prior to successful accomplishment of the event or performance criterion for which payment is requested. The Contracting Officer shall determine whether the event or performance criterion for which payment is requested has been successfully accomplished in accordance with the terms of the contract. The Contracting Officer may, at any time, require the Contractor to substantiate the successful performance of any event or performance criterion which has been or is represented as being payable.

(2) A payment under this performance-based payment clause is a contract financing payment under the Prompt Payment clause of this contract and not subject to the interest penalty provisions of the Prompt Payment Act. The designated payment office will pay approved requests on the ---------- [Contracting Officer insert day as prescribed by agency head; if not prescribed, insert ``30th''] day after receipt of the request for performance-based payment by the designated payment office. However, the designated payment office is not required to provide payment if the Contracting Officer requires substantiation as provided in paragraph (c)(1) of this clause, or inquires into the status of an event or performance criterion, or into any of the conditions listed in paragraph (e) of this clause, or into the Contractor certification. The payment period will not begin until the Contracting Officer approves the request.

(3) The approval by the Contracting Officer of a request for performance-based payment does not constitute an acceptance by the Government and does not excuse the Contractor from performance of obligations under this contract.

(d) Liquidation of performance-based payments.

(1) Performance-based finance amounts paid prior to payment for delivery of an item shall be liquidated by deducting a percentage or a designated dollar amount from the delivery payment. If the performance-based finance payments are on a delivery item basis, the liquidation amount for each such line item shall be the percent of that delivery item price that was previously paid under performance-based finance payments or the designated dollar amount. If the performance-based finance payments are on a whole contract basis, liquidation shall be by either predesignated liquidation amounts or a liquidation percentage.

(2) If at any time the amount of payments under this contract exceeds any limitation in this contract, the Contractor shall repay to the Government the excess. Unless otherwise determined by the Contracting Officer, such excess shall be credited as a reduction in the unliquidated performance-based payment balance(s), after adjustment of invoice payments and balances for any retroactive price adjustments.

(e) Reduction or suspension of performance-based payments. The Contracting Officer may reduce or suspend performance-based payments, liquidate performance-based payments by deduction from any payment under the contract, or take a combination of these actions after finding upon substantial evidence any of the following conditions:

(1) The Contractor failed to comply with any material requirement of this contract (which includes paragraphs (h) and (i) of this clause).

(2) Performance of this contract is endangered by the Contractor's --

(i) Failure to make progress; or

(ii) Unsatisfactory financial condition.

(3) The Contractor is delinquent in payment of any subcontractor or supplier under this contract in the ordinary course of business.

(f) Title.

(1) Title to the property described in this paragraph (f) shall vest in the Government. Vestiture shall be immediately upon the date of the first performance-based payment under this contract, for property acquired or produced before that date. Otherwise, vestiture shall occur when the property is or should have been allocable or properly chargeable to this contract

(2) "Property," as used in this clause, includes all of the following described items acquired or produced by the Contractor that are or should be allocable or properly chargeable to this contract under sound and generally accepted accounting principles and practices:

(i) Parts, materials, inventories, and work in process;

(ii) Special tooling and special test equipment to which the Government is to acquire title;

(iii) Nondurable (i.e., noncapital) tools, jigs, dies, fixtures, molds, patterns, taps, gauges, test equipment and other similar manufacturing aids, title to which would not be obtained as special tooling under subparagraph (f)(2)(ii) of this clause; and

(iv) Drawings and technical data, to the extent the Contractor or subcontractors are required to deliver them to the Government by other clauses of this contract.

(3) Although title to property is in the Government under this clause, other applicable clauses of this contract (e.g., the termination or clauses) shall determine the handling and disposition of the property.

(4) The Contractor may sell any scrap resulting from production under this contract, without requesting the Contracting Officer's approval, provided that any significant reduction in the value of the property to which the Government has title under this clause is reported in writing to the Contracting Officer.

