

AWARD/CONTRACT		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)			RATING	PAGE OF PAGES 1 36			
2. CONTRACT (Proc. Inst. Ident.) NO. N68936-09-D-0053		3. EFFECTIVE DATE 03 Sep 2009		4. REQUISITION/PURCHASE REQUEST/PROJECT NO.					
5. ISSUED BY CDR NAWCWD CODE 254200D ATTN: C. KYTE (760) 939-2634 429 E BOWEN RD, STOP 4015 CHINA LAKE CA 93555-6100		CODE N68936	6. ADMINISTERED BY (If other than Item 5) DCMA NORTHERN CALIFORNIA PO BOX 232 700 EAST ROTH ROAD BLDG 330 LATHROP FRENCH CAMP CA 95231-0232		CODE	S0507A			
7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, state and zip code) TELEDYNE COUGAR, INC. LARRY WILKINSON 927 THOMPSON PL SUNNYVALE CA 94085-4518				8. DELIVERY [] FOB ORIGIN [X] OTHER (See below)		9. DISCOUNT FOR PROMPT PAYMENT			
CODE 0D4L1		FACILITY CODE		10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN:		ITEM			
11. SHIP TO/MARK FOR See Schedule		CODE	12. PAYMENT WILL BE MADE BY DFAS - COLUMBUS CENTER WEST ENTITLEMENT OPERATIONS PO BOX 182381 COLUMBUS OH 43218-2381		CODE	HQ0339			
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					
15A. ITEM NO.	15B. SUPPLIES/ SERVICES		15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT			
SEE SCHEDULE									
15G. TOTAL AMOUNT OF CONTRACT						\$9,900,856.50			
16. TABLE OF CONTENTS									
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CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE									
17. [X] 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 N68936-08-R-0010-0002				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 MARY K. JACOBS / PROCURING CONTRACTING OFFICER TEL: (760) 939-6043 EMAIL: mary.jacobs@navy.mil					
19B. NAME OF CONTRACTOR BY _____ (Signature of person authorized to sign)		19C. DATE SIGNED		20B. UNITED STATES OF AMERICA BY  (Signature of Contracting Officer)		20C. DATE SIGNED 03-Sep-2009			

Section A - Solicitation/Contract Form

CLAUSES INCORPORATED BY FULL TEXT

FOR YOUR INFORMATION:

The following addresses and points of contact are provided:

Name: Collin Kyte

Phone: (760) 939-2634

DSN: 437-2634

FAX: (760) 939-2634

Email address: collin.kyte@navy.mil

U.S. Postal Service Mailing Address:

COMMANDER

CODE 220000D(C.Kyte – 760-939-2634)

NAVAIRWARCENWPNDIV

429 E. BOWEN RD. MAIL STOP 4015

CHINA LAKE, CA 93555-6108

Direct Delivery Address (UPS, FedEx, etc):

COMMANDER

CODE 220000D (C.Kyte)

NAVAIRWARCENWPNDIV

BLDG 982, MAIL STOP 4015

CHINA LAKE, CA 93555-6108

ATTENTION-IMPORTANT MODIFICATION NUMBERING INFORMATION:

Bilateral Modifications issued by the Department of Defense agencies are no longer assigned an official “P0000” number until the contracting officer has released/signed the modification. This change is a result of the Defense Finance and Accounting Service (DFAS) Business Management Modernization Program (BMMP) requirement that modifications are to be released in numerical order without skipping any “P0000” numbers.

To accommodate this change the Standard Procurement System (SPS) now assigns a unique Modification Control Number (MCN) to each modification when it is created. The MCN was established for contractors to track the approved version of the modification. This number, unique to the modification, is included on both the draft modification and the released/signed modification. The MCN can be found in Block 14 of all modifications. The use of the MCNs ensures DFAS only receives modifications in numerical order

Section B - Supplies or Services and Prices

B-FREE-TEXT

B.1 This is a Firm-Fixed Price, Indefinite-Delivery, Indefinite-Quantity (FFP-IDIQ), Delivery Order type contract, with a Three year period of performance.

B.2 The minimum quantity to be ordered for Years One through Three is 1 unit. The maximum quantity that may be ordered for Years One through Three of the various types totals 150 units. The minimum quantity of 1 unit will be ordered at Contract Award.

B.3 Delivery orders will be issued in accordance with the ordering Clause of this contract. The minimum number of units to be ordered per individual Delivery Order is 1 unit. The maximum number of units that may be ordered per individual Delivery Order is 150 units.

B.4 Item 0001 and 0003 are for the First Article inspection IFM's and ISRFS (hereafter referred to as first article). First article tests shall be conducted on Item 0001 and 0003 representative of the production units to be supplied under the contract. First article IFM's and ISRFS, first article test reports shall be delivered in accordance with the applicable CDRLs, DD Form 1423 (Exhibit A), and shall be the property of the Government. The first article IFM's and ISRFS shall not be considered as part of the production units. The Government may waive the requirement for first article approval 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 with the last two (2) years.

B.5 Naval Air Warfare Center Weapons Division (NAWCWD) Point Mugu Technical Point of Contact (POC), Don Fitch, Code 539400E, Phone: 805-989-3587, Email: don.fitch@navy.mil, shall be notified in writing at least 14 calendar days prior to the start of first article testing to allow for witnessing of the tests by NAWCWD Point Mugu representatives. The contractor shall submit First Article Test Report (FATR) within 300 calendar days from the date of this contract to Naval Air Warfare Center, Weapons Division Code 539400E. Within 30 days after the government receives the FATR, the procuring activity shall notify the contractor, in writing, of the conditional approval, approval or disapproval.

B.6 Items 0002 and 0004 are the production quantities for Items 0001 and 0003, which is the manufacturing standard.

B.7 Ordering Periods are defined as follows:

Ordering Period I- Defined as Contract award through 365 days after Contract award.

Ordering Period II- Defined as 366 days through 730 days after Contract award.

Ordering Period III- Defined as 731 days through 1095 days after Contract award.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	First Article- I.F.M. FFP Waived in accordance with clause 52.209-3. FOB: Destination	1	Each	\$0.00	\$0.00 NC

FUNDED AMOUNT

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0002	Production Units- I.F.M. FFP Receiver-Transmitter, Radar RT-1844/ULQ-21(V). In Accordance with the Statement of Work in Section C, Specification 13672-ATS668E Attachment (1), Drawing 1611AS9397 Attachment (2), and Contract Data Requirements List (CDRL) DD Form 1423, Exhibit A. FOB: Destination	60	Each	\$90,296.67	\$5,417,800.20

FUNDED AMOUNT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000201	Ordering Periods FFP Production Year 1 Step-Ladder Pricing	UNDEFINED		UNDEFINED	\$0.00
	QTY	UNIT	PRICE		
	1	EA	(b)(4)		
	2 - 4	EA	(b)(4)		
	5 or more	EA	(b)(4)		
	Production Year 2 Step-Ladder Pricing				
	QTY	UNIT	PRICE		
	1	EA	(b)(4)		
	2 - 4	EA	(b)(4)		
	5 or more	EA	(b)(4)		
	Production Year 3 Step-Ladder Pricing				
	QTY	UNIT	PRICE		
	1	EA	(b)(4)		
	2 - 4	EA	(b)(4)		
	5 or more	EA	(b)(4)		
	FOB: Destination		(b)(4)		

FUNDED AMOUNT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003	First Article- I.S.R.F.S. FFP Waived in accordance with clause 52.209-3. FOB: Destination	1	Each	\$0.00	\$0.00 NC

FUNDED AMOUNT

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0004	Production Units - I.S.R.F.S. FFP Integrated Stabilized RF Source Assembly (ISRFS). In Accordance with the Statement of Work in Section C, Specification 13672-ATS726A Attachment (3), Drawing 1611AS12395 Attachment (4), and Contract Data Requirements List (CDRL) DD Form 1423, Exhibit A. FOB: Destination	90	Each	\$49,432.67	\$4,448,940.30

FUNDED AMOUNT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000401		UNDEFINED		UNDEFINED	\$0.00
	Ordering Periods				
	FFP				
	Production Year 1				
	Step-Ladder Pricing				
	QTY	UNIT	PRICE		
	1	EA	(b)(4)		
	2 - 4	EA	(b)(4)		
	5 or more	EA	(b)(4)		
	Production Year 2				
	Step-Ladder Pricing				
	QTY	UNIT	PRICE		
	1	EA	(b)(4)		
	2 - 4	EA	(b)(4)		
	5 or more	EA	(b)(4)		
	Production Year 3				
	Step-Ladder Pricing				
	QTY	UNIT	PRICE		
	1	EA	(b)(4)		
	2 - 4	EA	(b)(4)		
	5 or more	EA	(b)(4)		
	FOB: Destination		(b)(4)		

FUNDED AMOUNT

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0005		1	Each	\$0.00	\$0.00 NC
	Engineering Manual				
	FFP				
	For I.F.M. in accordance with paragraph 3.1.2.1 of the Statement of Work in Section C.				
	FOB: Destination				

FUNDED AMOUNT

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0006	Engineering Manual FFP For I.S.R.F.S. in accordance with paragraph 3.1.2.1 of the Statement of Work in Section C. FOB: Destination	1	Each	\$34,116.00	\$34,116.00

FUNDED AMOUNT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0007	Technical Data FFP In Accordance with the Contract Data Requirements List (CDRL), DD Form 1423, Exhibit A. FOB: Destination	1	Lot		Not Separately Priced (NSP)

FUNDED AMOUNT

STATEMENT OF WORK

STATEMENT OF WORK (SOW)
FOR THE
Receiver-Transmitter, Radars (IFM) and
Integrated Stabilized Radio Frequency (RF) Source Assembly (ISRFS)

1.0 SCOPE

The contractor shall fabricate and test the IFMs and ISRFS in accordance with the applicable specifications and deliver Engineering Manuals. As required, the contractor shall perform Repair Services and Engineering and Technical Support Services.

2.0 APPLICABLE DOCUMENTS**2.1 Government Documents:****2.1.1 Specifications:**

13672-ATS668E	Receiver-Transmitter, Radar RT-1844/ULQ-21(V) (mini IFM)
16372-ATS726A	Integrated Stabilized RF Source Assembly (ISRFS)

2.1.2 Military Standards:

MIL-STD-130 Identification Marking of U.S. Military Property

2.1.3 Naval Air Systems Command (NAVAIR) Envelope Drawings:

1611AS9397 Receiver-Transmitter, Radar RT-1844/ULQ-21(V) (mini IFM)
1611AS12395 Integrated Stabilized RF Source Assembly (ISRFS)

2.2 Industrial Documents:

2.2.1 Quality Assurance:

ISO-9000 Quality Management Systems - Fundamentals and Vocabulary
ASQC-Q9001 Quality Systems-Model for Quality Assurance In-depth, Development, Production, Installation and Servicing

3.0 REQUIREMENTS

The contractor shall manufacture, test and deliver the IFMs and ISRFS. This effort shall be performed under the premises of ISO-9000. Other comparable programs may be approved by the government.

3.1 Production:

3.1.1 IFMs and ISRFS: The contractor shall provide the quantities specified in the contract. The IFMs and ISRFS shall meet the requirements referenced in paragraph 2.0.

3.1.2 Data: The contractor shall provide Monthly Progress Reports in accordance with CDRL A001. The report shall include, but not be limited to the following items: technical progress, scheduling, issues and status of billings and funds received against the contract including both progress and final acceptance payments.

3.1.2.1 The contractor shall provide an Engineering Manual for the IFM and ISRFS. This Manual shall contain information necessary for engineering personnel to use and support the equipment. This information shall contain, as a minimum, a technical description of the equipment operation including the operation of all major subassemblies, functional block diagrams, schematics, assembly drawings sufficient to identify all components shown on the schematics and as built external form factor drawings including connector and mounting locations. This manual shall be in contractor format.

3.1.3 Configuration Management/Data Management: The contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRLs A002 and A003.

3.1.4 Nomenclature: The serial number prefix will be assigned by Airborne Threat Simulation Office, Code 539400E. The nomenclature will be as defined on the nameplate drawing.

3.1.5 Testing: The contractor shall provide First Article and Production Test Procedures for Government concurrence. The contractor shall provide the First Article Test Report and Test Data Sheets in accordance with CDRLs A004, A005 and A006.

4.0 QUALITY ASSURANCE

4.1 The contractor's quality assurance program shall meet the requirements of ISO-9000 and ASQC-Q9001 or an equivalent quality system model. The QA program shall address material and parts selection, process control, workmanship, inspection and configuration management.

Section C - Descriptions and Specifications

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**5252.211-9509 INCORPORATION OF THE CONTRACTOR'S TECHNICAL PROPOSAL
(NAVAIR)(OCT 2005)**

The Contractor's Technical Proposal, dated [11/24/2008], and any amendments/addendums thereof, is incorporated herein by reference, unless otherwise specified, with the same force and effect as if set forth in full text. Nothing in the Contractor's proposal shall constitute a waiver of any of the provisions of the contract, including the Statement(s) of Work and Specification. For purposes of FAR Clause 52.215-8, "Order of Precedence", the Contractor's technical proposal shall be considered a "Specification" but the Government's Specification shall take precedence over the Contractor's technical proposal.

Section D - Packaging and Marking

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5252.247-9507 PACKAGING AND MARKING OF REPORTS (NAVAIR) (OCT 2005)

(a) All unclassified data shall be prepared for shipment in accordance with best commercial practice. Classified reports, data and documentation, if any, shall be prepared for shipment in accordance with the National Industry Security Program Operating Manual, DoD 5220.22-M.

(b) The contractor shall prominently display on the cover of each report the following information:

- (1) Name and business address of contractor.
- (2) Contract Number/Delivery/Task order number.
- (3) Contract/Delivery/Task order dollar amount.
- (4) Whether the contract was competitively or non-competitively awarded.
- (5) Name of sponsoring individual.
- (6) Name and address of requiring activity.

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5252.247-9508 PROHIBITED PACKING MATERIALS (NAVAIR) (JUN 1998)

The use of asbestos, excelsior, newspaper or shredded paper (all types including waxed paper, computer paper and similar hydroscopic or non-neutral material) is prohibited. In addition, loose fill polystyrene is prohibited for shipboard use.

Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	Destination	Government	Destination	Government
0002	Destination	Government	Destination	Government
000201	N/A	N/A	N/A	Government
0003	Destination	Government	Destination	Government
0004	Destination	Government	Destination	Government
000401	N/A	N/A	N/A	Government
0005	Destination	Government	Destination	Government
0006	Destination	Government	Destination	Government
0007	Destination	Government	N/A	Government

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

5252.246-9512 INSPECTION AND ACCEPTANCE (NAVAIR) (OCT 2005)

(a) Inspection and acceptance of the supplies or services to be furnished hereunder shall be performed by Final inspection and acceptance shall be made by Don Fitch within 30 days after receipt of item at the Airborne Threat Simulation Organization facility.

(b) Acceptance of all Contract Line Items/Subcontract Line Items (CLINs/SLINs) shall be made by signature of the accepting authority on a DD 250 submitted through the WAWF system. Acceptance will only occur when the accepting authority is sure that inspections performed demonstrate compliance with contract requirements.

5252.246-9514 INSPECTION AND ACCEPTANCE OF TECHNICAL DATA AND INFORMATION (NAVAIR) (FEB 1995)

Inspection and acceptance of technical data and information will be performed by the Procuring Contracting Officer (PCO) or his duly authorized representative. Inspection of technical data and information will be performed by ensuring successful completion of the requirements set forth in the DD Form 1423, Contract Data Requirements List (CDRL) and incorporation/resolution of Government review comments on the data items. Acceptance will be evidenced by execution of an unconditional DD Form 250, Material Inspection and Receiving Report, as appropriate, and/or upon receipt of a second endorsement acceptance by the PCO on the attachment to this contract

entitled [insert title of attachment, e.g., NAWCTSD 4330/60 Data Item Transmittal/Acceptance/ Rejection Form].
The attached form will not be used for high cost data such as drawings, specifications, and technical manuals.

5252.246-9517 CONSTRUCTIVE ACCEPTANCE PERIOD (NAVAIR) (MAR 1999)

For the purpose of FAR Clause 52.232-25, "Prompt Payment", paragraph (a)(5)(i), Government acceptance shall be deemed to have occurred constructively on the 30th day after the contractor delivered the supplies or performed the services.

(b) Attention is directed to the Contract Award provision of the solicitation that provides that a written award or acceptance of offer mailed or otherwise furnished to the successful offeror, results in a binding contract. The Government will mail or otherwise furnish to the offeror an award not later than the day award is dated. Therefore, the offeror should compute the time available for performance beginning with the actual date of award, rather than the date the written notice of award is received from the Contracting Officer through the ordinary mails. However, the Government will evaluate an offer that proposes delivery based on the Contractor's date of receipt of the contract or notice of award by adding (1) five calendar days for delivery of the award through the ordinary mails, or (2) one working day if the solicitation states that the contract or notice of award will be transmitted electronically. (The term "working day" excludes weekends and U.S. Federal holidays.) If, as so computed, the offered delivery date is later than the required delivery date, the offer will be considered nonresponsive and rejected.

5252.247-9505 TECHNICAL DATA AND INFORMATION (NAVAIR) (FEB 1995)

Technical Data and Information shall be delivered in accordance with the requirements of the Contract Data Requirements List, DD Form 1423, Exhibit A, attached hereto, and the following:

(a) The contractor shall concurrently deliver technical data and information per DD Form 1423, Blocks 12 and 13 (date of first/subsequent submission) to all activities listed in Block 14 of the DD Form 1423 (distribution and addresses) for each item. Complete addresses for the abbreviations in Block 14 are shown in paragraph (g) below. Additionally, the technical data shall be delivered to the following cognizant codes, who are listed in Block 6 of the DD Form 1423.

- (1) PCO, Code [254210D].
- (2) ACO, Code [S3101A].

(b) Partial delivery of data is not acceptable unless specifically authorized on the DD Form 1423, or unless approved in writing by the PCO.

(c) The Government review period provided on the DD Form 1423 for each item commences upon receipt of all required data by the technical activity designated in Block 6.

(d) A copy of all other correspondence addressed to the Contracting Officer relating to data item requirements (i.e., status of delivery) shall also be provided to the codes reflected above and the technical activity responsible for the data item per Block 6, if not one of the activities listed above.

(e) The PCO reserves the right to issue unilateral modifications to change the destination codes and addresses for all technical data and information at no additional cost to the Government.

(f) Unless otherwise specified in writing, rejected data items shall be resubmitted within thirty (30) days after receipt of notice of rejection.

(g) DD Form 1423, Block 14 Mailing Addresses: See Exhibit A CDRLs.

F-TXT-04 DELIVERY OF DATA (MAR 2003)

Data shall be delivered per the schedules and to the destinations listed in the Contract Data Requirements List, DD Form 1423, Exhibit A.

F-TXT-08 SHIPPING INSTRUCTIONS (POINT MUGU) (MAR 2003)

SHIP TO: NAVAL BASE VENTURA COUNTY (NBVC)

Receiving Officer, Code N41VW/BLDG 65
N68936-09-D-0053
Point Mugu, CA 93042-5033

Failure to mark each shipping label and packing list as indicated above may result in return of shipment at your expense, or will cause a delay in processing your invoice for payment.