(5) In order to acquire for its own use or dispose of property to which title is vested in the Government under this clause, the Contractor shall obtain the Contracting Officer's advance approval of the action and the terms. If approved, the basis for payment (the events or performance criteria) to which the property is related shall be deemed to be not in compliance with the terms of the contract and not payable (if the property is part of or needed for performance), and the Contractor shall refund the related performance-based payments in accordance with paragraph (d) of this clause.

(6) When the Contractor completes all of the obligations under this contract, including liquidation of all performance-based payments, title shall vest in the Contractor for all property (or the proceeds thereof) not --

(i) Delivered to, and accepted by, the Government under this contract; or

(ii) Incorporated in supplies delivered to, and accepted by, the Government under this contract and to which title is vested in the Government under this clause.

(7) The terms of this contract concerning liability for Government-furnished property shall not apply to property to which the Government acquired title solely under this clause.

(g) Risk of loss. Before delivery to and acceptance by the Government, the Contractor shall bear the risk of loss for property, the title to which vests in the Government under this clause, except to the extent the Government expressly assumes the risk. If any property is lost, stolen, damaged or destroyed, the basis of payment (the events or performance criteria) to which the property is related shall be deemed to be not in compliance with the terms of the contract and not payable (if the property is part of or needed for performance), and the Contractor shall refund the related performance-based payments in accordance with paragraph (d) of this clause.

(h) Records and controls. The Contractor shall maintain records and controls adequate for administration of this clause. The Contractor shall have no entitlement to performance-based payments during any time the Contractor's records or controls are determined by the Contracting Officer to be inadequate for administration of this clause.

(i) Reports and Government access. The Contractor shall promptly furnish reports, certificates, financial statements, and other pertinent information requested by the Contracting Officer for the administration of this clause and to determine that an event or other criterion prompting a financing payment has been successfully accomplished. The Contractor shall give the Government reasonable opportunity to examine and verify the Contractor's records and to examine and verify the Contractor's performance of this contract for administration of this clause.

(j) Special terms regarding default. If this contract is terminated under the Default clause,

(1) the Contractor shall, on demand, repay to the Government the amount of unliquidated performance-based payments, and

(2) title shall vest in the Contractor, on full liquidation of all performance-based payments, for all property for which the Government elects not to require delivery under the Default clause of this contract. The Government shall be liable for no payment except as provided by the Default clause.

(k) Reservation of rights.

(1) No payment or vesting of title under this clause shall --

(i) Excuse the Contractor from performance of obligations under this contract; or

(ii) Constitute a waiver of any of the rights or remedies of the parties under the contract.

(2) The Government's rights and remedies under this clause --

(i) Shall not be exclusive, but rather shall be in addition to any other rights and remedies provided by law or this contract; and

(ii) Shall not be affected by delayed, partial, or omitted exercise of any right, remedy, power, or privilege, nor shall such exercise or any single exercise preclude or impair any further exercise under this clause or the exercise of any other right, power, or privilege of the Government.

(l) Content of Contractor's request for performance-based payment. The Contractor's request for performance-based payment shall contain the following:

(1) The name and address of the Contractor;

(2) The date of the request for performance-based payment;

(3) The contract number and/or other identifier of the contract or order under whichthe request is made;

(4) Such information and documentation as is required by the contract's description of the basis for payment; and

(5) A certification by a Contractor official authorized to bind the Contractor, as specified in paragraph (m) of this clause.

(m) Content of Contractor's certification. As required in paragraph (l)(5) of this clause, the Contractor shall make the following certification in each request for performance-based payment:

I certify to the best of my knowledge and belief that --

(1) This request for performance-based payment is true and correct; this request (and attachments) has been prepared from the books and records of the Contractor, in accordance with the contract and the instructions of the Contracting Officer;

(2) (Except as reported in writing on _____), all payments to subcontractors and suppliers under this contract have been paid, or will be paid, currently, when due in the ordinary course of business;

(3) There are no encumbrances (except as reported in writing on _____) against the property acquired or produced for, and allocated or properly chargeable to, the contract which would affect or impair the Government's title;

(4) There has been no materially adverse change in the financial condition of the Contractor since the submission by the Contractor to the Government of the most recent written information dated _____; and

(5) After the making of this requested performance-based payment, the amount of all payments for each deliverable item for which performance-based payments have been requested will not exceed any limitation in the contract, and the amount of all payments under the contract will not exceed any limitation in the contract.

(End of Clause)

52.243-7 NOTIFICATION OF CHANGES (APR 1984)

(a) Definitions.

"Contracting Officer," as used in this clause, does not include any representative of the Contracting Officer.

"Specifically authorized representative (SAR)," as used in this clause, means any person the Contracting Officer has so designated by written notice (a copy of which shall be provided to the Contractor) which shall refer to this subparagraph and shall be issued to the designated representative before the SAR exercises such authority.

(b) Notice. The primary purpose of this clause is to obtain prompt reporting of Government conduct that the Contractor considers to constitute a change to this contract. Except for changes identified as such in writing and signed by the Contracting Officer, the Contractor shall notify the Administrative Contracting Officer in writing, within 30 calendar days from the date that the Contractor identifies any Government conduct (including actions, inactions, and written or oral communications) that the Contractor regards as a change to the contract terms and conditions. On the basis of the most accurate information available to the Contractor, the notice shall state--

(1) The date, nature, and circumstances of the conduct regarded as a change;

(2) The name, function, and activity of each Government individual and Contractor official or employee involved in or knowledgeable about such conduct;

(3) The identification of any documents and the substance of any oral communication involved in such conduct;

(4) In the instance of alleged acceleration of scheduled performance or delivery, the basis upon which it arose;

(5) The particular elements of contract performance for which the Contractor may seek an equitable adjustment under this clause, including--

(i) What contract line items have been or may be affected by the alleged change;

(ii) What labor or materials or both have been or may be added, deleted, or wasted by the alleged change;

(iii) To the extent practicable, what delay and disruption in the manner and sequence of performance and effect on continued performance have been or may be caused by the alleged change;

(iv) What adjustments to contract price, delivery schedule, and other provisions affected by the alleged change are estimated; and

(6) The Contractor's estimate of the time by which the Government must respond to the Contractor's notice to minimize cost, delay or disruption of performance.

(c) Continued performance. Following submission of the notice required by (b) above, the Contractor shall diligently continue performance of this contract to the maximum extent possible in accordance with its terms and conditions as construed by the Contractor, unless the notice reports a direction of the Contracting Officer or a communication from a SAR of the Contracting Officer, in either of which events the Contractor shall continue performance; provided, however, that if the Contractor regards the direction or communication as a change as described in (b) above, notice shall be given in the manner provided. All directions, communications, interpretations, orders and similar actions of the SAR shall be reduced to writing and copies furnished to the Contractor and to the Contracting Officer. The Contracting Officer shall countermand any action which exceeds the authority of the SAR.

(d) Government response. The Contracting Officer shall promptly, within 30 calendar days after receipt of notice, respond to the notice in writing. In responding, the Contracting Officer shall either--

(1) Confirm that the conduct of which the Contractor gave notice constitutes a change and when necessary direct the mode of further performance;

(2) Countermand any communication regarded as a change;

(3) Deny that the conduct of which the Contractor gave notice constitutes a change and when necessary direct the mode of further performance; or

(4) In the event the Contractor's notice information is inadequate to make a decision under (1), (2), or (3) above, advise the Contractor what additional information is required, and establish the date by which it should be furnished and the date thereafter by which the Government will respond.

(e) Equitable adjustments.

(1) If the Contracting Officer confirms that Government conduct effected a change as alleged by the Contractor, and the conduct causes an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the work under this contract, whether changed or not changed by such conduct, an equitable adjustment shall be made--

(i) In the contract price or delivery schedule or both; and

(ii) In such other provisions of the contract as may be affected.