**DOCK HOURS from 0800 TO 1530, MONDAY THROUGH THURSDAY EXCLUDING HOLIDAYS
WHEN THE RECEIVING DOCK WILL BE CLOSED.**

Additionally, the contractor shall mark all shipments under this contract in accordance with the following:

1. Nomenclature
2. Quantity
3. Government Contract Number:
4. Delivery Order Number:
5. Serial Number:
6. From: (Contractor's name and address)
7. To: Receiving Officer:
Naval Air Station
Point Mugu, CA 93042-5049
M/F: ATS Receiving Desk, Code 539400E, Bldg. 351, Room 1210, Ext. 9267

Section G - Contract Administration Data

CLAUSES INCORPORATED BY FULL TEXT

5252.201-9502 CONTRACTOR'S AUTHORIZED CONTRACT COORDINATOR AND TECHNICAL LIAISON (NAVAIR)(OCT 2005)

(a) The contractor shall state below the name and telephone numbers of the contractor's employees responsible for coordination of contract functions/liaison with the Contracting Officer and/or Contract administrator, and providing technical assistance as required regarding product specifications, functionality, etc.

CONTRACT COORDINATOR:

NAME: Jeff Tindall
 PHONE (BUS): 408-522-0437
 PHONE (AFTER HOURS): 916-996-9401

ALTERNATE:

NAME: Larry Wilkinson
 PHONE (BUS): 408-522-0411
 PHONE (AFTER HOURS): 408-386-2444

(b) The contractor shall notify the Contracting Officer and/or Contract Administrator in advance, in writing, of any changes in the above listed personnel.

CLAUSES INCORPORATED BY FULL TEXT

5252.232-9513 INVOICING AND PAYMENT (WAWF) INSTRUCTIONS (MAR 2009) ALT I (MAR 2009)

(a) The following information is provided to assist the contractor in submitting invoices and receiving reports electronically through Wide Area Work Flow -- Receipt and Acceptance (WAWF) in accordance with DFARS 252.232-7003:

(1) Registration instructions, on-line training, user guides, quick reference guides, and other support documents and information can be found at the following website: WAWF Overview.

(2) Vendors should contact the following POCs for additional support with registration or other WAWF issues, based on the administration of their contract:

(i) DCMA-administered contracts: contact the ACO at the cognizant Defense Contract Management Agency (DCMA) office found in the contract.

(ii) Locally-administered contracts: Contact your local NAVAIR/NAWC Pay Office (Commercial Accounts) at 760-939-0797 (contracts \$100K or greater) or 805-989-3969 (less than \$100K) or DFAS via the numbers listed at www.dfas.mil.

(3) Information on the electronic forms the contractor shall utilize to comply with DFARS 252.232-7003 is available on the WAWF Technical Information and WAWF Training websites.

(4) Back up documentation (such as timesheets, etc.) can be included and attached to the invoice in WAWF. Attachments created in any Microsoft Office product are attachable to the invoice in WAWF. Total limit for the size of files per invoice is 5 megabytes.

(b) The following information, regarding invoice routing DODAACs, must be entered for completion of the invoice in WAWF:

DoDAAC LOCATION TABLE	
Invoice Type:	--Select Combo for Fixed Price Supplies and Services. --Select Cost Voucher for all Cost or T&M contracts or CLINs. --The 2-in-1 invoice is not authorized for use by NAVAIR. --Questions? Call 1-866-618-5988

DoDAAC Description	Located in Block				
	DD1155 (Destination Acceptance)	DD1155 (Source/ Origin Acceptance)	SF26	SF33	SF1449
Issuing Office DoDAAC	6	6	5	7	9
Administrating Office DoDAAC	7	7	6	24	16
Inspector's DoDAAC	See Schedule	See Schedule	See Schedule	See Schedule	See Schedule
Service Acceptor DoDAAC	6	6	5	7	9
Pay Office DoDAAC	15	15	12	25	18a

(c) Cost Vouchers also require the cognizant **DCAA DoDAAC**, which can be found by entering the contractor's zip code in the Audit Office Locator at <http://www.dcaa.mil>. Contractors approved by DCAA for direct billing will not process vouchers through DCAA, but may submit directly to DFAS. Final voucher submission will be approved by the ACO.

(d) For each invoice / cost voucher submitted for payment, the contractor shall also email the WAWF automated invoice notice directly to the following points of contact:

Name	Email	Phone	Role
Don Fitch	Don.fitch@navy.mil	805-989-3587	WAWF Accepting Official

CLAUSES INCORPORATED BY FULL TEXT

5252.242-9511 CONTRACT ADMINISTRATION DATA (NAVAIR)(MAR 2007)

(a) Contract Administration Office.

(1) Contract administration functions (see FAR 42.302 and DFARS 242.302) are assigned to:

See the ADMINISTERED BY Block on the face page of the contract or modification.

(2) Contract administration functions withheld, additional contract administration functions assigned, or special instructions (see FAR 42.202) are: delineated by the Procuring Contracting Officer (PCO) correspondence.

5252.242-9513 FUNDING TO BE PROVIDED ON TASK ORDERS (NAVAIR) (OCT 2005)

All funding for this contract will be provided on the individual task orders. Task order 0001 issued concurrent to award of this contract meets the Government's minimum requirement.

G-TXT-01 ATTENTION! E-MAIL ADDRESS REQUIRED FOR DISTRIBUTION (APR 2002)

All Naval Air Warfare Center Weapons Division Contracts/ Purchase Orders and other related documents are now distributed by electronic mail.

Please provide the e-mail address to which distribution of contracts/purchase orders should be made.

E-Mail Address: lwilkinson@teledyne.com

Section H - Special Contract Requirements

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5252.210-9501 AVAILABILITY OF UNIQUE DATA ITEM DESCRIPTIONS (UDIDs) AND DATA ITEM DESCRIPTIONS (DIDs) (NAVAIR) (OCT 2005)

Access Procedures for Acquisition Management System and Data Requirements Control List (AMSDL), DoD 5010.12-L, and DIDs listed therein. The AMSDL and all DIDs and UDIDs listed therein are available online via the Acquisition Streamlining and Standardization Information System located at <http://assist.daps.dla.mil>. To access these documents, select the Quick Search link on the site home page.

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5252.211-9502 GOVERNMENT INSTALLATION WORK SCHEDULE (NAVAIR)(OCT 2005) - ALT I (OCT 2005)

(a) The Holidays applicable to this contract are: New Year's Day, Martin Luther King's Birthday, President's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, and Christmas Day.

(b) In the event that the contractor is prevented from performance as the result of an Executive Order or an administrative leave determination that applies to the using activity, such time may be charged to the contract as a direct cost provided such charges are consistent with the contractor's accounting practices. In the event that any of the above holidays occur on a Saturday or Sunday, or Compressed Work Schedule Alternate Friday, then such holiday shall be observed as they are by the assigned Government employees at the using activity.

(c) The Naval Air Warfare Center Weapons Division works a 4/5/9 work schedule. Therefore alternate Fridays are not a part of the normal workweek for work performed on-site at a Naval Air Warfare Center Weapons Division site. The majority of the Government offices are closed on alternate Fridays.

(d) No deviation in the normal workweek will be permitted without express advance approval by the designated Contracting Officer with coordination of the using departments.

5252.216-9534 TASK ORDERS PROCEDURES (NAVAIR) (OCT 2005)

(a) The following activity (ies) or individual(s) is/are designated as Ordering Officer(s):

Naval Air Warfare Center Weapons Division
Contracts Department

The above activity (ies) or individual(s) is/are responsible for issuing and administering any orders placed hereunder. Ordering Officers may negotiate revisions/modifications to orders, but only within the scope of this contract. Ordering Officers have no authority to modify any provision of this basic contract. Any deviation from the terms of the basic contract must be submitted to the Procuring Contracting Officer (PCO) for contractual action. Ordering Officers may enter into mutual no cost cancellations of orders under this contract and may reduce the scope of orders/tasks, but a Termination for Convenience or Termination for Default may only be issued by the PCO.

(b) Task orders. All orders issued hereunder are subject to the terms and conditions of this contract. The contract shall control in the event of conflict with any order. When mailed, an order shall be "issued" for purposes of this contract at the time the Government deposits the order in the mail, or, if transmitted by other means, when physically delivered to the contractor.

(c) A task order shall be issued for each order. In addition to any other data that may be called for in the contract, the following information shall be specified in each order, as applicable:

- (1) Date of order.
- (2) Contract and task order number.
- (3) Applicable contract line item number (CLIN).
- (4) Description of the task to be performed.
- (5) Description of the end item or service.
- (6) DD Form 254 (Contract Security Classification).
- (7) DD Form 1423 (Contract Data Requirements List).
- (8) Exact place of performance.
- (9) The inspecting and accepting codes.
- (10) Estimated cost and fee and level of effort by labor category (and billing rate if known).
- (11) List of Government furnished property and the estimated value of the property.
- (12) Invoice and payment provisions to the extent not covered by the contract.
- (13) Accounting and appropriation data.
- (14) Period of performance.
- (15) Organizational Conflict of Interest provisions.
- (16) Type of order (e.g., completion, term, FFP)

(d) Negotiated Agreement. For task orders with an estimated value of greater than \$[5,000.00], the information contained in each task order with respect to labor categories, man-hours and delivery date shall be the result of a negotiated agreement reached by the parties in advance of issuance of the order.

(1) The Ordering Officer shall furnish the contractor with a written preliminary task order and request for proposal. The request shall include:

- (i) a description of the specified work required,
- (ii) the desired delivery schedule,
- (iii) the place and manner of inspection and acceptance, and

(2) The contractor shall, within the time specified by the preliminary task order, provide the Ordering Officer with a proposal to perform, which shall include:

- (i) the required number of labor hours by labor classification and scheduled billing rates, for each end product or task,
- (ii) overtime hours by labor category,
- (iii) proposed completion or delivery dates,
- (iv) other direct costs (i.e., direct material, travel subsistence, and similar costs)
- (v) dollar amount and type of any proposed subcontracts, and
- (vi) total estimated cost/price.

The cost factors utilized in determining the estimated cost/price under any order shall be the rates applicable at time the order is issued.

(3) Upon receipt of the proposal, the Ordering Officer shall review the estimates therein to ensure acceptability to the Government, enter into such discussions with the contractor as may be necessary to correct and revise any discrepancies in the proposal, and effect whatever internal review procedures are required. Should the Ordering Officer and contractor be unable to reach agreement as to the terms of the order prior to its issuance, the conflict shall be referred to the Contracting Officer.

(4) For task orders under the dollar amount indicated in paragraph (d), the procedures for reaching agreement are as follows:

(i) The Ordering Officer shall issue a fully funded, unilaterally executed task order representing a firm order for the total requirement.

(ii) In the event the contractor cannot perform in accordance with the terms and conditions and within the estimated cost of the task order, he shall:

- (A) notify the Ordering Officer immediately,
- (B) submit a proposal for the work requested in the task order,
- (C) not commence performance until such time that differences between the task order and the contractor's proposal are resolved and a modification, if necessary, is issued.

(e) Total Estimated Dollar Amount. The total estimated dollar amount of each order constitutes a ceiling price for that order. The requirements for notification set forth in Federal Acquisition Regulation paragraphs (b) and (c) of

FAR Clause 52.232-20, Limitation of Cost are applicable to individual task orders. The ceiling amount for each order may not be exceeded unless authorized by a modification to the order. All revisions providing additional funds to a task order will include fee in the same manner as established in the basic task order.

(f) Oral Orders. Oral orders may be placed hereunder only in emergency circumstances. Information described above shall be furnished to the contractor at the time of placing an oral order and shall be confirmed by issuance of a written task order within [30] working days of the oral order.

(g) Modifications. Modifications to orders shall be issued using a Standard Form 30 and shall include the information set forth in paragraph (c) above, as applicable. Orders may be modified orally by the Ordering Officer in emergency circumstances. (Oral modifications shall be confirmed by issuance of a written modification on Standard Form 30 within [30] working days from the time of the oral communication amending the order.)

5252.216-9540 ISSUANCE OF ORDERS USING STREAMLINED PROCEDURES (NAVAIR) (NOV 2003)

(a) Unless the procedures in paragraphs (b) and (c) are utilized orders will be issued under this contract using the following streamlined procedures:

(1) For each proposed order, the contracting officer will provide the contractor with a statement of work (SOW) and an independent Government cost estimate (IGCE).

(2) Within three (3) working days of receipt of the SOW and IGCE, the contractor will respond with a confirmation letter agreeing to perform the SOW within the IGCE. If the requirement remains valid and the contracting officer determines the IGCE to represent a fair and reasonable price, a fully negotiated, priced order will be issued to the contractor.

(3) If the contractor does not agree with the SOW and/or IGCE, a proposal will be submitted to the contracting officer within five (5) working days of receipt of the SOW and IGCE, addressing only the specific areas of differences. Once the differences are resolved between the contracting officer and the contractor, and the contracting officer determines that the price is fair and reasonable, a fully negotiated, priced order will be issued to the contractor.

(b) There may be occasions when the Government determines, in circumstances of emergency or exigency, that the need for specific supplies or services is unusually urgent. On such occasions, the Ordering Officer may issue an order based solely on the Government estimate, requiring the contractor to provide the supplies or services specified without having an opportunity to review the Government estimate before the order is issued. This type of order shall be a unilaterally unpriced order.

(1) The unilaterally unpriced order shall specify the estimated cost and fee and the desired delivery schedule for the work being ordered. The Government's desired delivery shall apply unless the Ordering Officer receives written notification from the Contractor within fifteen (15) days after receipt of the order that the proposed delivery schedule is not acceptable. Such notification shall propose an alternative delivery schedule. The Contractor shall either provide written acceptance of the order or submit its cost proposal within thirty (30) days after receipt of the order.

(2) The Government has no obligation to pay for the supplies or services ordered until the actual price and delivery schedule have been negotiated. In no event shall the costs incurred exceed the estimated cost of the order.

(3) The contractor shall include in its proposal a statement of costs incurred and an estimate of costs expected to complete the work. Data supporting the accuracy and reliability of the cost estimate should also be included. After submission of the contractor's cost proposal and supporting data, the contractor and the Ordering Officer shall negotiate a bilateral modification to the original order finalizing the price and delivery schedule.

(4) Should the Ordering Officer and the contractor be unable to reach an agreement as to the terms of the order, the conflict shall be referred to the Contracting Officer who shall issue such direction as is required by the circumstances. If a bilateral agreement is not negotiated within sixty (60) days after submission of the contractor's cost proposal, the Contracting Officer will issue a modification to the unilaterally unpriced order that establishes the Government's total estimated cost for the order. This price will remain in effect unless the contractor requests to negotiate the price by submission of a proposal.

(5) Failure to arrive at an agreement shall be considered a dispute in accordance with the clause entitled "Disputes".

(c) For orders under \$100,000, the procedures for reaching agreement are as follows:

(1) The Ordering Officer shall issue a fully funded, unilaterally executed order representing a firm order for the total requirement.

(2) In the event the contractor cannot perform in accordance with the terms and conditions and within the estimated cost of the order, the contractor shall:

- (i) notify the Ordering Officer within three working days
- (ii) submit a proposal for the work requested in the order,
- (iii) not commence performance until such time that the differences between the order and contractor's proposal are resolved and a modification, if necessary, is issued.

5252.227-9505 TECHNICAL DATA AND COMPUTER SOFTWARE IDENTIFICATION IN ENGINEERING CHANGE PROPOSALS (ECPs) (NAVAIR)(AUG 1987)

Each Engineering Change Proposal (ECP) submitted by the Contractor shall identify each item of technical data and computer software delivered by the Contractor under any prior Navy contract required to be revised as a result of the proposed change and shall include an estimated price and cost proposal to furnish the revisions.

5252.227-9507 NOTICE REGARDING THE DISSEMINATION OF EXPORT-CONTROLLED TECHNICAL DATA (NAVAIR) (OCT 2005)

(a) Export of information contained herein, which includes release to foreign nationals within the United States, without first obtaining approval or license from the Department of State for items controlled by the International Traffic in Arms Regulations (ITARs), or the Department of Commerce for items controlled by the Export Administration Regulations (EAR), may constitute a violation of law.

(b) For violation of export laws, the contractor, its employees, officials or agents are subject to:

- (1) Imprisonment and/or imposition of criminal fines; and
- (2) Suspension or debarment from future Government contracting actions.

(c) The Government shall not be liable for any unauthorized use or release of export-controlled information, technical data or specifications in this contract.

(d) The contractor shall include the provisions or paragraphs (a) through (c) above in any subcontracts awarded under this contract.

5252.243-9504 AUTHORIZED CHANGES ONLY BY THE CONTRACTING OFFICER (NAVAIR) (JAN 1992)

(a) Except as specified in paragraph (b) below, no order, statement, or conduct of Government personnel who visit the contractor's facilities or in any other manner communicates with contractor personnel during the performance of this contract shall constitute a change under the "Changes" clause of this contract.

(b) The contractor shall not comply with any order, direction or request of Government personnel unless it is issued in writing and signed by the Contracting Officer, or is pursuant to specific authority otherwise included as a part of this contract.

(c) The Contracting Officer is the only person authorized to approve changes in any of the requirements of this contract and notwithstanding provisions contained elsewhere in this contract, the said authority remains solely the Contracting Officer's. In the event the contractor effects any change at the direction of any person other than the Contracting Officer, the change will be considered to have been made without authority and no adjustment will be made in the contract price to cover any increase in charges incurred as a result thereof. The address and telephone number of the Contracting Officer is:

Mary Jacobs
Naval Air Warfare Center, Weapons Division
429 E. Bowen Rd. MS 4015
China Lake, CA 93555-6108
760-939-6043
Mary.jacobs@navy.mil

5252.243-9505 ENGINEERING CHANGES (NAVAIR)(OCT 2005)

(a) After contract award, the Contracting Officer may solicit, and the contractor is encouraged to propose independently, engineering changes to the equipment, software specifications or other requirements of this contract. These changes may be proposed for reasons of economy, improved performance, or to resolve increased data processing requirements. If the proposed changes are acceptable to both parties, the contractor shall submit a price change proposal to the Government for evaluation. Those proposed engineering changes that are acceptable to the Government will be processed as modifications to the contract.

(b) This applies only to those proposed changes identified by the contractor, as a proposal submitted pursuant to the provisions of this clause. As a minimum, the following information shall be submitted by the contractor with each proposal:

(1) A description of the difference between the existing contract requirement and the proposed change, and the comparative advantages and disadvantages of each.

(2) Itemized requirements of the contract that must be changed if the proposal is adopted, and the proposed revision to the contract for each such change.

(3) An estimate of the changes in performance costs, if any, that will result from adoption of the proposal.

(4) An evaluation of the effects the proposed change would have on collateral costs to the Government such as Government-furnished property costs, costs of related items, and costs of maintenance and operation.

(5) A statement of the time by which the change order adopting the proposal must be issued so as to obtain the maximum benefits of the changes during the remainder of this contract. Also, any effect on the contract completion time or delivery schedule shall be identified.

(c) Engineering change proposals submitted to the Contracting Officer shall be processed expeditiously. The Government shall not be liable for proposal preparation costs or any delay in acting upon any proposal submitted pursuant to this clause. The contractor has the right to withdraw, in whole or in part, any engineering change proposal not accepted by the Government within the period specified in the engineering change proposal. The decision of the Contracting Officer as to the acceptance of any such proposal under this contract shall be final and shall not be subject to the "Disputes" clause of the contract.