(2) The contract shall be modified in writing accordingly. In the case of drawings, designs or specifications which are defective and for which the Government is responsible, the equitable adjustment shall include the cost and time extension for delay reasonably incurred by the Contractor in attempting to comply with the defective drawings, designs or specifications before the Contractor identified, or reasonably should have identified, such defect. When the cost of property made obsolete or excess as a result of a change confirmed by the Contracting Officer under this clause is included in the equitable adjustment, the Contracting Officer shall have the right to prescribe the manner of

disposition of the property. The equitable adjustment shall not include increased costs or time extensions for delay resulting from the Contractor's failure to provide notice or to continue performance as provided, respectively, in (b) and (c) above.

Note: The phrases “contract price” and “cost” wherever they appear in the clause, may be appropriately modified to apply to cost-reimbursement or incentive contracts, or to combinations thereof.

(End of clause)

52.248-1 VALUE ENGINEERING (FEB 2000)

(a) General. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any net acquisition savings realized from accepted VECP's, in accordance with the incentive sharing rates in paragraph (f) below.

(b) Definitions. "Acquisition savings," as used in this clause, means savings resulting from the application of a VECP to contracts awarded by the same contracting office or its successor for essentially the same unit. Acquisition savings include--

(1) Instant contract savings, which are the net cost reductions on this, the instant contract, and which are equal to the instant unit cost reduction multiplied by the number of instant contract units affected by the VECP, less the Contractor's allowable development and implementation costs;

(2) Concurrent contract savings, which are net reductions in the prices of other contracts that are definitized and ongoing at the time the VECP is accepted; and

(3) Future contract savings, which are the product of the future unit cost reduction multiplied by the number of future contract units in the sharing base. On an instant contract, future contract savings include savings on increases in quantities after VECP acceptance that are due to contract modifications, exercise of options, additional orders, and funding of subsequent year requirements on a multiyear contract.

"Collateral costs," as used in this clause, means agency cost of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contracting office" includes any contracting office that the acquisition is transferred to, such as another branch of the agency or another agency's office that is performing a joint acquisition action.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Future unit cost reduction," as used in this clause, means the instant unit cost reduction adjusted as the Contracting Officer considers necessary for projected learning or changes in quantity during the sharing period. It is calculated at the time the VECP is accepted and applies either (1) throughout the sharing period, unless the Contracting Officer decides that recalculation is necessary because conditions are significantly different from those previously anticipated or (2) to the calculation of a lump-sum payment, which cannot later be revised.

"Government costs," as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistics support. The term does not include the normal administrative costs of processing the VECP or any increase in this contract's cost or price resulting from negative instant contract savings.

"Instant contract," as used in this clause, means this contract, under which the VECP is submitted. It does not include increases in quantities after acceptance of the VECP that are due to contract modifications, exercise of options, or additional orders. If this is a multiyear contract, the term does not include quantities funded after VECP acceptance. If this contract is a fixed-price contract with prospective price redetermination, the term refers to the period for which firm prices have been established.

"Instant unit cost reduction" means the amount of the decrease in unit cost of performance (without deducting any Contractor's development or implementation costs) resulting from using the VECP on this, the instant contract. If this is a service contract, the instant unit cost reduction is normally equal to the number of hours per line-item task saved by using the VECP on this contract, multiplied by the appropriate contract labor rate.

"Negative instant contract savings" means the increase in the cost or price of this contract when the acceptance of a VECP results in an excess of the Contractor's allowable development and implementation costs over the product of the instant unit cost reduction multiplied by the number of instant contract units affected.

"Net acquisition savings" means total acquisition savings, including instant, concurrent, and future contract savings, less Government costs.

"Sharing base," as used in this clause, means the number of affected end items on contracts of the contracting office accepting the VECP.

Sharing period, as used in this clause, means the period beginning with acceptance of the first unit incorporating the VECP and ending at a calendar date or event determined by the contracting officer for each VECP.

"Unit," as used in this clause, means the item or task to which the Contracting Officer and the Contractor agree the VECP applies.

"Value engineering change proposal (VECP)" means a proposal that--

(1) Requires a change to this, the instant contract, to implement; and

(2) Results in reducing the overall projected cost to the agency without impairing essential functions or characteristics; provided, that it does not involve a change--

(i) In deliverable end item quantities only;

(ii) In research and development (R&D) end items or R&D test quantities that is due solely to results of previous testing under this contract; or

(iii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (8) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

(1) A description of the difference between the existing contract requirement and the proposed requirement, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, the effect of the change on the end item's performance, and any pertinent objective test data.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

(3) Identification of the unit to which the VECP applies.

(4) A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under the Subcontracts paragraph of this clause, below.

(5) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(6) A prediction of any effects the proposed change would have on collateral costs to the agency.

(7) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(8) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) Submission. The Contractor shall submit VECP's to the Contracting Officer, unless this contract states otherwise. If this contract is administered by other than the contracting office, the Contractor shall submit a copy of the VECP simultaneously to the Contracting Officer and to the Administrative Contracting Officer.

(e) Government action. (1) The Contracting Officer will notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer will notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

(2) If the VECP is not accepted, the Contracting Officer will notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

(3) Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause and made either before or within a reasonable time after contract performance is completed. Until such a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The decision to accept or reject all or part of any VECP is a unilateral decision made solely at the discretion of the Contracting Officer.

(f) Sharing rates. If a VECP is accepted, the Contractor shall share in net acquisition savings according to the percentages shown in the table below. The percentage paid the Contractor depends upon (1) this contract's type (fixed-price, incentive, or cost-reimbursement), (2) the sharing arrangement specified in paragraph (a) above (incentive, program requirement, or a combination as delineated in the Schedule), and (3) the source of the savings (the instant contract, or concurrent and future contracts), as follows:

CONTRACTOR'S SHARE OF NET ACQUISITION SAVINGS

(Figures in percent)

Contract Type	Incentive (Voluntary)		Program Requirement	

			(Mandatory)	
	Instant Contract Rate	Concurrent and Future Contract Rate	Instant Contract Rate	Concurrent and Future Contract Rate
Fixed-price (includes fixed-price-award-fee; excludes other fixed-price incentive contracts)	(1) 50	(1) 50	(1) 25	25
Incentive (fixed-price or cost) (other than award fee)	(2)	(1) 50	(2)	25
Cost-reimbursement (includes cost-plus-award-fee; excludes other cost-type incentive Contracts)	(3) 25	(3) 25	15	15

(1) The Contracting Officer may increase the Contractor's sharing rate to as high as 75 percent for each VECP.
(2) Same sharing arrangement as the contract's profit or fee adjustment formula.
(3) The Contracting Officer may increase the Contractor's sharing rate to as high as 50 percent for each VECP.

(g) Calculating net acquisition savings.

(1) Acquisition savings are realized when (i) the cost or price is reduced on the instant contract, (ii) reductions are negotiated in concurrent contracts, (iii) future contracts are awarded, or (iv) agreement is reached on a lump-sum payment for future contract savings (see subparagraph (i)(4) below). Net acquisition savings are first realized, and the Contractor shall be paid a share, when Government costs and any negative instant contract savings have been fully offset against acquisition savings.

(2) Except in incentive contracts, Government costs and any price or cost increases resulting from negative instant contract savings shall be offset against acquisition savings each time such savings are realized until they are fully offset. Then, the Contractor's share is calculated by multiplying net acquisition savings by the appropriate Contractor's percentage sharing rate (see paragraph (f) above). Additional Contractor shares of net acquisition savings shall be paid to the Contractor at the time realized.

(3) If this is an incentive contract, recovery of Government costs on the instant contract shall be deferred and offset against concurrent and future contract savings. The Contractor shall share through the contract incentive structure in savings on the instant contract items affected. Any negative instant contract savings shall be added to the target cost or to the target price and ceiling price, and the amount shall be offset against concurrent and future contract savings.