(d) The Contracting Officer may accept any engineering change proposal submitted pursuant to this clause by giving the contractor written notice thereof. This written notice may be given by issuance of a modification to this contract. Unless and until a modification is executed to incorporate an engineering change proposal under this contract, the contractor shall remain obligated to perform in accordance with the terms of the existing contract.

(e) If an engineering change proposal pursuant to this clause is accepted and applied to this contract, an equitable adjustment in the contract price and in any other affected provisions of this contract shall be made in accordance with the "Changes" clause.

(f) The contractor is requested to identify specifically any information contained in its engineering change proposal which it considers confidential and/or proprietary and which it prefers not to be disclosed to the public. The identification of information as confidential and/or proprietary is for information purposes only and shall not be binding on the Government to prevent disclosure of such information. Offerors are advised that such information may be subject to release upon request pursuant to the Freedom of Information Act (5 U.S.C. 552).

5252.246-9526 PROVISIONAL ACCEPTANCE UNDER SPECIAL CONDITIONS (NAVAIR)(OCT 2005)

(a) Acceptance under Special Conditions. The Government may, at the discretion of the Contracting Officer, finally or provisionally accept any supply prior to completion of work on such supply in the following situations:

(1) When the contractor, despite the exercise of due diligence, encounters unavoidable delay in securing contractor-furnished property;

(2) When Government-furnished property suitable for installation in any supply to be furnished hereunder is not delivered to the contractor in sufficient time to permit installation by the contractor prior to the date the supply is scheduled for delivery; or,

(3) When defects or deficiencies are known to exist in the supply, but when correction of the defects or deficiencies is not practicable within the delivery schedule set forth in the contract.

(b) Pending completion of any supply provisionally accepted under this provision, the Contracting Officer shall withhold an amount as he determines to be appropriate from the contract price that represents the estimated value of the work remaining to be performed. The withhold will be released after final acceptance.

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
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	APR 2008
52.209-3 Alt I	First Article Approval--Contractor Testing (Sep 1989) - Alternate I	JAN 1997
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
52.215-2	Audit and Records--Negotiation	MAR 2009
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-10	Price Reduction for Defective Cost or Pricing Data	OCT 1997
52.215-11	Price Reduction for Defective Cost or Pricing Data-- Modifications	OCT 1997
52.215-12	Subcontractor Cost or Pricing Data	OCT 1997
52.215-13	Subcontractor Cost or Pricing Data--Modifications	OCT 1997
52.215-14	Integrity of Unit Prices	OCT 1997
52.215-15	Pension Adjustments and Asset Reversions	OCT 2004
52.215-19	Notification of Ownership Changes	OCT 1997
52.215-21	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data--Modifications	OCT 1997
52.216-7	Allowable Cost And Payment	DEC 2002
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	Small Business Subcontracting Plan	NOV 2007
52.219-14	Limitations On Subcontracting	DEC 1996
52.219-16	Liquidated Damages-Subcontracting Plan	JAN 1999
52.219-25	Small Disadvantaged Business Participation Program-- Disadvantaged Status and Reporting	OCT 1999
52.222-1	Notice To The Government Of Labor Disputes	FEB 1997
52.222-3	Convict Labor	JUN 2003
52.222-19	Child Labor -- Cooperation with Authorities and Remedies	FEB 2008
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

52.222-50	Combating Trafficking in Persons	FEB 2009
52.223-6	Drug-Free Workplace	MAY 2001
52.223-14	Toxic Chemical Release Reporting	AUG 2003
52.225-8	Duty-Free Entry	FEB 2000
52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
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
52.232-9	Limitation On Withholding Of Payments	APR 1984
52.232-11	Extras	APR 1984
52.232-23	Assignment Of Claims	JAN 1986
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
52.242-1	Notice of Intent to Disallow Costs	APR 1984
52.242-3	Penalties for Unallowable Costs	MAY 2001
52.242-13	Bankruptcy	JUL 1995
52.243-1	Changes--Fixed Price	AUG 1987
52.244-2	Subcontracts	JUN 2007
52.244-5	Competition In Subcontracting	DEC 1996
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
52.248-1	Value Engineering	FEB 2000
52.249-2	Termination For Convenience Of The Government (Fixed- Price)	MAY 2004
52.249-8	Default (Fixed-Price Supply & Service)	APR 1984
52.249-14	Excusable Delays	APR 1984
52.253-1	Computer Generated Forms	JAN 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
252.205-7000	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
252.211-7007	Reporting of Government-Furnished Equipment in the DoD Item Unique Identification (IUID) Registry	NOV 2008
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	DEC 2006
252.219-7003 (Dev)	Small Business Subcontracting Plan (Dod Contracts) (Deviation)	APR 2007

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
252.225-7012	Preference For Certain Domestic Commodities	DEC 2008
252.225-7013	Duty-Free Entry	OCT 2006
252.225-7016	Restriction On Acquisition Of Ball and Roller Bearings	MAR 2006
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
252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation	JUN 1995
252.227-7015	Technical Data--Commercial Items	NOV 1995
252.227-7016	Rights in Bid or Proposal Information	JUN 1995
252.227-7019	Validation of Asserted Restrictions--Computer Software	JUN 1995
252.227-7025	Limitations on the Use or Disclosure of Government- Furnished Information Marked with Restrictive Legends	JUN 1995
252.227-7027	Deferred Ordering Of Technical Data Or Computer Software	APR 1988
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 1999
252.231-7000	Supplemental Cost Principles	DEC 1991
252.232-7010	Levies on Contract Payments	DEC 2006
252.239-7001	Information Assurance Contractor Training and Certification	JAN 2008
252.242-7004	Material Management And Accounting System	NOV 2005
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	JAN 2007
252.246-7001	Warranty Of Data	DEC 1991

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52.216-18 ORDERING (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from:

Ordering Period I: 3 September 2009 thru 2 September 2010

Ordering Peirod II: 3 September 2010 thru 2 September 2011

Ordering Period III: 3 September 2011 thru 2 September 2012

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.

(c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

52.216-19 ORDER LIMITATIONS (OCT 1995)

(a) Minimum order. When the Government requires supplies or services covered by this contract in an amount of less than 1 unit, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.

(b) Maximum order. The Contractor is not obligated to honor--

- (1) Any order for a single item in excess of 150 units;
- (2) Any order for a combination of items in excess of 150 units; or

(3) A series of orders from the same ordering office within 30 days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above.

(c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) above.

(d) Notwithstanding paragraphs (b) and (c) above, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 30 days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

52.216-22 INDEFINITE QUANTITY (OCT 1995)

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum." The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum."

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after the completion date of outstanding orders, unless otherwise modified by mutual agreement.

52.219-28 POST-AWARD SMALL BUSINESS PROGRAM REREPRESENTATION (JUN 2007)

(a) Definitions. As used in this clause--

Long-term contract means a contract of more than five years in duration, including options. However, the term does not include contracts that exceed five years in duration because the period of performance has been extended for a cumulative period not to exceed six months under the clause at 52.217-8, Option to Extend Services, or other appropriate authority.

Small business concern means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR part 121 and the size standard in paragraph (c) of this clause.

(b) If the Contractor represented that it was a small business concern prior to award of this contract, the Contractor shall rerepresent its size status according to paragraph (e) of this clause or, if applicable, paragraph (g) of this clause, upon the occurrence of any of the following:

(1) Within 30 days after execution of a novation agreement or within 30 days after modification of the contract to include this clause, if the novation agreement was executed prior to inclusion of this clause in the contract.

(2) Within 30 days after a merger or acquisition that does not require a novation or within 30 days after modification of the contract to include this clause, if the merger or acquisition occurred prior to inclusion of this clause in the contract.

(3) For long-term contracts--

(i) Within 60 to 120 days prior to the end of the fifth year of the contract; and

(ii) Within 60 to 120 days prior to the exercise date specified in the contract for any option thereafter.

(c) The Contractor shall rerepresent its size status in accordance with the size standard in effect at the time of this rerepresentation that corresponds to the North American Industry Classification System (NAICS) code assigned to this contract. The small business size standard corresponding to this NAICS code can be found at <http://www.sba.gov/services/contractingopportunities/sizestandardsttopics/>

(d) The small business size standard for a Contractor providing a product which it does not manufacture itself, for a contract other than a construction or service contract, is 500 employees.

(e) Except as provided in paragraph (g) of this clause, the Contractor shall make the rerepresentation required by paragraph (b) of this clause by validating or updating all its representations in the Online Representations and Certifications Application and its data in the Central Contractor Registration, as necessary, to ensure they reflect current status. The Contractor shall notify the contracting office by e-mail, or otherwise in writing, that the data have been validated or updated, and provide the date of the validation or update.

(f) If the Contractor represented that it was other than a small business concern prior to award of this contract, the Contractor may, but is not required to, take the actions required by paragraphs (e) or (g) of this clause.

(g) If the Contractor does not have representations and certifications in ORCA, or does not have a representation in ORCA for the NAICS code applicable to this contract, the Contractor is required to complete the following rerepresentation and submit it to the contracting office, along with the contract number and the date on which the rerepresentation was completed:

The Contractor represents that it [] is, [] is not a small business concern under NAICS Code [_____] assigned to contract number [_____].

[Contractor to sign and date and insert authorized signer's name and title].

Signature	Date
Signer's Printed Name	Signer's Title

52.233-4 APPLICABLE LAW FOR BREACH OF CONTRACT CLAIM (OCT 2004)

United States law will apply to resolve any claim of breach of this contract.

52.246-17 WARRANTY OF SUPPLIES OF A NONCOMPLEX NATURE (JUN 2003)

(a) Definitions. As used in this clause--

"Acceptance" means the act of an authorized representative of the Government by which the Government assumes for itself, or as an agent of another, ownership of existing supplies, or approves specific services as partial or complete performance of the contract.

"Supplies" means the end items furnished by the Contractor and related services required under the contract. The word does not include "data."

(b) Contractor's obligations.

(1) Notwithstanding inspection and acceptance by the Government of supplies furnished under this contract, or any condition of this contract concerning the conclusiveness thereof, the Contractor warrants that for 12 months after

Government Inspection and Acceptance or Constructive Acceptance of supplies furnished under this contract, all supplies furnished under this contract will be free from defects in material or workmanship and will conform to all requirements of this contract.

(i) All supplies furnished under this contract will be free from defects in material or workmanship and will conform with all requirements of this contract; and

(ii) The preservation, packaging, packing, and marking, and the preparation for, and method of, shipment of such supplies will conform with the requirements of this contract.

(2) When return, correction, or replacement is required, transportation charges and responsibility for the supplies while in transit shall be borne by the Contractor. However, the Contractor's liability for the transportation charges shall not exceed an amount equal to the cost of transportation by the usual commercial method of shipment between the place of delivery specified in this contract and the Contractor's plant, and return.

(3) Any supplies or parts thereof, corrected or furnished in replacement under this clause, shall also be subject to the terms of this clause to the same extent as supplies initially delivered. The warranty, with respect to supplies or parts thereof, shall be equal in duration to that in paragraph (b)(1) of this clause and shall run from the date of delivery of the corrected or replaced supplies.

(4) All implied warranties of merchantability and "fitness for a particular purpose" are excluded from any obligation contained in this contract.

(c) Remedies available to the Government.

(1) The Contracting Officer shall give written notice to the Contractor of any breach of warranties in paragraph (b)(1) of this clause within 45 days after discovery of the defect.

(2) Within a reasonable time after the notice, the Contracting Officer may either --

(i) Require, by written notice, the prompt correction or replacement of any supplies or parts thereof (including preservation, packaging, packing, and marking) that do not conform with the requirements of this contract within the meaning of paragraph (b)(1) of this clause; or

(ii) Retain such supplies and reduce the contract price by an amount equitable under the circumstances.

(3)(i) If the contract provides for inspection of supplies by sampling procedures, conformance of supplies or components subject to warranty action shall be determined by the applicable sampling procedures in the contract. The Contracting Officer --

(A) May, for sampling purposes, group any supplies delivered under this contract;

(B) Shall require the size of the sample to be that required by sampling procedures specified in the contract for the quantity of supplies on which warranty action is proposed;

(C) May project warranty sampling results over supplies in the same shipment or other supplies contained in other shipments even though all of such supplies are not present at the point of reinspection; provided, that the supplies remaining are reasonably representative of the quantity on which warranty action is proposed; and

(D) Need not use the same lot size as on original inspection or reconstitute the original inspection lots.

(ii) Within a reasonable time after notice of any breach of the warranties specified in paragraph (b)(1) of this clause, the Contracting Officer may exercise one or more of the following options:

(A) Require an equitable adjustment in the contract price for any group of supplies.

(B) Screen the supplies grouped for warranty action under this clause at the Contractor's expense and return all nonconforming supplies to the Contractor for correction or replacement.

(C) Require the Contractor to screen the supplies at locations designated by the Government within the contiguous United States and to correct or replace all nonconforming supplies.

(D) Return the supplies grouped for warranty action under this clause to the Contractor (irrespective of the f.o.b. point or the point of acceptance) for screening and correction or replacement.

(4)(i) The Contracting Officer may, by contract or otherwise, correct or replace the nonconforming supplies with similar supplies from another source and charge to the Contractor the cost occasioned to the Government thereby if the Contractor --

(A) Fails to make redelivery of the corrected or replaced supplies within the time established for their return; or

(B) Fails either to accept return of the nonconforming supplies or fails to make progress after their return to correct or replace them so as to endanger performance of the delivery schedule, and in either of these circumstances does not cure such failure within a period of 10 days (or such longer period as the Contracting Officer may authorize in writing) after receipt of notice from the Contracting Officer specifying such failure.

(ii) Instead of correction or replacement by the Government, the Contracting Officer may require an equitable adjustment of the contract price. In addition, if the Contractor fails to furnish timely disposition instructions, the Contracting Officer may dispose of the nonconforming supplies for the Contractor's account in a reasonable manner. The Government is entitled to reimbursement from the Contractor, or from the proceeds of such disposal, for the reasonable expenses of the care and disposition of the nonconforming supplies, as well as for excess costs incurred or to be incurred.

(5) The rights and remedies of the Government provided in this clause are in addition to and do not limit any rights afforded to the Government by any other clause of this contract.

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

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

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 (48 CFR Chapter 2) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

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

(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).

252.232-7003 ELECTRONIC SUBMISSION OF PAYMENT REQUESTS AND RECEIVING REPORTS (MAR 2008)

(a) Definitions. As used in this clause--

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

(2) Electronic form means any automated system that transmits information electronically from the initiating system to all affected systems. Facsimile, e-mail, and scanned documents are not acceptable electronic forms for submission of payment requests. However, scanned documents are acceptable when they are part of a submission of a payment request made using Wide Area WorkFlow (WAWF) or another electronic form authorized by the Contracting Officer.

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

(b) Except as provided in paragraph (c) of this clause, the Contractor shall submit payment requests and receiving reports using WAWF, in one of the following electronic formats that WAWF accepts: Electronic Data Interchange, Secure File Transfer Protocol, or World Wide Web input. Information regarding WAWF is available on the Internet at <https://wawf.eb.mil/>.

(c) The Contractor may submit a payment request and receiving report using other than WAWF only when--

(1) The Contracting Officer authorizes use of another electronic form. With such an authorization, the Contractor and the Contracting Officer shall agree to a plan, which shall include a timeline, specifying when the Contractor will transfer to WAWF;

(2) DoD is unable to receive a payment request or provide acceptance in electronic form;

(3) The Contracting Officer administering the contract for payment has determined, in writing, that electronic submission would be unduly burdensome to the Contractor. In such cases, the Contractor shall include a copy of the Contracting Officer's determination with each request for payment; or

(4) DoD makes payment for commercial transportation services provided under a Government rate tender or a contract for transportation services using a DoD-approved electronic third party payment system or other exempted vendor payment/invoicing system (e.g., PowerTrack, Transportation Financial Management System, and Cargo and Billing System).

(d) The Contractor shall submit any non-electronic payment requests using the method or methods specified in Section G of the contract.

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

5252.204-9503 EXPEDITING CONTRACT CLOSEOUT (NAVAIR) (JAN 2007)

(a) As part of the negotiated fixed price or total estimated amount of this contract, both the Government and the Contractor have agreed to waive any entitlement that otherwise might accrue to either party in any residual dollar amount of \$1,000 or less at the time of final contract closeout. The term "residual dollar amount" shall include all money that would otherwise be owed to either party at the end of the contract, except that, amounts connected in any way with taxation, allegations of fraud and/or antitrust violations shall be excluded. For purposes of determining residual dollar amounts, offsets of money owed by one party against money that would otherwise be paid by that party might be considered to the extent permitted by law.

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

5252.204-9504 DISCLOSURE OF CONTRACT INFORMATION (NAVAIR) (JAN 2007)

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information (e.g., announcement of contract award), regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless the Contracting Officer has given prior written approval.

(b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least ten (10) days before the proposed date for release.

(c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

Section J - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

DOCUMENT TYPE	DESCRIPTION	PAGES	DATE
Exhibit A	CDRLs Exhibit A	6	3-10-2008
Attachment 1	13672-TS668E IFM Spec	19	4-25-2008
Attachment 2	1611AS9397-IFM	2	5-12-1998
Attachment 3	13672-ATS726A ISRF Spec	17	4-25-2008
Attachment 4	1611AS12395-ISRFS	1	4-24-2003
Attachment 5	QASP	1	3-12-2008

CONTRACT DATA REQUIREMENTS LIST
(1 Data Item)

Form Approved
OMB No. 0704-0188

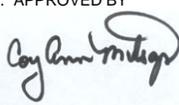
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA. 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO. 0016		B. EXHIBIT A	C. CATEGORY: TDP TM OTHER: MGMT MGMT				
D. SYSTEM/ITEM IFMs and ISRFS		E. CONTRACT/PR NO.		F. CONTRACTOR			
1. DATA ITEM NO. A001	2. TITLE OF DATA ITEM PROGRAM PROGRESS REPORT		3. SUBTITLE				
4. AUTHORITY (Data Acquisition Document No.) DI-MGMT-80555A (SEE BLK 16)		5. CONTRACT REFERENCE SOW para 3.1.2, 3.2.5.2, 3.3.5.2		6. REQUIRING OFFICE NAWCWPNS CODE 5394003			
7. DD 250 REQ LT	9. DIST STATEMENT REQUIRED See Block 16	10. FREQUENCY MTHLY	12. DATE OF FIRST SUBMISSION 35 DAC	14. DISTRIBUTION a. ADDRESSEE			
8. APP CODE N/A	11. AS OF DATE EOM	13. DATE OF SUBSEQUENT SUBMISSION EOM+5 DAYS	b. COPIES				
<p>16. Remarks</p> <p>BLOCK 4: May be in contractor format as long as DID is used for guidance.</p> <p>BLOCK 9: Use Distribution Statement C: Distribution authorized to U.S. Government agencies and their contractors; to protect publications required for official use or for administrative or operational purposes only; 15 April 2005. Other requests for this document shall be referred to Commander: Naval Air Warfare Center Weapons Division (Code 539400E), Point Mugu, CA 93042-5049.</p> <p>DESTRUCTION NOTICE - for unclassified, limited documents, destroy by any method that will prevent disclosure of contents or reconstruction of the document.</p> <p>Block 14: Shall be submitted in an electronic format agreed upon by both Government and Contractor prior to 1st submittal.</p>				Final			
				NAWCWPNS			
				thomas.h.williams@navy.mil	0	1	0
				don.fitch@navy.mil	0	1	0
				desiree.brown@navy.mil	0	1	0
				15. TOTAL		0	3
G. PREPARED BY Naval Air Warfare Center, Weapons Division, China Lake, CA 93555-6100		H. DATE 070308	I. APPROVED BY  DRRB Chairperson				
				J. DATE 080310			

CONTRACT DATA REQUIREMENTS LIST
(1 Data Item)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA. 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO. 0016			B. EXHIBIT A		C. CATEGORY: TDP TM OTHER: CMAN CMAN			
D. SYSTEM/ITEM IFMs and ISRFs				E. CONTRACT/PR NO.		F. CONTRACTOR		
1. DATA ITEM NO. A002		2. TITLE OF DATA ITEM ENGINEERING CHANGE PROPOSAL				3. SUBTITLE		
4. AUTHORITY (Data Acquisition Document No.) DI-CMAN-80639C (SEE BLK 16)			5. CONTRACT REFERENCE SOW para 3.1.3			6. REQUIRING OFFICE NAWCWPNS CODE 539400E		
7. DD 250 REQ LT	9. DIST STATEMENT REQUIRED See Block 16		10. FREQUENCY ASREQ	12. DATE OF FIRST SUBMISSION SEE BLOCK 16		14. DISTRIBUTION		
8. APP CODE A	11. AS OF DATE N/A		13. DATE OF SUBSEQUENT SUBMISSION SEE BLOCK 16		a. ADDRESSEE		b. COPIES	
<p>16. Remarks</p> <p>BLOCK 4: May be in contractor format as long as DID is used for guidance.</p> <p>BLOCK 9: Use Distribution Statement C: Distribution authorized to U.S. Government agencies and their contractors; to protect publications required for official use or for administrative or operational purposes only; 15 April 2005. Other requests for this document shall be referred to Commander: Naval Air Warfare Center Weapons Division (Code 539400E), Point Mugu, CA 93042-5049.</p> <p>DESTRUCTION NOTICE - for unclassified, limited documents, destroy by any method that will prevent disclosure of contents or reconstruction of the document.</p> <p>BLOCKS 12 and 13: Contractor to submit 15 DA identification of need for change.</p> <p>BLOCK 14: Shall be submitted in an electronic format agreed upon by both Government and Contractor prior to 1st submittal. Submit transmittal and all enclosures to NAWCWPNS AND ACO. Submit a copy of the letter of transmittal only, to the PCO.</p>					Draft	Final		
					NAWCWPNS			
					thomas.h.williams@navy.mil	0	1	0
					don.fitch@navy.mil	0	1	0
					desiree.brown@navy.mil	0	1	0
					ATTN: ACO	0	1	0
					ATTN: PCO	0	1	0
					See Block 16			
15. TOTAL →					0	5	0	
G. PREPARED BY Naval Air Warfare Center, Weapons Division, China Lake, CA 93555-6100			H. DATE 070524		I. APPROVED BY  DRRB Chairperson		J. DATE 080310	

CONTRACT DATA REQUIREMENTS LIST <i>(1 Data Item)</i>					Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA. 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for Contract/PR No. listed in Block E.						
A. CONTRACT LINE ITEM NO. 0016		B. EXHIBIT A	C. CATEGORY: TDP TM OTHER: NDTI			
D. SYSTEM/ITEM IFMs and ISRFs		E. CONTRACT/PR NO.		F. CONTRACTOR		
1. DATA ITEM NO. A005	2. TITLE OF DATA ITEM TEST/INSPECTION REPORT			3. SUBTITLE PRODUCTION TEST DATA		
4. AUTHORITY (Data Acquisition Document No.) DI-NDTI-80809B (SEE BLK 16)		5. CONTRACT REFERENCE SOW para 3.1.5, 3.2.5.1, 3.3.5.1		6. REQUIRING OFFICE NAWCWPNS CODE 539400E		
7. DD 250 REQ N/A	9. DIST STATEMENT REQUIRED See Block 16	10. FREQUENCY ITIME	12. DATE OF FIRST SUBMISSION SEE BLOCK 16	14. DISTRIBUTION		
8. APP CODE N/A	11. AS OF DATE N/A	13. DATE OF SUBSEQUENT SUBMISSION SEE BLOCK 16	a. ADDRESSEE	b. COPIES		
			Draft	Final		
			Reg	Repro		
16. Remarks BLOCK 4: Report shall consist of completed data sheets, that are generated using CDRL Item A006. BLOCK 9: Use Distribution Statement C: Distribution authorized to U.S. Government agencies and their contractors; to protect publications required for official use or for administrative or operational purposes only; 15 April 2005. Other requests for this document shall be referred to Commander: Naval Air Warfare Center Weapons Division (Code 539400E), Point Mugu, CA 93042-5049. DESTRUCTION NOTICE - for unclassified, limited documents, destroy by any method that will prevent disclosure of contents or reconstruction of the document. BLOCKS 12, 13 and 14: Shall be submitted in an electronic format agreed upon by both Government and Contractor prior to 1st submittal. Submit one completed data sheet with each unit shipped showing all test results.				See Block 16		
G. PREPARED BY Naval Air Warfare Center, Weapons Division, China Lake, CA 93555-6100		H. DATE 070524	I. APPROVED BY DRRB Chairperson		J. DATE 080310	

SPECIFICATION

RECEIVER-TRANSMITTER, RADAR
RT-1844/ULQ-21(V)

1.0 SCOPE

1.1 Scope. This specification establishes the performance, test and acceptance requirements for the Receiver-Transmitter, Radar RT-1844/ULQ-21(V), referred to herein as the Receiver.

2.0 APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Standards. The following standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issue of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified and supplement hereto, cited in the solicitation.

STANDARDS

FEDERAL	
FED-STD-595	Colors Used in Government Procurement (Guidance only)
MILITARY	
MIL-STD-461	Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment
MIL-STD-704	Aircraft Electric Power Characteristics
MIL-STD-810	Environmental Engineering Considerations and Laboratory Tests (Guidance only)

Distribution Statement D: .Distribution authorized to the department of Defense and U.S. DoD contractors only; Critical Technology 21 June 2007. Other requests shall be referred to the Naval Air Warfare Center Weapons Division, Airborne Threat Simulation Team, Code 539400E, Point Mugu, CA 93042-5049.

This specification is released for use by the Naval Air Warfare Center Weapons Division, Airborne Threat Simulation Team, 539400E, Point Mugu, CA 93042-5049.

2.1.2 Drawings. The following drawings form a part of this specification to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

Naval Air Systems Command 1611AS9390	(Code Ident 30003) Modulator, Technique Controller
1611AS9397	Receiver-Transmitter, Radar RT-1844/ULQ-21(V)

(Copies of Government specifications, and drawings, required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Commercial Documents.

ANSI/VITA 1-1994
ISO 10012-1
ANSI/NCSL Z540-1

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3.0 **REQUIREMENTS**

3.1 Receiver description. The Receiver is a miniaturized instantaneous set-on electronic countermeasures jammer that covers the frequency range of 8.0 to 11 Gigahertz (GHz), to produce a noise modulated radio frequency (RF) spectrum at the output.

3.1.1 Automatic set on. The Receiver shall measure frequencies of incoming radar signals and compare the measured result with emitter parameters stored in internal memory. If a positive comparison is found for a radar that is to be jammed, the Receiver shall execute a jamming sequence which shall consist of setting an internal noise source to the jam frequency. Jam periods, set-on delays, look through periods and frequencies shall be determined by preset values contained in the Receiver's internal memory. The Receiver shall also provide a choice between jamming with intermittent look-through and jamming with continuous look-through.

3.1.2 Fixed noise. The Receiver shall have the ability to produce a fixed noise jamming signal independent of the received signal. The center frequency, bandwidth and output power shall be programmable.

3.1.3 Physical package. The Receiver shall be capable of being installed internally in the AN/ULQ-21(V) Technique Controller Modulator (TCM) 1611AS9390. The TCM is configured to accept up to fourteen (14) Versa Module Europa (VME) ATR-3U cards. The Receiver shall be configured to use no more than four (4) of these slots. The functions of the Receiver shall be fully programmable and controlled via the TCM.

3.2 Performance requirements. The Receiver shall meet all the performance requirements specified in 3.2.1 through 3.2.6.

3.2.1 Modes of operation.

3.2.1.1 Operating modes. At power up, or after being commanded through the VME interface, the Receiver shall go to standby. Upon being commanded through the VME interface the Receiver shall go to the selected mode of operation.

3.2.1.2 Standby mode. In standby mode the Receiver shall monitor the VME interface and be capable of transitioning into any other mode of operation and shall not transmit an RF signal.

3.2.1.3 Automatic set-on mode. In the auto mode, the Receiver shall determine, from pre-programmed detection and jam parameters, which frequency bands to search and associated jam and delay times. The first of two programmable Receiver look-through modes shall be intermittent look-through. When an emitter on the pre-programmed list is detected, the Receiver shall initialize jamming and continue jamming for the programmed jam response duration. The Receiver input shall be blanked during jam periods. The second mode shall be continuous look-through, which will jam for the programmed amount of time when an active list emitter is detected while still searching for another valid emitter. The Receiver input is never blanked. In this mode, jamming is initiated upon reception of an emitter matching the programmed RF frequency requirements. The set-on output will continue for the specified jam time, and if no new valid pulses are identified, the output shall be shut off. Continuous look-through mode can only be used when there is sufficient isolation between the receive and transmit ports so that the Receiver doesn't set-on to its own output. In this mode, the Receiver is always in a look-through state and any new input pulses will be responded to within the specified 250 nanoseconds (ns) (from the leading edge of the pulse to the start of the jamming output or as programmed by 3.2.5.4.3) thereby preempting the original jamming routine. Look-through status shall be selectable between intermittent look-through or continuous look-through via the VME bus. In addition for both intermittent and continuous look through, the emitter identification shall be available for transmission via the VME interface. The transmission of this data may be limited by the VME data rate.

3.2.1.4 Fixed jamming mode. In the fixed jamming mode the Receiver shall produce a preprogrammed noise jamming signal. The center frequency and bandwidth shall be programmable through the VME bus.

3.2.1.5 Special operation mode.

3.2.1.5.1 Special operation mode A. The Receiver shall be capable of selecting a special operations mode "A" via the VME interface. This mode shall employ response times dependent on the pulse history and pulse repetition frequency.

3.2.1.5.1.1 Initial detection. The special operation mode "A" response time for the initial pulse received shall be as follows:

a. For PRFs from 100 kHz to CW	0.75 milliseconds
b. For PRFs from 4 kHz to 100 kHz	2.0 milliseconds
c. For PRFs from 100 Hz to 4 kHz	10 milliseconds

3.2.1.5.1.2 Re-detection. When in the special operation mode "A" the Receiver shall respond to subsequent pulses within ± 5 MHz of the previously measured center frequency within 250 nanoseconds (ns). For signals outside the ± 5 MHz window the Receiver shall not respond until pulses within ± 5 MHz of the previously detected pulse have not been received for over 10 milliseconds. After the 10 millisecond time out the set on delays listed in 3.2.1.5.1.1 shall apply.

3.2.1.5.2 Special operation mode B. The Receiver shall be capable of selecting a special operations mode "B" via the VME interface. This mode shall be capable of detecting a special frequency, which shall be programmable, and modifying the Receiver function based on that detection.

3.2.1.5.2.1 Special frequency detection. The special frequency shall be programmed into emitter location 1. Upon detection of the special frequency, the emitter status line shall be set high and the jamming waveform associated with emitter 1 shall commence. When "jamming" in response to an emitter 1 signal, the IFM shall continue to use the same RF noise bandwidth that is used for emitters 2 through 8. When operating in either Intermittent or Continuous look-thru modes, the Jam period of emitters 2 through 8 shall be as programmed in the Receiver emitter table. When an emitter 1 has been detected, the Jam period shall be programmable from 10 to 50 milliseconds (mSec). The discrete emitter 1 status line shall go "high" within 350 nanoseconds (nSec) of receiving the first pulse in the emitter 1 range. At the end of the emitter 1 jam period, if the input has changed frequency, the emitter 1 status signal shall go to a logical "low" state within 350 nSec. (Note that the emitter 1 jam period in continuous look-thru is a fixed value and shall NOT be cut short upon reception of a new input frequency).

3.2.1.6 Test mode. While in the test mode, the Receiver shall monitor the RF input. If any RF signals matching a preprogrammed emitter are detected the emitter identification shall be available for transmission via the VME interface in addition to outputs on the discreet emitter lines. The transmission of this data may be limited by the VME data rate. The RF output signal shall not be transmitted in this mode of operation.

3.2.1.7 Calibration. Self calibration shall be performed immediately after the Receiver is commanded to operate. Full calibration shall take no longer than 2 seconds to complete. Subsequent calibrations will occur every 30 seconds if no valid input signals have been detected. When a valid input signal is detected, the 30 second counter will be reset.

3.2.1.8 Built in test. The Receiver shall incorporate a Built In Test (BIT) capability. The BIT shall verify the functionality of the Receiver. As a minimum the functionality of the active RF hardware, microprocessor, control circuitry and memory shall be verified. The BIT shall be programmed (enabled or disabled) to be performed at system power up, and shall be capable of being initiated at any time via the VME interface. The BIT status shall be output on J5003 (see Table I) and shall also be available on the VME interface. In addition to the status, the failure mode shall be available on the VME interface.

3.2.2 RF input.

3.2.2.1 Reception band. The Receiver shall have a reception band of 8.000 to 11.000 GHz.

3.2.2.2 Transition band. The transition band shall be from 7.700 to 8.000 GHz at the low end, and from 11.000 to 11.3000 GHz at the high end. Government furnished external hardware filter attenuation at 7.900 GHz and 11.100 GHz will be not less than 20 decibel (dB). Government furnished external hardware filter attenuation at 7.700 GHz and 11.300 GHz will be not less than 60 dB.

3.2.2.3 Rejection band. The rejection band will be 1.000 to 7.700 GHz and 11.300 to 18.000 GHz. Signals received in these bands will be rejected by a Government furnished external hardware filter of not less than 60 dB of stop band rejection.

3.2.2.4 Input pulse width. The Receiver shall meet all performance requirements specified herein to input pulse widths from 50 ns to CW and shall be hardware selectable to ignore pulse widths less than 80 ns.

TABLE I. Connectors.

Reference Designation	Connector Type	Pin	Function
J5001	SMA Female	-	RF Input
J5002	SMA Female	-	RF Output
J5003	M83513 or equivalent	TBD	Ground
		TBD	+28 VDC
		TBD	Calibration status (TM)
		TBD	Jam status (TM)
		TBD	Receiver inhibit
		TBD	Bit Status
		TBD	Emitter "1"
		TBD	Emitter "2"
		TBD	Emitter "3"
		TBD	Emitter "4"

3.2.2.5 Sensitivity. The Receiver shall meet all requirements specified herein for input signals within the reception band with peak power levels of -55 to +10 dBm inclusive.

3.2.2.6 Input power. The Receiver shall not incur damage when signals of up to 1 Watt continuous wave (CW) are applied to the Rx input port.

3.2.3 RF output.

3.2.3.1 Response time. For automatic set on operation the time between RF input to RF jam output within the frequency accuracy of the Receiver shall be not greater than 250 nanoseconds (ns) for any 1.5 GHz bandwidth. Full band response time shall be not greater than 400 ns.

3.2.3.2 Output power. The output power of the Receiver shall be not less than +8 dBm. The output power of the Receiver shall be adjustable remotely through the VME interface bus. The Receiver shall be capable of up to 40 dB of attenuation programmable via the VME bus in maximum increments of 0.5 dB. The output power shall not vary more than 4 dB throughout the specified frequency range (see 3.1).

3.2.3.3 Accuracy.

3.2.3.3.1 Fixed jamming. The Receiver shall be capable of generating a RF signal with a center frequency accurate to within ± 2 MHz of the programmed frequency.

3.2.3.3.2 Automatic set on jamming. The total RF error between the received RF signal and the resultant Receiver output spectrum shall be not greater than ± 5 Megahertz (MHz). The root mean square (RMS) frequency error shall be less than 1.5 MHz.

3.2.3.4 Multiple signal discrimination. (a) The Receiver shall not be degraded by signals that are received greater than 60 ns apart from each other. (b) Upon reception of two or more pulse coincident signals (signals received within 60 ns of each other), the Receiver shall discriminate and respond within specification to the first signal received after the jam time has expired under the following conditions:

- (1) If the coincident signals are separated by less than 500 MHz and the first signal (in time) is at least 10 dB greater than any other signal, then the Receiver shall respond within specification to the first signal.
- (2) If the signals are separated by more than 500 MHz and the first signal (in time) is at least 6 dB greater than any other signal, then the Receiver shall respond within specification to the first signal.
- (3) If CW signals separated by less than 500 MHz are received at the same time (i.e., within 10 ns of each other), the Receiver will respond within specification to the signal that is at least 10 dB greater than any other CW signal.
- (4) If CW signals separated by more than 500 MHz are received at the same time (i.e., within 10 ns of each other), the Receiver will respond within specification to the signal that is at least 6 dB greater than any other CW signal.

3.2.3.5 Noise modulation.

3.2.3.5.1 Noise spectrum. The noise modulation will consist of white Gaussian noise with frequency components from 150 Hz to 5 MHz.

3.2.3.5.2 Noise bandwidth. The 3 dB noise bandwidth shall be adjustable from 1 MHz to 200 MHz. The bandwidth shall be adjustable remotely through the VME bus.

3.2.3.5.3 Residual peak frequency modulation. The Receiver residual peak frequency modulation (FM) shall be not greater than 200 kHz.

3.2.3.6 Spurious suppression. For the transmitted jamming signal the power levels of spurious frequencies, harmonically and non-harmonically related, shall be suppressed not less than the following for the frequency range specified in 3.2.2.1:

- a. 10 dB below the frequency carrier for frequencies within 1 MHz of the commanded frequency.
- b. 25 dB below the frequency carrier for frequencies within 5 MHz, but beyond 1 MHz of the commanded frequency.
- c. 45 dB below the frequency carrier for frequencies within 45 MHz, but beyond 5 MHz of the commanded frequency.
- d. 50 dB below the frequency carrier for frequencies beyond 45 MHz from the commanded frequency.

3.2.3.7 Blanking. The blanking and look-through attenuation from the "on" to "off" state shall be greater than or equal to 60 dB (over the operational frequency range of the Receiver).

3.2.4 System requirements.

3.2.4.1 Input power. The Receiver shall perform as specified when supplied with any or all of the following power sources. All supply voltages shall be provided through the VME interface.

- a. +5 VDC with a maximum current drain of 10 Amperes (A).
- b. ± 15 VDC with a maximum current drain of 3 A.
- c. +28 VDC with a maximum current drain of 6 A.

3.2.4.1.1 Power source. The +5 VDC and ± 15 VDC will be provided using a Lucent JCA-100 or equivalent power supply as part of the Government furnished miniaturized TCM. The +28 VDC power source will be as specified in Table I and Figures 9 and 10 of MIL-STD-704, except that the steady state voltage shall be 28 ± 4.0 VDC.

3.2.4.1.2 Low voltage protection. The Receiver shall not be damaged by voltages less than specified, although specified performance is not required during periods where the voltages drop below the minimum values listed below. The Receiver shall automatically resume specified operation when the voltage returns within the specified limits.

- a. The +5 VDC supply shall be greater than +4.9 VDC.
- b. The +15 VDC supply shall be greater than +14.0 VDC.
- c. The -15 VDC supply shall be lower than -14.0 VDC.
- d. The +28 VDC supply shall be greater than +24 VDC.