(4) If the Government does not receive and accept all items on which it paid the Contractor's share, the Contractor shall reimburse the Government for the proportionate share of these payments.

(h) Contract adjustment. The modification accepting the VECP (or a subsequent modification issued as soon as possible after any negotiations are completed) shall--

(1) Reduce the contract price or estimated cost by the amount of instant contract savings, unless this is an incentive contract;

(2) When the amount of instant contract savings is negative, increase the contract price, target price and ceiling price, target cost, or estimated cost by that amount;

(3) Specify the Contractor's dollar share per unit on future contracts, or provide the lump-sum payment;

(4) Specify the amount of any Government costs or negative instant contract savings to be offset in determining net acquisition savings realized from concurrent or future contract savings; and

(5) Provide the Contractor's share of any net acquisition savings under the instant contract in accordance with the following:

(i) Fixed-price contracts--add to contract price.

(ii) Cost-reimbursement contracts--add to contract fee.

(i) Concurrent and future contract savings.

(1) Payments of the Contractor's share of concurrent and future contract savings shall be made by a modification to the instant contract in accordance with subparagraph (h)(5) above. For incentive contracts, shares shall be added as a separate firm-fixed-price line item on the instant contract. The Contractor shall maintain records adequate to identify the first delivered unit for 3 years after final payment under this contract.

(2) The Contracting Officer shall calculate the Contractor's share of concurrent contract savings by (i) subtracting from the reduction in price negotiated on the concurrent contract any Government costs or negative instant contract savings not yet offset and (ii) multiplying the result by the Contractor's sharing rate.

(3) The Contracting Officer shall calculate the Contractor's share of future contract savings by (i) multiplying the future unit cost reduction by the number of future contract units scheduled for delivery during the sharing period, (ii) subtracting any Government costs or negative instant contract savings not yet offset, and (iii) multiplying the result by the Contractor's sharing rate.

(4) When the Government wishes and the Contractor agrees, the Contractor's share of future contract savings may be paid in a single lump sum rather than in a series of payments over time as future contracts are awarded. Under this alternate procedure, the future contract savings may be calculated when the VECP is accepted, on the basis of the Contracting Officer's forecast of the number of units that will be delivered during the sharing period. The Contractor's share shall be included in a modification to this contract (see subparagraph (h)(3) above) and shall not be subject to subsequent adjustment.

(5) Alternate no-cost settlement method. When, in accordance with subsection 48.104-4 of the Federal Acquisition Regulation, the Government and the Contractor mutually agree to use the no-cost settlement method, the following applies:

(i) The Contractor will keep all the savings on the instant contract and on its concurrent contracts only.

(ii) The Government will keep all the savings resulting from concurrent contracts placed on other sources, savings from all future contracts, and all collateral savings.

(j) Collateral savings. If a VECP is accepted, the Contracting Officer will increase the instant contract amount, as specified in paragraph (h)(5) of this clause, by a rate from 20 to 100 percent, as determined by the Contracting Officer, of any projected collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings will not exceed the

contract's firm-fixed-price, target price, target cost, or estimated cost, at the time the VECP is accepted, or $100,000, whichever is greater. The Contracting Officer will be the sole determiner of the amount of collateral savings.

(k) Relationship to other incentives. Only those benefits of an accepted VECP not rewardable under performance, design-to-cost (production unit cost, operating and support costs, reliability and maintainability), or similar incentives shall be rewarded under this clause. However, the targets of such incentives affected by the VECP shall not be adjusted because of VECP acceptance. If this contract specifies targets but provides no incentive to surpass them, the value engineering sharing shall apply only to the amount of achievement better than target.

(l) Subcontracts. The Contractor shall include an appropriate value engineering clause in any subcontract of $100,000 or more and may include one in subcontracts of lesser value. In calculating any adjustment in this contract's price for instant contract savings (or negative instant contract savings), the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs, and any value engineering incentive payments to a subcontractor, clearly resulting from a VECP accepted by the Government under this contract. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that the payments shall not reduce the Government's share of concurrent or future contract savings or collateral savings.