3.2.4.2 Warm-up time. The Receiver shall meet all performance requirements within 8 minutes after application of prime power across the temperature range specified in 3.4.f. The receiver shall meet all performance requirements within 5 minutes after application of primary power for temperatures above 25°C.

3.2.4.3 Impedance. The Receiver shall present a nominal input and output impedance of 50 Ohms, with a maximum voltage standing wave ratio (VSWR) of 2:1 varied through all phase angles.

3.2.4.4 Driving impedance. The Receiver shall meet all the requirements specified herein while operating into a nominal driving impedance of 50 Ohms, and a maximum VSWR of 6:1. The Receiver shall not be damaged when operating into a VSWR of up to 10:1.

3.2.5 Interface.

3.2.5.1 RF input. The RF input shall be connected to the Receiver through a female SMA mounted on the front of the receiver as described in Table I and illustrated on drawing 1611AS9397.

3.2.5.2 RF output. The RF output shall be connected to the Receiver through a female SMA mounted on the front of the receiver as described in Table I and illustrated on drawing 1611AS9397.

3.2.5.3 VME Bus interface. The VME Bus shall interface to the TCM as defined in ANSI/VITA 1-1994. The interface shall allow the TCM to control and program all functions of the Receiver while running under a Windows NT 4.0 environment. The TCM / Receiver interface shall use a Dynamic Link Library (DLL) which shall be written in C or C++. The VME interface shall allow real time access to read back any programmable value. The VME interface shall be capable of loading any complete mode set within 100 milliseconds except for special operation modes A and B which shall load within 1 Second.

3.2.5.4 Pre-mission programming. The VME Bus interface shall be used to program up to eight sets of emitter and jamming response characteristics into the Receiver. These characteristics shall be as defined below:

- a. Emitter frequency limits
- b. Jamming time
- c. Delayed set-on time
- d. Jammer bandwidth
- e. Jammer attenuation
- f. Center frequency for fixed RF output
- g. Mode of operation
- h. Intermittent look-through or continuous-look mode selection
- i. Look through delay
- j. Emitter identification reporting

3.2.5.4.1 Emitter frequency range. The programmable frequency range for each emitter shall include an upper frequency limit and a lower frequency limit. The range of available frequencies shall be 8.000 to 11.000 GHz with resolution of the frequency limits being 1.0 MHz. Up to eight bands of valid jam frequencies shall be available. Each frequency band shall be between 1.0 and 3000 MHz wide. In the event that overlapping frequency bands are programmed for different emitters, the receiver shall utilize the parameters designated for the higher priority emitter. Emitter one shall be the highest priority and emitter eight shall be the lowest.

3.2.5.4.2 Jamming time. The jam time is the amount of time the Receiver outputs RF noise jamming. The jam time shall be accurate to within ± 10 percent of the programmable time. The length of jamming time for each detected emitter shall be programmable:

Range	
0	0.3-12 us Stepsize: 0.05 us
1	10-120 us Stepsize: 0.5 us
2	100-1200 us Stepsize: 5 us
3	1-12 ms Stepsize: 0.05 ms
4	10-120 ms Stepsize: 0.5 ms
5	100-1200 ms Stepsize: 5 ms

3.2.5.4.3 Delayed set-on time. The programmable delayed set-on shall allow the operator to select a response time that is longer than the minimum specified time of 250 ns. It is essentially a method of slowing the response time of the Receiver. The programmable delayed set-on time shall be available in both the Intermittent and Continuous look-through modes:

Range	
	0 delay
0	0.3-10 us Stepsize: 0.05 us
1	10-100 us stepsize: 0.5 us
2	100-1000 us Stepsize: 5 us
3	1000-10000 us Stepsize: 50 us
4	10000-100000 us Stepsize: 500us

3.2.5.4.4 Noise bandwidth. The programmable bandwidth shall allow the operator to select a bandwidth as defined in 3.2.3.5.2 with a maximum step size of 1 MHz.

3.2.5.4.5 Attenuation. The Receiver attenuation shall be programmable in step sizes no greater than 0.5 dB throughout the range specified in 3.2.3.2. For the same setting, the attenuation control shall provide the same RF output power regardless of the selected mode of operation, automatic set-on or fixed jamming.

3.2.5.4.6 Center frequency. For the fixed jamming mode of operation the center frequency shall be programmable in steps of 1 MHz minimum through the range specified in 3.2.2.1.

3.2.5.4.7 Mode of operation. The mode of operation, standby, automatic set-on, fixed special operation mode “A”, Special operation mode “B” or test shall be selectable through the VME Bus interface.

3.2.5.4.8 Look through. For the automatic set-on mode of operation, the look through (intermittent or continuous), shall be selectable through the VME Bus interface. To prevent detections on the jamming waveform, for intermittent look through the Receiver shall inhibit detections for a programmable delay after the termination of the previous jamming waveform. This delay shall be selectable between 0 and 100 ns.

3.2.5.4.9 Emitter identification. The transmission of emitter identification shall be selectable through the VME Bus interface. In addition the Receiver shall provide discrete output status lines for up to four (4) active emitters. A discrete TTL (positive logic) high for emitters “1” through “4” shall appear as an output on the monitor connector (J5003). The discreet emitter identification shall provide a “real time” indication and shall not be dependent on the VME bus update rate.

3.2.5.5 Telemetry lines.

3.2.5.5.1 Calibration status line. The Receiver shall be equipped with an automated self calibration routine. The Receiver shall have a buffered calibration status line for telemetry purposes. This line will go to 3.5 ± 1.5 VDC when the system is undergoing calibration and drop to 0.4 ± 0.4 VDC when not calibrating. The status line shall be capable of driving 10 standard loads (160 mA sink current and 40 mA source current).

3.2.5.5.2 Jam status line. A buffered status line for telemetry purposes shall be provided that goes TTL high (3.5 ± 1.5 VDC) when the unit is jamming. If the unit is not jamming, the status line will be TTL low (0.4 ± 0.4 VDC). The status line shall be capable of driving 10 standard loads (160 mA sink current and 40 mA source current).

3.2.5.5.3 Emitter status. The status of the four (4) real time emitter identification lines shall be provided, see 3.2.5.4.9. If an emitter is active the line shall output a TTL high (3.5 ± 1.5 VDC) and drop to 0.4 ± 0.4 VDC when the emitter is not active. These lines shall be capable of driving 10 standard loads (160 mA sink current and 40 mA source current).

3.2.5.5.4 BIT status line. The bit status shall be displayed on J5003. A low level on this line shall indicate a failure. The BIT status line shall be TTL (3.5 ± 1.5 VDC for a high indication and 0.4 ± 0.4 VDC for a low indication).

3.2.5.6 Receiver input. An active low Receiver input logic signal input shall be provided that disables receiver detection of RF input signals in all modes of operation. When left open, this input shall be pulled up to a TTL high level (3.5 ± 1.5 VDC). An active low TTL signal level (0.4 ± 0.4 VDC) shall inhibit Receiver detection of RF signals in all modes of operation.

3.2.6 Cooling. Cooling, if required, shall be internal to the unit and forced air only.

3.3 Physical characteristics.

3.3.1 Conformance to documents. The Receiver shall be in accordance with drawings 1611AS9397-1, Type I and 1611AS9397-2, Type II and shall meet all the requirements of this specification and the documents referenced, to the extent specified herein.

3.3.2 Weight. The Receiver shall be not greater than 10 pounds.

3.3.3. Finish. The receiver shall have a finish to prevent corrosion. A sufficient portion of the Receiver, to facilitate easy identification, shall be lusterless blue. FED-STD-595 chip color number 35180 may be used for guidance.

3.4 Environmental conditions. The Receiver shall meet all requirements specified herein prior to, during and after exposure to the following environmental conditions separately or in any natural combination thereof. The Receiver shall not exhibit any temporary or permanent degradation as the result of exposure to any of the following:

- | | |
|---------------------------|--|
| a. Temperature-altitude: | Barometric pressure reduced to the equivalent of 40,000 feet and -40°C. |
| b. Vibration: | Random vibration at 10 to 2000 Hz and ± 10 gravity units (g) root mean square (RMS).
Vibration |
| c. Shock | Acceleration pulses at 12 g levels with a duration of 11 ms in all axes in any direction.
Shock isolators |
| d. Humidity: | An atmosphere containing 95 percent or greater relative humidity at temperatures from +28 to +71 °C. |
| e. Storage Temperature: | Temperatures ranging from -54°C to +71°C. |
| f. Operating temperature: | Temperatures ranging from -40°C to +71 °C. |
| g. Thermal Shock: | Temperatures ranging from -54°C to +71°C. |
| h. Acceleration: | Accelerations up to and including 20g. |

3.5 Electromagnetic interference. The Receiver shall not generate electromagnetic interference (EMI) signals either through radiation, power line conduction, nor through spikes fed back to inputs selected or non-selected. Shielding of the Receiver from stray or operating environment EMI shall be in accordance with MIL-STD-461E.

3.6. Shelf life. The Receiver shall be designed to function as specified herein after a storage period of 5 years in normally available Government storage facilities at temperatures varying from -54 to +71 °C and relative humidity varying from 5 to 95 percent.

3.7 Reliability. Reliability testing shall be conducted on the first article unit to establish the Receiver reliability.

3.7.1 Mean-time-between-failures. The Receiver shall have a mean-time-between-failures (MTBF) of 500 hours minimum for a temperature of 50 °C.

3.8 Nameplate and marking. The nameplate shall be as specified on drawings 1611AS9397-1. Interchangeable parts and assemblies shall be legibly marked. Confirmation of official nomenclature and serial number prefixes shall be requested by the contractor.

3.9 Safety. The Receiver produced as specified in this specification shall present no safety hazard to operating personnel.

3.10 Human performance and human engineering. The Receiver shall be constructed and configured to minimize human error during installation, operation, removal and maintenance.

4.0 QUALITY ASSURANCE PROVISION

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure the Receiver conforms to prescribed requirements.

4.1.1 Inspection system. The contractor shall assure product conformance to the requirements, inspections, and tests specified herein. The contractor's quality assurance program shall be planned and used in a manner to achieve a level of quality and reliability commensurate with the intended application specified herein.

4.1.2 Responsibility for compliance. All items must meet all requirements of section 3. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective or substandard material.

4.1.3 Test procedures. Test procedures shall be prepared for the first article and acceptance testing. Although separate test procedures are acceptable, it is desired that the additional first article tests be included as an addendum to the acceptance tests. The environmental and reliability test procedures shall be included as part of the first article test procedures.

4.1.4 Test data. Detailed test data shall be prepared by the contractor. This data shall identify all rejections and corrective actions taken.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First article (see 4.5).

- (1) Performance demonstration tests (see 4.7.1 & 4.7.2)
- (2) Environmental tests (see 4.7.3)
- (3) Reliability tests (see 4.5.2)

b. Quality conformance inspection (see 4.6).

- (1) Manufacturing burn-in tests (see 4.6.2)
- (2) Acceptance tests (see 4.6.1)

4.3 Inspection conditions. Unless otherwise specified herein for all tests the Receiver shall be installed in the Government furnished Miniaturized TCM. All tests and inspections shall be conducted under the following conditions:

- a. Temperature (ambient): $+23 \pm 10$ degrees C
- b. Atmospheric pressure: Normal pressure of the test facility.
- c. Humidity: 10 to 90 percent
- d. External power: $+28.0 \pm 3.0$ VDC applied to J8001.
- e. Termination mismatch. A load having a minimum VSWR of 2.0:1 $\pm 10\%$ with respect to 50 ohms and worst case phase angle adjusted.

4.3.1 Maintenance and calibration. All test equipment shall be maintained and calibrated in accordance with ISO 10012-1 or ANSI/NCSL Z540-1. Alternate calibration control standards may be proposed for Government approval. Certification to this effect prior to all inspection and tests shall be prepared by the contractor.

4.4 First article sample. Unless otherwise specified in the contract or purchase order, the first article sample shall consist of one Receiver. Unless otherwise specified in the contract or purchase order, when first article is required, first article inspections shall be conducted by the contractor. The first article sample shall be manufactured using the same methods, materials, processes and procedures proposed for production. Any production by the contractor before acceptance of the first article sample shall be at the contractor's risk. Subsequent to first article approval, the contractor shall not change materials, processes, or procedures without prior approval of the procuring activity.

4.5 First article tests. The first article sample shall be subjected to the inspections and tests of Table II. Unless specified in the approved test procedures, preventive maintenance or adjustments shall not be performed upon the Receiver during the period of this test. The contractor shall prepare a first article test report.

4.5.1 First article failure analysis and corrective action. Failure of any Receiver to pass any of the first article examinations and test specified herein shall be cause for rejection of the first article sample. Procuring activity approval is required before implementation of any corrective action in the first article sample.

TABLE II. First Article and Quality Conformance Tests

Explanation of Tests	Requirements	First Article Test	Acceptance Tests
1. Visual Examination			
a. Physical characteristics	3.1.3, 3.3.1	4.7.1.1	4.7.1.1
b. Weight	3.3.2	4.7.1.2	4.7.1.2
c. Nameplate and Marking	3.8	4.7.1.3	4.7.1.3
d. Finish	3.3.3	4.7.1.4	4.7.1.4
2. Manufacture Burn-in Test			4.6.2
3. Performance Tests			
a. Reception Band	3.1.1, 3.1.2, 3.2.1.1 thru 3.2.1.6, 3.2.2.1, 3.2.4.2	4.7.2.1	4.7.2.1
b. Transition Band	3.1.1, 3.1.2, 3.2.1.1 thru 3.2.1.6, 3.2.2.2	4.7.2.2	4.7.2.2
c. Rejection Band	3.1.1, 3.1.2, 3.2.1.1 thru 3.2.1.6, 3.2.2.3	4.7.2.3	4.7.2.3
d. Calibration	3.2.1.7	4.7.2.4	4.7.2.4
e. Built In Test	3.2.1.8	4.7.2.5	4.7.2.5
f. Input Pulse Width	3.2.2.4	4.7.2.6	4.7.2.6
g. Sensitivity and Blanking	3.2.2.5, 3.2.3.7	4.7.2.7	4.7.2.7
h. Maximum RF Input Power	3.2.2.6	4.7.2.8	
I. Response time	3.2.3.1	4.7.2.9	4.7.2.9
j. Output Power	3.2.3.2	4.7.2.10	4.7.2.10
k. Accuracy	3.2.3.3.1, 3.2.3.3.2	4.7.2.11	4.7.2.11
l. Multiple Signal Discrimination	3.2.3.4	4.7.2.12	
m. Noise Modulation and Bandwidth	3.2.3.5.1, 3.2.3.5.2	4.7.2.13	4.7.2.13
n. Spurious & Residual FM	3.2.3.5.3, 3.2.3.6	4.7.2.14	
o. Input Power	3.2.4.1 thru 3.2.4.1.2	4.7.2.15	
p. Termination Mismatch	3.2.4.3, 3.2.4.4	4.7.2.16	
q. VME Interface	3.2.5.3 thru 3.2.5.4.9	4.7.2.17	
r. Telemetry	3.2.5.5 thru 3.2.5.5.4	4.7.2.18	
s. Electromagnetic Interference	3.5	4.7.2.19	
4. Environmental			
a. Temperature altitude	3.4.a, 3.4.e & 3.4.f	4.7.3.2	
b. Vibration	3.4.b	4.7.3.3	
c. Humidity	3.4.d	4.7.3.4	
d. Thermal Shock	3.4.g	4.7.3.5	
5. Reliability	3.7, 3.7.1	4.5.2	

4.5.2 Reliability test. Reliability tests shall be performed on the first article sample. A reliability test report shall be prepared and included in the first article test report. The Receiver shall be operated under ambient conditions for a period as specified in Table III with the Receiver in an operate status for at least 75 percent of the total test hours. If the Receiver exhibits a failure prior to reaching an accept or reject criteria, the decision to repair and subject the unit to further reliability testing, or whether a subsequent first article unit shall be selected, shall require Government concurrence. Failures of the Government furnished TCM shall not be counted as failures of the Receiver. Identification of failures as TCM failures shall require Government concurrence.

4.6 Quality conformance tests.

4.6.1 Acceptance tests. Acceptance tests shall be conducted on each Receiver offered for acceptance and shall consist of the tests specified in Table II.

TABLE III. Reliability Accept / Reject Criteria

Number of Failures	Minimum Hours Required to Continue Test	Minimum Hours Required for Acceptance
0	0	375
1	0	540
2	57	705
3	222	870
4	387	1,035
5	552	1,035
6	717	1,035
7	Failed test	Failed test

4.6.1.1 Acceptance tests data. The contractor shall prepare acceptance test data sheets for each Receiver offered for acceptance.

4.6.2 Manufacturing burn-in test. The Receiver shall be operated under the conditions specified herein for a period of 10 hours without failure. A failure shall be anything that causes malfunctioning of the equipment. Only those adjustments shall be permitted which can be made by using such controls or adjustments that are accessible to the operator during normal use of the Receiver. The test shall be run at ambient temperature and humidity conditions. The Receiver shall be vibrated (without vibration isolators) for a period of 10 minutes prior to the beginning of the 10 hour period of operation. Vibration shall be at any non-resonant frequency between 20 and 30 HZ at a level of ± 3 g's. Where feasible, the Receiver shall be operated during this vibration period for the purpose of detecting flaws and imperfect workmanship. The direction of vibration shall be vertical to the normal mounting plane for five minutes and lateral to the plane for five minutes. Where it is not feasible to vibrate the Receiver in two directions, the vertical direction shall be used. During the 10 hour period of operation following the ten minute vibration period, the Receiver shall be cycled periodically through its various phases of operation. Should a failure occur, it shall be repaired and the test started over, except that the 10 minute vibration period need not be repeated when it is certain the failure was not a result of the vibration. Should repetitive failures occur, corrective action shall be taken to eliminate this defect from future Receiver. A record shall be kept of all failures and shall be made available for viewing by the Government upon request by the procuring activity. The ten hour period specified above may be composed two five hour periods to conform with standard working hours. The Manufacturing Burn-In test data shall be part of the test data sheets.

4.6.3 Post test. Post test shall consist of the verification of the following requirements:

- a. Reception Band (see 4.7.2.1)
- b. Sensitivity (see 4.7.2.7)
- c. Response time (see 4.7.2.9)

4.7 Inspection and test methods. Details of methods and procedures shall be as specified in the approved test procedures (see 4.1.3).

4.7.1 Visual examinations. Visual examinations shall be as specified in 4.7.1.1 through 4.7.1.4.

4.7.1.1 Physical characteristics. The Receiver shall be inspected for conformance with 3.1.3 and 3.3.1.

4.7.1.2 Weight. The Receiver shall be inspected for conformance with 3.3.2

4.7.1.3 Nameplate and marking. The Receiver shall be inspected for conformance with 3.8.

4.7.1.4 Finish. The Receiver shall be inspected for conformance with 3.3.3.

4.7.2 Performance tests. Performance tests shall be performed as specified in Table II. The test specimen shall be operated for conformance with 3.2 through 3.2.5.6. Input power shall be as specified in 3.2.4 through 3.2.4.1.2. Required post tests shall consist of the tests specified in 4.6.3.

4.7.2.1 Reception band. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance to 3.2.2.1 and 3.2.4.2. For the First Article test, performance measurements shall be made in steps not greater than 100 MHz for the frequency range of 8.0 to 11.0 GHz. For the Acceptance tests, performance measurements shall be made in steps not greater than 500 MHz for the frequency range of 8.0 to 11.0 GHz. Performance shall be demonstrated for the following modes of operation commanded through the VME interface (3.2.1.1):

- Standby (3.2.1.2)
- Automatic Set On (3.1.1 and 3.2.1.3)
- Fixed Jamming (3.1.2 and 3.2.1.4)
- Special Operation (3.2.1.5 through 3.2.1.5.2.1)
- Test Mode (3.2.1.6).

4.7.2.2 Transition band. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance to 3.2.2.2. Performance measurements shall be made in steps not greater than 50 MHz for the frequency range of 7.7 to 8.0 GHz and 11.0 to 11.3 GHz. Performance shall be demonstrated for the following modes of operation commanded through the VME interface (3.2.1.1):

- Standby (3.2.1.2)
- Automatic Set On (3.1.1 and 3.2.1.3)
- Fixed Jamming (3.1.2 and 3.2.1.4)
- Special Operation (3.2.1.5 through 3.2.1.5.2.1)
- Test Mode (3.2.1.6).

4.7.2.3 Rejection band. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance to 3.2.2.3. Performance measurements shall be made in steps not greater than 1 GHz for the frequency range of 1.0 to 7.7 GHz and 11.3 to 18.0 GHz. Performance shall be demonstrated for the following modes of operation commanded through the VME interface (3.2.1.1):

- Standby (3.2.1.2)
- Automatic Set On (3.1.1 and 3.2.1.3)
- Fixed Jamming (3.1.2 and 3.2.1.4)
- Special Operation (3.2.1.5 through 3.2.1.5.2.1)
- Test Mode (3.2.1.6).

4.7.2.4 Calibration. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance with 3.2.1.7.

4.7.2.5 Built in test. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance with 3.2.1.8.

4.7.2.6 Input pulse width. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance with 3.2.2.4. Demonstration shall include the following modes of operation:

- Automatic Set On (3.1.1 and 3.2.1.3)
- Special Operation (3.2.1.5 through 3.2.1.5.2.1)
- Test Mode (3.2.1.6).

4.7.2.7 Sensitivity and blanking. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance with 3.2.2.5 and 3.2.3.7. Demonstration shall include the following modes of operation:

Automatic Set On (3.1.1 and 3.2.1.3)
 Special Operation (3.2.1.5 through 3.2.1.5.2.1)
 Test Mode (3.2.1.6).

4.7.2.8 Maximum RF input power. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance with 3.2.2.6 across the range of 1 to 18 GHz.

4.7.2.9 Response time. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance with 3.2.3.1 as follows:

- a. The input pulse width shall be set to the minimum specified in 3.2.2.4. The Receiver shall be operated to demonstrate conformance with 3.2.3.1.
- b. 4.7.2.9.a shall be repeated with an input signal 100 MHz above and 100 MHz below the frequency the maximum and minimum frequencies specified in 3.2.2.1.
- c. The input pulse width shall be adjusted to 1 microseconds and 4.7.2.9.a and 4.7.2.9.b shall be repeated.
- d. The input pulse width shall be adjusted to 1 millisecond and 4.7.2.9.a and 4.7.2.9.b shall be repeated.

4.7.2.10 Output power. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance with 3.2.3.2 across the range of 1 to 18 GHz.

4.7.2.11 Accuracy. The Receiver shall be operated under the conditions specified of 4.3 in the Automatic Set On Mode and demonstrate conformance with 3.2.3.3.2. The performance shall be demonstrated with pulse widths from the minimum specified in 3.2.2.4 to 100 milliseconds, with power levels varying between the limits specified in 3.2.2.5 and 3.2.2.6 and across the frequency band specified in 3.2.2.1. The receiver shall then be operated in the fixed jamming mode and demonstrate conformance with 3.2.3.3.1 across the operating frequency band specified in 3.2.2.1. A sub set of these tests shall be proposed (for Government approval) for acceptance testing.

4.7.2.12 Multiple signals. The receiver shall be operated under the conditions specified in 4.3 and two signals shall be applied to demonstrate conformance with 3.2.3.4. One of these signals shall be 100 MHz above the minimum frequency specified in 3.2.2.1 and the second shall be 100 MHz below the maximum frequency specified in 3.2.2.1. Conformance shall be demonstrated for all four cases specified in 3.2.3.4.

4.7.2.13 Noise modulation and bandwidth. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance with 3.2.3.5.1 and 3.2.3.5.2. The bandwidth shall be demonstrated across the frequency range specified in 3.2.2.1.

4.7.2.14 Spurious suppression and residual frequency modulation. The Receiver shall be operated under the conditions specified in 4.3 and demonstrate conformance with 3.2.3.5.3 and 3.2.3.6 across the frequency range specified in 3.2.2.1

4.7.2.15 Input power. The following primary power voltage variation tests shall be conducted to demonstrate compliance with 3.2.4.1 through 3.2.4.2. The external power specified shall be that applied to the Miniaturized TCM.

- a. Steady-state voltage test: With an RF input signal midband sufficient to cause an output from the Receiver in the Automatic Set On mode, primary power shall be applied. The primary power shall be adjusted to +23.0, -0.0, +0.5 VDC and the following observed:

Reception Band (see 4.7.2.1)

With primary power voltage of +31.0, -0.5, +0.0 VDC applied, the test and observation shall be repeated.

- b. Transient voltage test: The Receiver shall be operated with a primary input voltage of $+27.0 \pm 4.0$ VDC for a period of three minutes while monitoring operation across the frequency range. The primary input voltage shall be reduced to zero for not less than one second, raised to $+60 \pm 1.0$ VDC for not more than 100 ms, reduced to -60 ± 1.0 VDC for not more than 100 ms then returned to $+27.0 \pm 4.0$ VDC and the following observed:

Reception Band (see 4.7.2.1)

- c. Low voltage test: With an RF input signal midband sufficient to an output from the Receiver in the Automatic Set On mode, primary power shall be applied. The primary power shall be adjusted to $+28.0 \pm 4$ VDC and proper Receiver operation verified. The primary power shall then be reduced to 10 VDC and then slowly returned to $+28.0 \pm 4$ VDC over a minimum of 60 seconds and the following observed:

Reception Band (see 4.7.2.1)

4.7.2.16 Termination mismatch. To demonstrate compliance with 3.2.4.3 and 3.2.4.4 the Receiver shall be connected to a mismatched load having a maximum VSWR of 2.0:1 (with phase angle between the resistive and reactive load components varied between zero and 360 degrees). The frequency shall be adjusted to midband, the input power shall be adjusted to +23, -0, +0.5 VDC and the RF output (see 4.7.2.1 for automatic set on only and 4.7.2.10) observed. The Receiver shall then be connected to a load having a minimum VSWR of 10:1 with the phase angle varied between zero and 360 degrees and the RF output (see 4.7.2.1 for automatic set on only and 4.7.2.10) observed. The Receiver load mismatch test shall be repeated except that the input power shall be adjusted to +31.0, -0.5, 0.0 VDC. The Receiver shall then be connected to an input having a minimum VSWR of 10.0:1 and the RF output (see 4.7.2.1 for automatic set on only and 4.7.2.10) observed.

4.7.2.17 VME Interface. The Receiver shall be operated under the conditions of 4.3 and shall demonstrate conformance with 3.2.5.3 through 3.2.5.4.9.

4.7.2.18 Telemetry. The Receiver shall be operated under the conditions of 4.3 and shall demonstrate conformance with 3.2.5.5 through 3.2.5.5.4.

4.7.2.19 Electromagnetic interference. The power lead conducted emission test, CE102, CE106 for emissions from 10 kHz to 18 GHz, and RE102 for radiated emission electric fields of MIL-STD-461E shall be performed to ensure that the Receiver meets the requirements of 3.5.

4.7.3 Environmental tests. Environment tests shall be as specified in 4.7.3.1 through 4.7.3.5. Required post test shall consist of the test specified in 4.6.3. For all of the environmental tests the Receiver shall be installed in the Miniaturized TCM.

4.7.3.1 Environmental conditions. The environmental conditions shall be as specified in 3.4. Should a test anomaly occur during tests, a report shall be prepared by the contractor which shall include an analysis of the causes of the test anomaly and the corrective action taken to prevent its recurrence.

4.7.3.2 **Temperature-altitude.** The Receiver shall be tested to demonstrate conformance with 3.4.a, 3.4.e and 3.4.f. The test cycle illustrated in Table IV shall be used. The Receiver shall be subjected to a minimum of five test cycles. After the last test cycle, the post tests specified in 4.6.3 shall be used to verify performance. MIL-STD-810 method 520 may be used as guidance.

TABLE IV. Temperature Altitude Test Cycle

Time (Minutes)	Temperature	Altitude	Equipment
0	Minimum	Ambient	Off
60	Minimum	Ambient	On
120	Minimum	Ambient	On
*			Off
120	-40° C	Maximum	On
180	-40 °C	Maximum	On
*			Off
180	Maximum	Ambient	On
240	Maximum	Ambient	On

* The amount of time required to adjust the chamber to the specified conditions $\pm 10\%$ shall not be counted in the test time

4.7.3.3 **Vibration.** The Receiver shall be tested to demonstrate conformance with 3.4.b. The test item configuration shall be that of a realistically deployed, unprotected Receiver. Vibration isolators shall not be used. The Receiver shall be vibrated along three axes, one axis at a time, for not less than one hour each per cycle. The Receiver shall be operated continuously, as if it were in operational use during test. After the last test cycle, the post tests specified in 4.6.3 shall be used to verify performance. Vibration spectrum and intensity shall be in accordance with Figure 1. MIL-STD-810, Method 514 may be used as guidance.

4.7.3.4 **Humidity.** The Receiver shall be tested to demonstrate conformance with 3.4.d. The test item configuration shall be that of a realistically deployed, unprotected Receiver. The test cycle described below shall be used. After the last test cycle, the post tests specified in 4.6.3 shall be used to verify performance. If required, the test plan shall describe how this test will be tailored to normal work schedules. MIL-STD-810, Method 507 may be used as guidance.

- a. Perform pretest of the unit to verify operation. Post test from previous test procedures may be used. Install the Receiver in the test chamber.
- b. Gradually raise the internal chamber temperature to 60°C and relative humidity to 95% $\pm 5\%$ over a period of two hours.
- c. Maintain the conditions of step b for not less than 6 hours.
- d. Maintain 85% or greater relative humidity and reduce the internal chamber temperature in eight hours to 30°C and 95% $\pm 5\%$ relative humidity.
- e. Maintain 30°C and 95% $\pm 5\%$ relative humidity for an additional eight hours.
- f. Repeat steps b, c, d and e for a total of ten cycles (not less than 240 hours). Perform the functional checks specified in 4.6.3 to verify performance

4.7.3.5 Thermal shock. The Receiver shall be tested to demonstrate conformance with 3.4.g. The test item configuration shall be that of a realistically deployed, unprotected Receiver. The test cycle described below shall be used. After the last test cycle, the post tests specified in 4.6.3 shall be used to verify performance. If required, the test plan shall describe how this test will be tailored to normal work schedules. MIL-STD-810, Method 503 may be used as guidance.

- a. Perform pretest of the unit to verify operation. Post tests from previous test procedure may be used. Install the Receiver in the test chamber.
- b. Adjust the internal chamber temperature to the low temperature extreme listed in 3.4.g. Maintain this temperature for one hour or until the unit has stabilized, whichever is longer.
- c. Transfer the Receiver to the high temperature environment in no more than five minutes. The chamber shall return to the maximum temperature extreme in not more than five minutes. Maintain this temperature for one hour or until the unit has stabilized, whichever is longer.
- d. Transfer the Receiver to the low temperature environment as above and stabilize at that temperature.
- e. Repeat steps c and d.
- f. Repeat step e.
- g. Return the Receiver to ambient conditions and perform the functional checks specified in 4.6.3 to verify performance.

5.0 PACKAGING.

5.1 Preservation-packaging, and packing. Best commercial practices shall be used in the preservation-packaging, and packing of the Receiver.

5.2 Marking. Marking shall be as specified in the contract or purchase order.

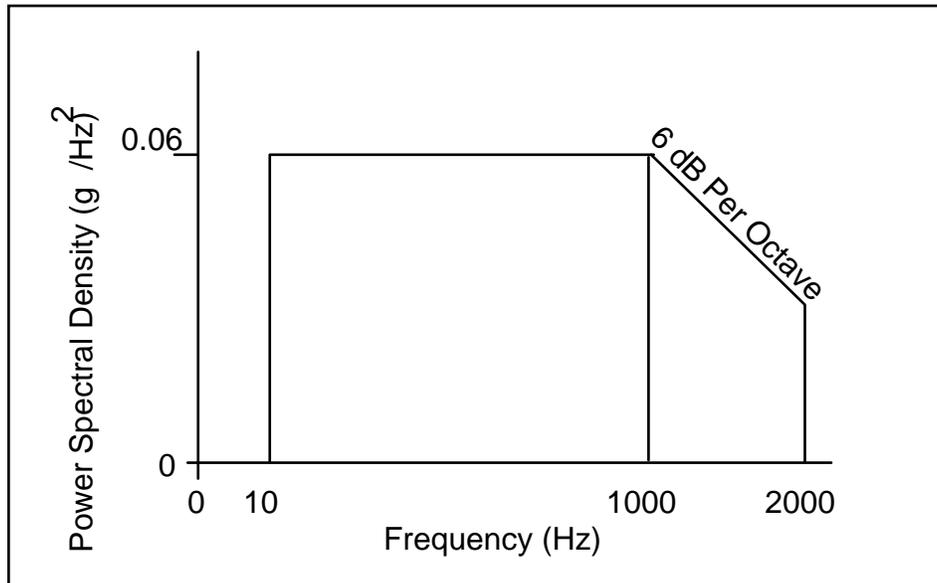
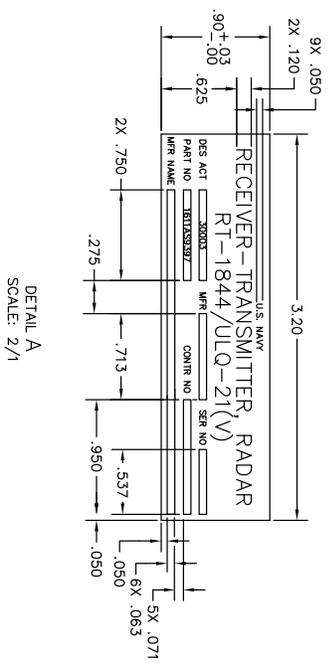
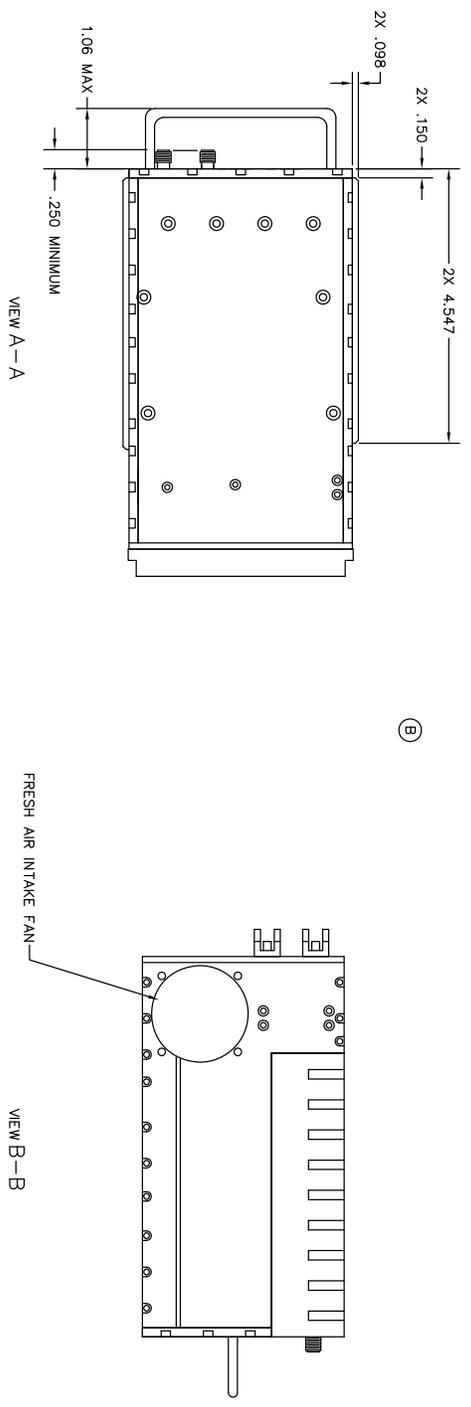


FIGURE 1. Vibration Spectrum

REVISIONS				
REV	DESCRIPTION	BY	DATE	APPROVED
B	SEE NOR 03A1TS53-15	S/T		

COMPUTER GENERATED DRAWING -- MAKE CHANGES TO DATA BASE NOT TO THIS COPY.



DETAIL A
SCALE: 2/1

CLASSIFICATION OF CHARACTERISTICS (DOD-STD-2101)

CRITICAL -
MAJOR -
MINOR -
SEE SHEET 1

SIZE	CAGE CODE	MANUFACTURER DWG NO.	REV
D	30003	1611AS9397	B
SCALE	1/1	UNIT	WT
		SHEET	2 OF 2

1611AS9397

PERFORMANCE SPECIFICATION
INTEGRATED STABILIZED RF SOURCE ASSEMBLY

1.0 SCOPE

1.1 Scope. This Specification establishes the performance, test and acceptance requirements for the Integrated Stabilized RF Source Assembly, herein referred to as the ISRFS.

2.0 APPLICABLE DOCUMENTS

2.1 Government Documents

2.1.1 Standards The following standards form part of this specification to the extent specified herein.

STANDARDS

MILITARY

MIL-STD-461 Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment

MIL-STD-704 Aircraft Electrical Power Characteristics

MIL-STD-810 Environmental Test Methods Engineering Tests (Guidance only)

FEDERAL

FED-STD-595 Colors Used In Government Procurement (Guidance only)

2.1.2 Drawings The following drawings form a part of this specification to the extent specified herein.

NAVAL AIR SYSTEMS COMMAND
(Code Ident. 30003)

1611AS12395 Integrated Stabilized RF Source Assembly (ISRFS)

Copies of standards and drawings required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.

Distribution Statement D: Distribution authorized to the Department of Defense and U.S. DoD contractors only; Critical Technology, (current date). Other requests shall be referred to the Naval Air Warfare Center Weapons Division, Airborne Threat Simulation Team, Code 539400E, Point Mugu, CA 93042-5049.

This specification is controlled by the Naval Air Warfare Center Weapons Division, Airborne Threat Simulation Team, 539400E, Point Mugu, CA 93042-5049.

2.1.3 Order of precedence In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence. In the event of a conflict between references cited herein, guidance shall be obtained from the contracting activity. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3.0 REQUIREMENTS

3.1 Description The ISRFS is used as the signal source in emitter simulator systems to generate a continuous wave (CW) or pulsed signal. Due to mounting constraints in existing Government equipment; specific form factor, weight and prime power consumption requirements are imposed. The ISRFS assembly consists of a digitally tuned oscillator, digital/analog tuned attenuator, pulse modulator, and ISRFS. The output frequency accuracy is stabilized across the defined temperature range. The complete ISRFS is contained in a one slot, 3U VME assembly.