(m) Data. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

"These data, furnished under the Value Engineering clause of contract . . . . . , shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations."

If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in Part 27 of the Federal Acquisition Regulation.)

(End of clause)

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://farsite hill.af mil

(End of clause)

52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation or contract of any Defense Federal Acquisition Regulation Supplement (48 CFR Chapter 2) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

252.211-7003 ITEM IDENTIFICATION AND VALUATION (AUG 2008)

(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/pdi/uid/iuid_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.

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, GS1 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. The term includes a concatenated unique item identifier or a DoD recognized unique identification equivalent.

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/pdi/uid/uii_types html.

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

(c) Unique item identifier.

(1) The Contractor shall provide a unique item identifier for the following:

(i) All delivered items for which the Government's unit acquisition cost is $5,000 or more.

(ii) The following items for which the Government's unit acquisition cost is less than $5,000:

Contract line, subline, or exhibit line item No.	Item description
TBD	

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

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

(3) Data syntax and semantics of unique item identifiers. 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) Application Identifiers (AIs) (Format Indicator 05 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(B) Data Identifiers (DIs) (Format Indicator 06 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(C) Text Element Identifiers (TEIs) (Format Indicator 12 of ISO/IEC International Standard 15434), in accordance with the Air Transport Association Common Support Data Dictionary; and

(ii) The encoded data elements of the unique item identifier conform to the transfer structure, syntax, and coding of messages and data formats specified for Format Indicators 05, 06, and 12 in ISO/IEC International Standard 15434, Information Technology--Transfer Syntax for High Capacity Automatic Data Capture Media.

(4) Unique item identifier.

(i) The Contractor shall--

(A) Determine whether to--

(1) Serialize within the enterprise identifier;

(2) Serialize within the part, lot, or batch number; or

(3) Use a DoD recognized unique identification equivalent; and

(B) Place the data elements of the unique item identifier (enterprise identifier; serial number; DoD recognized unique identification equivalent; 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) Unique item identifier.

(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 (if there is serialization within the original part number).

(6) Lot or batch number (if there is serialization within the lot or batch number).

(7) Current part number (optional and only if not the same as the original part number).

(8) Current part number effective date (optional and only if current part number is used).

(9) Serial number (if concatenated unique item identifier is used).

(10) Government's unit acquisition cost.

(11) Unit of measure.

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

(1) Unique item identifier of the parent item under paragraph (c)(1) of this clause that contains the embedded subassembly, component, or part.

(2) Unique item identifier 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 (if there is serialization within the original part number).**

(7) Lot or batch number (if there is serialization within the lot or batch number).**

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

(9) Current part number effective date (optional and only if current part number is used).**

(10) Serial number (if concatenated unique item identifier is used).**

(11) 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/pdi/uid/data_submission_information.html.

(g) Subcontracts. If the Contractor acquires by subcontract, any item(s) for which unique item identification is required in accordance with paragraph (c)(1) of this clause, the Contractor shall include this clause, including this paragraph (g), in the applicable subcontract(s).

(End of clause)

Section J - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

DOCUMENT TYPE	DESCRIPTION	PAGES	DATE
Exhibit A and B	CDRLs and DIDs	107	11 Jan 2010
Exhibit C	Test, Measurement, and Diagnostic Equipment (TMDE)	4	4 Sep 2009
Exhibit D	Purchase Description	30	2 Nov 2010
Exhibit E	NVThermInputs Powerpoint Slides	19	1 Dec 2009
Exhibit F	Failure Definition and Scoring Criteria (FDSC)	36	23 Mar 2006

DOCUMENT TYPE	DESCRIPTION	PAGES	DATE
Attachment 1	Spares Pricing	1	
Attachment 2	DD254	6	2 Nov 2010