3.2 First Article When specified, a sample shall be subjected to first article inspection (see 4.4).

3.3 Interface

3.3.1 External Electrical and RF External electrical interface shall be through connectors located as shown on drawing 1611AS12395. Connector type and function shall be as specified in TABLE I.

3.3.2 External mechanical The external mechanical interface for the ISRFS shall be as shown on drawing 1611AS12395. The mechanical interface shall enable direct installation into the existing Government electronic equipment, Modulator-Controller, using existing mounting holes.

3.4 Performance requirements The ISRFS shall meet all the performance requirements specified in 3.4.1 through 3.4.16.

3.4.1 Frequency range The minimum operating frequency range of the ISRFS shall be 8 to 12 GHz.

3.4.1.1 Frequency step size The frequency shall be programmable in 1 MHz increments across the full operating frequency range.

3.4.2 RF output power

3.4.2.1 RF output power The RF power out shall be +18 dBm maximum, and not less than +12 dBm, into a 50 ohm load.

3.4.2.2 Noise Power Out The phase noise shall be -80dBc/Hz maximum at 100kHz from the carrier frequency.

3.4.2.3 Output VSWR The maximum VSWR with the output in an "on" state shall be 2.0:1 maximum.

3.4.2.4 Impedance The impedance of the RF output signal paths shall be 50 ohms.

3.4.3 Input power

3.4.3.1 Input voltage The ISRFS shall operate as required when supplied with a power source as specified in TABLE I and as listed below. Any voltage may be deleted if not required to meet performance requirements

3.4.3.2 Current drain The ISRFS current drain shall be as listed below:

- a. 1.0 Amps maximum on +5VDC
- b. 1.0 Amp maximum on +15VDC
- c. 175 milliamps maximum on -15VDC
- d. 3.0 Amps maximum on +28VDC

3.4.3.3 Power source The +5 VDC, +15 VDC, and -15 VDC will be provided by the Government furnished TCM. The + 28 VDC power source will be as specified in TABLE I and Figures 9 and 10 of MIL-STD-704, except that the steady state voltage shall be 28 ± 4.0 VDC.

3.4.3.4 Low voltage protection The ISRFS shall not be damaged by primary power voltages of less than +25 VDC, although specified performance is not required during low voltage periods. The ISRFS shall automatically resume specified operation when the input voltage returns to within specified limits.

3.4.4 Warm-up time The ISRFS shall achieve specified output power and all other performance requirements within 60 seconds after application of primary power.

3.4.5 Frequency accuracy The accuracy of the programmed frequency, across all frequencies as specified in 3.4.1, shall be ± 1 MHz. Tuning step size shall be 1 MHz. nominal.

3.4.5.1 Post tuning drift The ISRFS shall tune to within 1.0 MHz of the programmed frequency in 1 μ s.

3.4.6 Frequency stability The ISRFS frequency stability shall meet the following conditions:

a. Accuracy

± 1 MHz over temperature

b. Pulling

0.5 MHz peak-peak maximum, 2:1 VSWR, all phases

c. Pushing Sensitivity

0.3 MHz/V maximum (1% supply deviation)

d. Residual FM

10 kHz peak-peak maximum at 3dB point

e. Phase Noise

<-80 dBc/Hz at 100 kHz offset

3.4.7 Harmonics and spurious emissions Harmonics and spurious signals shall meet the following conditions up to 18 GHz:

a. Harmonics

-25 dBc maximum

b. Fractionals (1/2 and 3/2)

-25 dBc maximum

c. Spurious

-60 dBc maximum

3.4.8 Frequency tuning Tuning control for the center frequency shall be 12 bit minimum, or as required to meet accuracy and stability. Control shall be TTL positive true binary logic.

3.4.8.1 Strobe The frequency shall be set by a TTL signal used to latch each new frequency value.

3.4.9 Attenuation

3.4.9.1 Attenuation control The attenuation to control RF power out shall be programmable from 0 to 60 dB, with 0.5 dB step resolution.

3.4.9.2 Attenuation accuracy

a. Attenuation Accuracy

0-30 dB	± 0.5 dB
31-50 dB	± 1.0 dB
51-60 dB	± 1.5 dB

b. Temperature Coefficient

± 0.025 dB/ $^{\circ}$ C

c. Attenuation Flatness

± 1.0 dB up to 10 dB mean attenuation value

± 1.5 dB up to 20 dB mean attenuation value
 ± 3.0 dB up to 40 dB mean attenuation value
 ± 3.5 dB up to 60 dB mean attenuation value

- d. Attenuation switching time 500 ns maximum (50% TTL to within 10% or 90% RF)
 e. Analog Control 0 to +6 VDC

3.4.10 Pulse modulation The ISRFS shall pulse modulate the output RF signal as provided by the control logic as specified in TABLE I.

3.4.10.1 Switching speed

- a. Rise (10%-90% RF) 10 ns maximum required (goal of 5 ns)
 b. Fall (90%-10% RF) 10 ns maximum required (goal of 5 ns)
 c. On (50% TTL-90% RF) 20 ns maximum required (goal of 15 ns)
 d. Off (50% TTL-10% RF) 20 ns maximum required (goal of 15 ns)

3.4.10.2 Switching rate 0 Hz to 20 MHz minimum

3.4.10.3 Pulse control TTL logic, positive true binary. TTL low = switch off

3.4.10.4 Isolation 65 dB minimum (switch off)

3.4.11 Phase modulation The ISRFS shall phase modulate the output RF signal as provided by the control logic as specified in TABLE II.

3.4.11.1 Bi-phase

0 deg., 180 deg.

3.4.11.2 Switching rate 10MHz maximum

3.4.11.3 Control TTL logic, positive true binary. TTL low = 0 deg.

3.4.12 Linear frequency modulation (LFM) The ISRFS shall frequency modulate the pulse output as provide by the control signal as specified in TABLE II.

3.4.12.1 Waveform type
 ramp, triangle

3.4.12.2 Waveform input
 0 to 6 VDC

3.4.12.3 Sweep period
 1 µsec minimum, 10 msec maximum

3.4.12.4 Sweep direction
 up, down

3.4.12.5 Frequency deviation
 10 kHz minimum, 10 MHz maximum

3.4.12.6 LFM waveform control The LFM waveform shall be generated external to the ISRFS and input via J1002. The waveform voltage shall vary between 0VDC and 6 VDC for all frequency sweeps. The frequency sweep shall be linearized for programmed deviation internal to the ISRFS.

3.4.13 Cooling Cooling, if required, shall be internal to the unit and forced air only.

3.4.14 Calibration

If required, calibrated RF center frequency data shall be stored internal to the ISRFS in FLASH memory. Data shall be written to and read from memory via the VME bus. Example: 4000 frequency values would be required to set 1MHz increments for the 8 to 12GHz band.

3.4.15 External Interface For the ISRFS, the interconnection between the ISRFS assembly (1611AS12395) and the Modulator-Controller shall be through the VME bus connector and chassis mounting screws.

3.4.16 Electromagnetic interference The ISRFS shall not generate electromagnetic interference (EMI) signals through radiation, power or signal line conduction, nor through signals or spikes fed back to inputs selected or non-selected. Radiation from and shielding of the ISRFS shall be in accordance with MIL-STD-461E.

3.5 Physical characteristics

3.5.1 Conformance to documents The ISRFS shall be in accordance with the applicable drawing as specified in the contract and shall meet all the requirements specified herein.

3.5.2 External adjustments No external adjustments shall be available on the ISRFS.

3.5.3 Weight. The weight of the ISRFS shall not be greater than 50 ounces.

3.5.4 External RF connections All external RF connections shall be reinforced in order to prevent damage during mishandling and external strain placed on the connectors.

3.5.5 Finish The ISRFS shall be finished in lusterless blue, color number 35180 of FED STD-595 may be used for guidance.

3.6 Environmental conditions The ISRFS shall meet all requirements specified herein prior to, during and after the following environmental conditions, separately or in any reasonable combination thereof. The ISRFS shall not exhibit any temporary or permanent degradation as the result of exposure to any of the following environments:

- | | |
|---------------------------|---|
| a. Temperature-altitude: | Barometric pressure reduced to the equivalent of 50,000 feet altitude and -40 degrees Celsius (°C) temperature. |
| b. Vibration: | Random vibration at 10 to 2000 Hz and ± 10 Gravity Units (g) Root Mean Square (RMS). Vibration isolators shall not be used. |
| c. Shock: | Acceleration pulses at 12 g levels with a duration of 11 ms in all axes in any directions. Shock isolators shall not be used. |
| d. Humidity: | An atmosphere containing 95% or greater relative humidity at temperatures ranging from +28 to +71 °C. |
| e. Storage Temperature: | Temperatures ranging from -54 to +71 °C. |
| f. Operating Temperature: | Temperatures ranging from -40 to +71 °C |
| g. Thermal shock: | Temperatures ranging from -54 to +71 °C. |
| h. Acceleration: | Accelerations up to and including 20 G. |

3.7 Shelf life The ISRFS shall be designed to function and operate as required herein, following a storage period of 5 years in normally available Government storage facilities at temperatures varying from -54°C to +71°C and relative humidity ranging from 15 percent to 95 percent. If degassing of the ISRFS is required, the procedures and period shall be provided.

3.8 Reliability Reliability testing shall be conducted on the First Article Unit.

3.8.1 Mean time between failures (MTBF) The ISRFS shall have an MTBF of 500 hrs for a temperature of

50°C.

3.9 Design and construction

3.9.1 Workmanship The contractor shall provide a proposed quality assurance program. This method need not be complicated but shall describe how the contractor proposes to maintain control over the materials, processes and workmanship in order to meet the performance requirements, particularly reliability, specified herein.

3.9.2 Nameplate and markings The nameplate shall be as specified on drawings 1611AS12395. Interchangeable parts and assemblies shall be legibly marked. Confirmation of official nomenclature and serial number prefixes shall be requested by the contractor.

3.9.3 Safety The ISRFS produced as described in this specification shall present no safety hazard to operating personnel.

3.9.4 Human performance and human engineering The ISRFS shall be constructed and configured to minimize human error during installation, operation, removal and maintenance.

4.0 QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure the ISRFS conforms to prescribed requirements.

4.1.1 Inspection system The contractor shall assure product conformance to the requirements, inspections, and tests specified herein. The contractor's quality assurance program shall be planned and used in a manner to achieve a level of quality and reliability commensurate with the intended application specified herein.

4.1.2. Material control procedures Material controls shall ensure that only conforming materials and articles are used. Materials and articles not conforming to or not required for the operation involved, shall be removed from the work operations. Positive action shall be taken to protect controlled processes or operations from contamination by residue from non-conforming materials and from previous operations.

4.1.3 Responsibility for compliance All items must meet all requirements of section 3. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specifications shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective or substandard material.

4.1.4 Test procedures Separate test procedures shall be prepared for the first article and acceptance testing. The environmental and reliability test procedures shall be included as part of the first article test procedures as a separate section.

4.1.5 Test data Detailed test data shall be prepared by the contractor. This data shall identify all rejections and corrective actions taken.

4.2 Classification of inspections The inspection requirements specified herein are classified as follows:

- a. First article (see 4.5)
 - (1) Performance demonstration tests (see 4.7.2)
 - (2) Environmental tests (see 4.7.3)
 - (3) Reliability tests (see 4.5.2)
- b. Quality conformance inspection (see 4.6)
 - (1) Manufacturing burn-in tests (see 4.6.2)
 - (2) Acceptance tests (see 4.6.1)

4.3 Inspection conditions Unless otherwise specified herein all tests and inspections shall be conducted under the following conditions:

- a. Temperature (ambient): $+23 \pm 10$ °C
- b. Atmospheric pressure: Normal pressure of the test facility
- c. Humidity: 10% to 90%
- d. External power: In accordance with 3.4.3.1.
- e. Termination mismatch. A load having a minimum VSWR of 2.0:1 $\pm 10\%$ with respect to 50 ohms and worst case phase angle adjusted.

4.3.1 Calibration All test equipment used in the acceptance of the ISRFS shall have a valid calibration traceable to the National Bureau of Standards.

4.4 First article sample Unless otherwise specified in the contract or purchase order, the first article sample shall consist of one ISRFS. Unless otherwise specified in the contract or purchase order, when first article is required, first article inspections shall be conducted by the contractor. The first article sample shall be manufactured using the same methods, materials, processes and procedures proposed for production. Any production by the contractor before acceptance of the first article sample shall be at the contractor's risk. Subsequent to first article approval, the contractor shall not change materials, processes, or procedures without prior approval of the procuring activity.

4.5 First article tests The first article sample shall be subjected to the inspections and tests of TABLE II and shall be performed in the sequence specified in the approved test procedures. Unless specified in the approved test procedures, preventive maintenance or adjustments shall not be performed upon the ISRFS during the period of this test. The contractor shall prepare a first article test report.

4.5.1 First article failure analysis and corrective action Failure of the ISRFS to pass any of the first article examinations and tests specified herein shall be cause for rejection of the first article sample. Procuring activity approval is required before implementation of any corrective action in the first article sample.

4.5.2 Reliability test Reliability tests shall be performed on the first article sample. Reliability test report shall be prepared and included in the first article test report as a separate section. The ISRFS shall be operated under ambient conditions for a period as specified in TABLE III with the ISRFS in an operate status for at least 75 percent of the total test hours. If the ISRFS exhibits a failure prior to reaching an accept or reject criteria, the decision to repair and subject the unit to further reliability testing, or whether a subsequent first article unit shall be selected, shall require Government concurrence.

4.6 Quality conformance tests

4.6.1 Acceptance tests Acceptance tests shall be conducted on each ISRFS offered for acceptance and shall consist of the tests specified in TABLE II.

4.6.1.1 Acceptance tests data The contractor shall prepare acceptance test data sheets for each ISRFS offered for acceptance.

4.6.2 Manufacturing burn-in test The ISRFS shall be operated under the conditions specified herein for a period of 10 hours without failure. A failure shall be anything that causes malfunctioning of the equipment. Only those adjustments shall be permitted which can be made by using such controls or adjustments that are accessible to the operator during normal use of the ISRFS. The test shall be run at ambient temperature and humidity conditions. The ISRFS shall be vibrated (without vibration isolators) for a period of 10 minutes prior to the beginning of the 10 hour period of operations. Vibration shall be at any non-resonant frequency between 20 and 30 Hz at a level of ± 3 g's. Where feasible, the ISRFS shall be operated during this vibration period for the purpose of detecting flaws and imperfect workmanship. The direction of vibration shall be vertical to the normal mounting plane for five minutes and lateral to the plane for five minutes. Where it is not feasible to vibrate the ISRFS in two directions, the vertical direction shall be used. During the 10 hour period of operation following the ten minute vibration period, the ISRFS shall be mechanically cycled periodically through its various phases of operation. Should a failure occur, it shall be repaired and the test started over, except that the 10 minute vibration period need not be repeated when it is certain the failure was not a result of the vibration. Should repetitive failures occur, corrective action shall be taken to eliminate this defect from future ISRFS. A record shall be kept of all failures and shall be made available for viewing by the Government upon request by the procuring activity. The ten hour period specified above may be composed of two five hour periods to conform to standard working hours. The Manufacturing Burn-In test data shall be part of the test data sheets.

- 4.6.3 Post test Post test shall consist of the verification of the following requirements:
- a. Frequency range (4.7.2.1)
 - b. Output power (4.7.2.2)
 - c. Frequency stability (4.7.2.4)
 - d. Harmonics and spurious emissions (4.7.2.5)
 - e. Frequency tuning (4.7.2.6)
 - f. Attenuation (4.7.2.7)
 - g. Pulse modulation (4.7.2.8)
- 4.7 Inspection and test methods Details of methods and procedures shall be as specified in the approved test procedures (see 4.1.4).
- 4.7.1 Visual examinations Visual examinations shall be as specified in 4.7.1.1 through 4.7.1.5.
- 4.7.1.1 Dimensions The ISRFS shall be inspected for conformance with 3.5.1.
- 4.7.1.2 Weight The ISRFS shall be inspected for conformance with 3.5.3.
- 4.7.1.3 Nameplate and marking The ISRFS shall be inspected for conformance with 3.9.2.
- 4.7.1.4 Workmanship The ISRFS shall be inspected for conformance with 3.9.1.
- 4.7.1.5 Finish The ISRFS shall be inspected for conformance with 3.5.5.
- 4.7.2 Performance tests Performance tests shall be performed as specified in TABLE II. The test specimen shall be operated for conformance with 3.4.
- 4.7.2.1 Frequency range The ISRFS shall be operated under the conditions of 4.3. The input power applied shall be as specified in 3.4.3 with a warm-up time as specified in 3.4.4. The ISRFS shall meet the requirements as specified in 3.4.1 and 3.4.1.1.
- 4.7.2.2 Output power The ISRFS shall meet the requirements specified in 3.4.2.1, 3.4.2.2, 3.4.2.3, and 3.4.2.4. For acceptance testing of production units, the ISRFS shall be tested for compliance with 3.4.2.1.
- 4.7.2.3 Frequency accuracy The ISRFS shall meet the requirements specified in 3.4.5 and 3.4.5.1 across the operating band of 8 to 12 GHz..
- 4.7.2.4 Frequency stability The ISRFS shall meet the requirements specified in 3.4.6.
- 4.7.2.5 Harmonics and spurious emissions The ISRFS shall meet the requirements specified in 3.4.7.
- 4.7.2.6 Frequency tuning The ISRFS shall meet the requirements specified in 3.4.8 and 3.4.8.1.
- 4.7.2.7 Attenuation 3.4.9 The ISRFS shall meet the requirements specified in 3.4.9.1 and 3.4.9.2. For acceptance testing of production units, the ISRFS shall be tested for minimum and maximum attenuation as specified in 3.4.9.1, and at intermediate values in each of the three ranges listed in 3.4.9.2.a.
- 4.7.2.8 Pulse Modulation The ISRFS shall meet the requirements specified in 3.4.10, 3.4.10.1, 3.4.10.2, 3.4.10.3, and 3.4.10.4. For acceptance testing of production units, the ISRFS shall be operated to verify compliance with 3.4.10.2 and 3.4.10.4.
- 4.7.2.9 Phase modulation The ISRFS shall meet the requirements specified in 3.4.11, 3.4.11.1, 3.4.11.2, and 3.4.11.3.
- 4.7.2.10 Linear Frequency modulation The ISRFS shall meet the requirements specified in 3.4.12, 3.4.12.1, 3.4.12.2, 3.4.12.3, 3.4.12.4, and 3.4.12.5.
- 4.7.2.11 Low voltage operation The ISRFS shall be operated under the conditions specified in 4.3. The +28VDC input power shall be reduced to $+16 \pm 0.5$ VDC for a period of not less than five minutes. At the end of this period,

the input power shall be restored within the limits specified in 3.4.3.1 and the following observed:

- a. Frequency range (See 4.7.2.1)
- b. Output power (See 4.7.2.2)
- c. Frequency accuracy (See 4.7.2.3)
- c. Frequency stability (See 4.7.2.4)
- d. Frequency tuning (See 4.7.2.6)

4.7.2.12 Primary power variation

- A. Steady state voltage test: Primary power shall be applied and the ISRFS programmed to generate a CW signal at rated RF output power. The primary power shall be adjusted to +25, -0.0/+0.5 VDC and the following observed:

1. Frequency range (See 4.7.2.1)
2. Output power (See 4.7.2.2)
3. Frequency accuracy (See 4.7.2.3)
4. Frequency stability (See 4.7.2.4)
5. Frequency tuning (See 4.7.2.6)

With primary power adjusted to +31, -0.5/+0.0 VDC, The test and observations shall be repeated.

- B. Primary power ripple test: The primary power with a ripple of 3.0 Volts peak to peak and a frequency spectrum from 50 to 1,500 Hz shall be applied to the ISRFS and the following observed:

1. Frequency range (See 4.7.2.1)
2. Output power (4.7.2.2)
3. Frequency accuracy (See 4.7.2.3)
3. Frequency stability (See 4.7.2.4)
4. Harmonics and spurious emissions (4.7.2.5)
5. Frequency tuning (See 4.7.2.6)

4.7.2.13 Electromagnetic interference The power lead conducted emission test CE102, CE106 for emissions from 10 kHz to 18 GHz, and RE102 for radiated emission electric fields of MIL-STD-461E shall be performed to ensure that the ISRFS meets the requirements of 3.4.16. These tests shall be performed at a facility accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology (NIST).

4.7.3 Environmental tests Environmental tests shall be as specified in 4.7.3.1 through 4.7.3.5. Required post test shall consist of the test specified in 4.6.3.

4.7.3.1 Environmental conditions The environmental conditions shall be as specified in 3.6. Should a test anomaly occur during tests, a report shall be prepared by the contractor which shall include an analysis of the causes of the test anomaly and the corrective action taken to prevent recurrence.

4.7.3.2 Temperature-altitude The ISRFS shall be adjusted for maximum current draw and tested to demonstrate conformance with 3.6.a, 3.6.e and 3.6.f. The test cycle illustrated in TABLE IV shall be used. The ISRFS shall be subjected to a minimum of five test cycles. The post tests specified in 4.6.3 shall be used to demonstrate satisfactory ISRFS operation. MIL-STD-810 method 520 may be used as guidance.

4.7.3.3 Vibration The ISRFS shall be tested to demonstrate conformance with 3.6.b. The test item configuration shall be that of a realistically deployed, unprotected ISRFS. Vibration isolators shall not be used. The ISRFS shall be vibrated along three axes, one axis at a time, for not less than one hour each per cycle. The ISRFS shall be operated continuously, as if it were in operational use during test. The post tests specified in 4.6.3 shall be used to demonstrate satisfactory ISRFS operation. Vibration spectrum and intensity shall be in accordance with FIGURE 1. MIL-STD-810, Method 514 may be used as guidance.

4.7.3.4 Humidity The ISRFS shall be tested to demonstrate conformance with 3.6.d. The test item configuration shall be that of a realistically deployed, unprotected ISRFS. The test cycle described below shall be used. After the last test cycle, the post tests specified in 4.6.3 shall be used to demonstrate satisfactory ISRFS operation. If required, the test plan shall describe how this test will be tailored to normal work schedules. MIL-STD-810, Method 507 may be used as guidance.

- a. Perform pretest of the unit to verify operation. Post test from previous test procedures may be used. Install the ISRFS in the test chamber.
- b. Gradually raise the internal chamber temperature to 60°C and relative humidity to 95% ± 5% over a period of two hours.
- c. Maintain the conditions of step b for not less than 6 hours.
- d. Maintain 85% or greater relative humidity and reduce the internal chamber temperature in eight hours to 30°C and 95% ±5% relative humidity.
- e. Maintain 30°C and 95% ±5% relative humidity for an additional eight hours.
- f. Repeat steps b, c, d and e for a total of ten cycles (not less than 240 hours).

4.7.3.5 Thermal shock The ISRFS shall be tested to demonstrate conformance with 3.6.g. The test item configuration shall be that of a realistically deployed, unprotected ISRFS. The test cycle described below shall be used. After the last test cycle, the post tests specified in 4.6.3 shall be used to demonstrate satisfactory ISRFS operation. If required, the test plan shall describe how this test will be tailored to normal work schedules. MIL-STD-810, Method 503 may be used as guidance.

- a. Perform pretest of the unit to verify operation. Post test from previous test procedures may be used. Install the ISRFS in the test chamber.
- b. Adjust the internal chamber temperature to the low temperature extreme listed in 3.6.g. Maintain this temperature for one hour or until the unit has stabilized, whichever is longer.
- c. Transfer the ISRFS to the high temperature environment in no more than five minutes. The chamber shall return to the maximum temperature extreme in not more than five minutes. Maintain this temperature for one hour or until the unit has stabilized, whichever is longer.
- d. Transfer the ISRFS to the low temperature environment as above and stabilize at that temperature.
- e. Repeat steps c and d.
- f. Repeat step e.
- g. Return the ISRFS to ambient conditions and perform the post tests specified in 4.6.3 to verify performance.

5.0 **PACKAGING**

5.1 Preservation-packaging, and packing Preservation and packaging shall be as specified in the contract or purchase order.

5.2 Marking Marking shall be as specified in the contract or purchase order.

TABLES AND FIGURES

TABLE I. Electrical and RF Interface Types and Functions

Reference Designation	Connector Type	Pin Assignment	Function
J1001	SMA-F		RF Output
J1002	SMA-F		FM
J1003	SMA-F		Calibration
VME	Harting 2011601101 5 row, VME 64X male		Primary Power and Control
VME/std		A32, B32, C32	+5 VDC
VME/std		B31, C31	+15 VDC
VME/std		A31	-15 VDC
VME/ISRFS		Z24, Z25	+28 VDC
VME/ISRFS		D1, D2	+28 VDC Return
VME/std		A9, C9, A11, A15, A17, A19, B20, B23	DGND
VME/ISRFS		B30	Frequency tuning bit 0
VME/ISRFS		B29	Frequency tuning bit 1
VME/ISRFS		B28	Frequency tuning bit 2
VME/ISRFS		B27	Frequency tuning bit 3
VME/ISRFS		B26	Frequency tuning bit 4
VME/ISRFS		B25	Frequency tuning bit 5
VME/ISRFS		B24	Frequency tuning bit 6
VME/ISRFS		A22	Frequency tuning bit 7
VME/ISRFS		B1	Frequency tuning bit 8
VME/ISRFS		B2	Frequency tuning bit 9
VME/ISRFS		B3	Frequency tuning bit 10
VME/ISRFS		B4	Frequency tuning bit 11
VME/ISRFS		B5	Frequency tuning bit 12
VME/ISRFS		B6	Frequency tuning bit 13
VME/ISRFS		B7	Frequency tuning bit 14
VME/ISRFS		B8	Frequency strobe
VME/ISRFS		D24	Analog attenuator tuning voltage
VME/ISRFS		D3	Digital attenuator bit 0
VME/ISRFS		D4	Digital attenuator bit 1
VME/ISRFS		D5	Digital attenuator bit 2
VME/ISRFS		D6	Digital attenuator bit 3
VME/ISRFS		D7	Digital attenuator bit 4
VME/ISRFS		D8	Digital attenuator bit 5
VME/ISRFS		D9	Digital attenuator bit 6
VME/ISRFS		D10	Digital attenuator bit 7
VME/ISRFS		D31	Pulse modulation control logic
VME/ISRFS		D27	Phase modulation control logic
VME/std		A1	D0
VME/std		A2	D1
VME/std		A3	D2
VME/std		A4	D3
VME/std		A5	D4
VME/std		A6	D5
VME/std		A7	D6
VME/std		A8	D7
VME/std		C1	D8

VME/std		C2	D9
VME/std		C3	D10
VME/std		C4	D11
VME/std		C5	D12
VME/std		C6	D13
VME/std		C7	D14
VME/std		C8	D15
VME/std		A30	A1
VME/std		A29	A2
VME/std		A28	A3
VME/std		A27	A4
VME/std		A26	A5
VME/std		A25	A6
VME/std		A24	A7
VME/std		C30	A8
VME/std		C29	A9
VME/std		C28	A10
VME/std		C27	A11
VME/std		C26	A12
VME/std		C25	A13
VME/std		C24	A14
VME/std		C23	A15
VME/std		C22	A16
VME/std		C21	A17
VME/std		C20	A18
VME/std		C19	A19
VME/std		C18	A20
VME/std		C17	A21
VME/std		C16	A22
VME/std		C15	A23
VME/std		A12	DS1*
VME/std		A13	DS0*
VME/std		A14	WRITE*
VME/std		A16	DTAC
VME/std		A18	AS*

TABLE II. First Article and Quality Conformance Tests

Explanation of Tests	Requirements	First Article Test	Performance Demonstration Tests
1. Visual Examination			
a. Dimensions	3.5.1	4.7.1.1	4.7.1.1
b. Weight	3.5.3	4.7.1.2	4.7.1.2
c. Nameplate and Marking	3.9.2	4.7.1.3	4.7.1.3
d. Workmanship	3.9.1	4.7.1.4	4.7.1.4
e. Finish	3.5.5	4.7.1.5	4.7.1.5
2. Manufacture Burn-in Test	4.6.2		4.6.2
3. Performance Tests			
a. Frequency range	3.4.1	4.7.2.1	4.7.2.1
b. Output power	3.4.2	4.7.2.2	4.7.2.2
c. Noise power out	3.4.2.2	4.7.2.2	
d. Output VSWR	3.4.2.3	4.7.2.2	
f. Frequency accuracy	3.4.5	4.7.2.3	4.7.2.3
g. Frequency stability	3.4.6	4.7.2.4	4.7.2.4
h. Harmonics and spurious emissions	3.4.7	4.7.2.5	4.7.2.5
i. Frequency tuning	3.4.8	4.7.2.6	4.7.2.6
j. Attenuation	3.4.9	4.7.2.7	4.7.2.7
k. Pulse modulation	3.4.10	4.7.2.8	4.7.2.8
l. Phase modulation	3.4.11	4.7.2.9	4.7.2.9
m. Linear frequency modulation	3.4.12	4.7.2.10	4.7.2.10
p. Input power	3.4.3	4.7.2.11, 4.7.2.12	
q. Electromagnetic interference	3.4.16	4.7.2.13	
4. Environmental			
a. Temperature altitude	3.6	4.7.3.2	
b. Vibration	3.6	4.7.3.3	
c. Shock	3.6	4.7.3.5	
d. Humidity		4.7.3.4	
5. Reliability	3.8	4.5.2	

TABLE III. Reliability Accept / Reject Criteria

Number of Failures	Minimum Hours Required to Continue Test	Minimum Hours Required for Acceptance
0	0	375
1	0	540
2	57	705
3	222	870
4	387	1,035
5	552	1,035
6	717	1,035
7	Failed test	Failed test

TABLE IV. Temperature Altitude Test Cycle

Time (Minutes)	Temperature	Altitude	Equipment
0	Minimum	Ambient	Off
60	Minimum	Ambient	On
120	Minimum	Ambient	On
*			Off
120	-40° C	Maximum	On
180	-40 °C	Maximum	On
*			Off
180	Maximum	Ambient	On
240	Maximum	Ambient	On

The amount of time required to adjust the chamber to the specified conditions $\pm 10\%$ shall not be counted in the test time

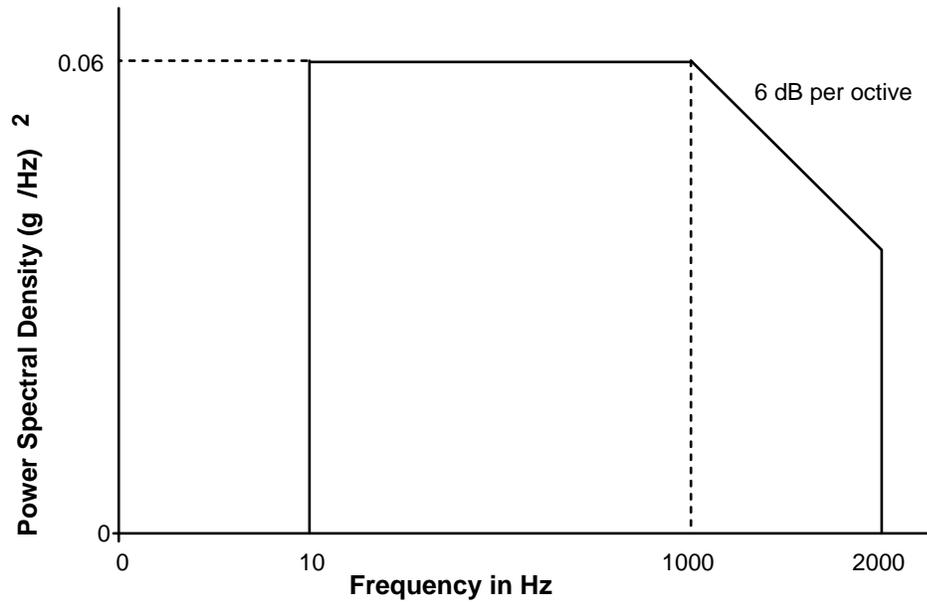


FIGURE 1. Vibration Curve

8

7

6

5

4

3

2

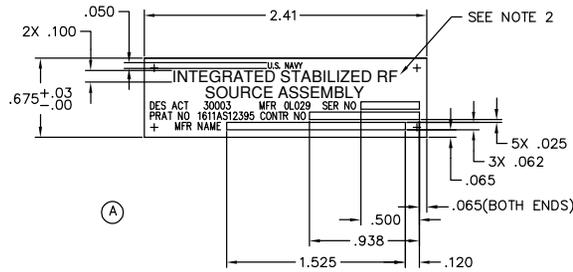
1

NOTES:

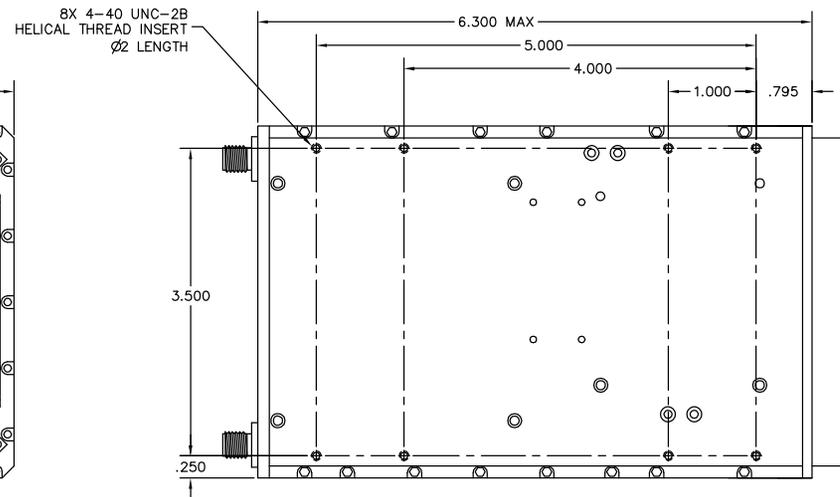
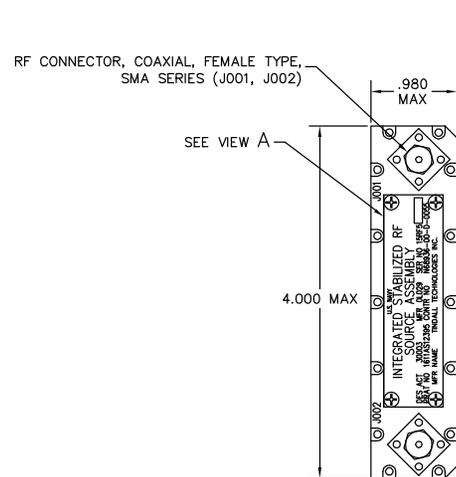
- 1. THE PROCUREMENT OF THE ISRF'S ASSEMBLY IS GOVERNED BY SPECIFICATION 13672-ATS-TRD-130.
- 2. IDENTIFICATION SHALL BE AS SHOWN IN VIEW A. INFORMATION SHALL BE BLACK, PERMANENT AND LEGIBLE. CONTRACT AND SERIAL NUMBER SHALL BE MARKED IN APPROPRIATE BLOCKS.

REVISIONS				
SYM	DESCRIPTION	BY	DATE	APPROVED
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COMPUTER GENERATED DRAWING --- MAKE CHANGES TO DATA BASE NOT TO THIS COPY.



VIEW A
VIEW ROTATED 90° CW



CONNECTOR, 5 ROW VME 64X, MALE, LEVEL 1 (160 PIN), HARTING PART NO. 02011601101 OR EQUIVALENT

ENVELOPE DRAWING

CLASSIFICATION OF CHARACTERISTICS (DOD-STD-2101)

CRITICAL - NONE

MAJOR - NONE

MINOR - ALL CHARACTERISTICS

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			UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ANGLES ± 0°0'		NAVAL AIR WARFARE CENTER WEAPONS DIVISIONS POINT MUGU, CALIF. 93042		DEPARTMENT OF THE NAVY NAVAL AIR SYSTEMS COMMAND WASHINGTON, D.C. 20360	
			.XX DECIMALS ± .03 .XXX DECIMALS ± .010 PART SHALL BE FREE OF BURRS BROKEN EDGES - MAX FILLETS - R MAX		DRAWN TESSADA 4/24/03 APPROVED FOR NAVAIRSYSCOM		INTEGRATED STABILIZED RF SOURCE ASSEMBLY	
1611AS9395			SURFACE ROUGHNESS INTERPRET DRAWING IN ACCORDANCE WITH MIL-STD-100 DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ANSI 14.5M-82 DO NOT SCALE THIS DRAWING		CHECKED		SIZE CAGE CODE NAVAIRSYSCOM DWG NO. REV	
NEXT ASSY LISTED ON USED ON			APPLICATION		BY DIRECTION		D 30003 1611AS12395 A	
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1611AS12395

Quality Assurance Surveillance Plan (QASP) for IFM/ISRFs

Performance Objective	Performance Standard (Expectations)	Acceptable Quality Level (AQL)	Inspection Type and Frequency	Incentive or Remedy
<p>Performance. The contractor shall perform the work assigned with professionalism and at levels that meet or exceed standards without sacrificing quality.</p>	<p>Appropriate statement of work (SOW) tasking is performed without causing programmatic delay to the Government. All products are submitted timely without sacrificing quality.</p>	<p>Satisfactory: Performance and products meet or exceed the standard in paragraphs 3.2 and 3.3 of the Statement of Work, resulting in no delays.</p> <p>Unsatisfactory: Performance and products result in unacceptable delay or impact to program.</p>	<p>Each performance objective will be evaluated every 3 months and will be based on Government evaluations performed throughout the task order period of performance.</p>	<p>Satisfactory: 100% of Total Price.</p> <p>Unsatisfactory:</p> <p>1- Non-payment of Total Price</p> <p>2-No additional orders will be issued.</p>
<p>Schedule. The contractor shall perform SOW/Delivery order tasking in alignment with the specified schedule.</p>	<p>Appropriate SOW tasking is performed without causing programmatic delay to the Government. All products are submitted timely.</p>	<p>Satisfactory: Performance and products meet or exceed the standard specified in the task order, resulting in no delays.</p> <p>Unsatisfactory: Performance and products result in unacceptable delay or impact to program.</p>		
<p>Cost Control. Contractor-incurred costs and hours are consistent with the value of the services and products received by the Government.</p>	<p>The value received is commensurate with the costs and hours expended. All funding and cost status reports are accurate and complete and submitted in accordance with contract requirements.</p>	<p>Satisfactory: Performance and products meet or exceed the standard specified in the task order, resulting in no delays.</p> <p>Unsatisfactory: Performance and products result in unacceptable delay or impact to program.</p>		