

<b>SOLICITATION, OFFER AND AWARD</b>			1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING DO-C9	PAGE OF PAGES 1 24	
2. CONTRACT NUMBER		3. SOLICITATION NUMBER N00173-07-R-RS01		4. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)		5. DATE ISSUED 04/02/2007	
7. ISSUED BY Naval Research Laboratory-SSC Code 3235/RS Department of the Navy Stennis Space Center, MS 39529-5004		CODE N00173		6. REQUISITION/PURCHASE NUMBER 56-9309-07			
8. ADDRESS OFFER TO (If other than Item 7)							

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

**SOLICITATION**

9. Sealed offers in original and 4 copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in Bldg. 1008, Rm. 206, Stennis Spc. Ctr. MS until 3:30 pm local time 04/30/2007  
(Hour) (Date)

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME SEWELL, RICHARD D.	B. TELEPHONE (NO COLLECT CALLS)			C. E-MAIL ADDRESS rsewell@nrlssc.navy.mil
		AREA CODE 228	NUMBER 688-4571	EXT.	

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**OFFER (Must be fully completed by offeror)**

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within \_\_\_\_\_ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)	<input type="checkbox"/> 10 CALENDAR DAYS (%)	<input type="checkbox"/> 20 CALENDAR DAYS (%)	<input type="checkbox"/> 30 CALENDAR DAYS (%)	<input type="checkbox"/> CALENDAR DAYS (%)
14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated):	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE

15A. NAME AND ADDRESS OF OFFEROR	CODE	FACILITY	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)	
15B. TELEPHONE NUMBER	AREA CODE	NUMBER	EXT.	17. SIGNATURE
15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.				18. OFFER DATE

**AWARD (To be completed by Government)**

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION		
22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304(c) ) <input type="checkbox"/> 41 U.S.C. 253(c) ( )		23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)		ITEM
24. ADMINISTERED BY (If other than Item 7) CODE		25. PAYMENT WILL BE MADE BY CODE		
26. NAME OF CONTRACTING OFFICER (Type or print)		27. UNITED STATES OF AMERICA  (Signature of Contracting Officer)		28. AWARD DATE

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

**PART I - THE SCHEDULE  
SECTION B  
SUPPLIES OR SERVICES AND PRICES/COSTS**

**B-1 SUPPLIES OR SERVICES AND PRICES/COSTS**

ITEM NUMBER	SUPPLIES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
0001	The Contractor shall provide the necessary personnel, equipment and facilities to fabricate, integrate, test and deliver the required small-pitch, large-format, short wavelength infrared (SWIR) focal plane arrays, in accordance with the specifications, see Section C, Attachment 1, and Exhibit A, DD Form 1423.				
0001AA	Critical Design Review	1	EA.	_____	_____
0001AB	LCC Readout Chip Delivery	1	LOT	_____	_____
0001AC	Focal Plane Array 1	1	EA	_____	_____
0001AD	Focal Plane Array 2	1	EA	_____	_____
0002	Reports, Drawings and Technical Data DD 1423, Contract Data Requirements List, Exhibit A	1	LOT	NSP	NSP

TOTAL DOLLAR AMOUNT FOR CLINs\*: \$ \_\_\_\_\_

\*CONTRACT LINE ITEM NUMBER

**SECTION C**  
**DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK**

**C-1** Items furnished under this contract shall comply with Attachment (1), Specifications with Exhibit A, DD Form 1423, Contracts Data Requirements List, and all other Attachments cited in Section J, which are incorporated by reference into Section C.

**C-2 REQUIREMENTS FOR ON-SITE CONTRACTORS**

For those portions of the work under this contract performed at any NRL site, the contractor shall comply with the Requirements for On-Site Contractors dated 13 April 2006, which are hereby incorporated by reference. The full text is available at:

<http://heron.nrl.navy.mil/contracts/11onsite.htm>.

**SECTION D**  
**PACKAGING AND MARKING**

**D-1** Preservation, packaging, packing and marking of all deliverable contract line items must conform to normal commercial packing standards to assure safe delivery at destination.

**D-2** The Contractor shall mark all shipments under this contract in accordance with the edition of ASTM-D-3951-90 "Standard Practice for Commercial Packaging" in effect on the date of the contract.

**SECTION E  
INSPECTION AND ACCEPTANCE**

**E-1 INSPECTION AND ACCEPTANCE CLAUSES BY REFERENCE:**

**FAR CLAUSE    TITLE**

- 52.246-2        -    Inspection Of Supplies - Fixed -Price (AUG 1996)
- 52.246-7        -    Inspection Of Research And Development - Fixed Price (AUG 1996)
- 52.246-16      -    Responsibility For Supplies (APR 1984)

**DFARS CLAUSE    TITLE**

- 252.246-7000   -    Material Inspection And Receiving Report (MAR 2003)

**E-2 INSPECTION AND ACCEPTANCE**

Inspection and acceptance of each delivery will be accomplished by the Technical Manager (TM) or Contracting Officer Representative (COR) designated in Section G of this contract. inspection and acceptance will be performed at the Naval Research Laboratory, Washington DC 20375-5320.

**SECTION F  
DELIVERIES OR PERFORMANCE**

**F-1 DELIVERIES OR PERFORMANCE CLAUSES BY REFERENCE:**

<u>FAR CLAUSE</u>	<u>TITLE</u>
52.211-11	- Liquidated Damages - Supplies, Services, Or Research And Development (SEP 2000)(fill in _____)
52.211-17	- Delivery Of Excess Quantities (SEP 1989)
52.242-15	- Stop-Work Order (AUG 1989)
52.242-17	- Government Delay Of Work (APR 1984)
52.247-34	- F.O.B. Destination (NOV 1991)

**F-2 FAR 52.211-8 - TIME OF DELIVERY (JUN 1997)**

(a) The Government requires delivery to be made according to the following schedule:

**REQUIRED DELIVERY SCHEDULE**

<u>Item Number</u>	<u>Quantity</u>	<u>Within Days After Date Of Contract Award</u>
0001AA	1	30 DAYS ARO
0001AB	1	6 MONTHS ARO
0001AC	1	9 MONTHS ARO
0001AD	1	10 MONTHS ARO
0002	(**)	(**)

(\*\*) - Data Deliverables in accordance with DD Form 1423, Contract Data Requirements List

The Government will evaluate equally, as regards time of delivery, offers that propose delivery of each quantity within the applicable delivery period specified above. Offers that propose delivery that will not clearly fall within the applicable required delivery period specified above, will be considered nonresponsive and rejected. The Government reserves the right to award under either the required delivery schedule or the proposed delivery schedule, when an offeror offers an earlier delivery schedule than required above. If the offeror proposes no other delivery schedule, the required delivery schedule above will apply.

**OFFEROR'S PROPOSED DELIVERY SCHEDULE**

<u>Item Number</u>	<u>Quantity</u>	<u>Within Days After Date Of Contract Award</u>
0001AA	1	NLT
0001AB	1	NLT
0001AC	1	NLT
0001AD	1	NLT
0002	(**)	(**)

(\*\*) – Data Deliverables in accordance with DD Form 1423, Contract Data Requirements List

(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 or notice of 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 (i) five calendar days for delivery of the award through the ordinary mails or (ii) 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.

**F-3 PLACE OF DELIVERY - FOB DESTINATION**

The contractor shall deliver supplies, all transportation charges paid, to destination in accordance with the clause in Section F of the Schedule titled FAR 52.247-34 FOB Destination (NOV 1991).

Receiving Officer  
 Naval Research Laboratory  
 Contract Number  
 ATTN: \*  
 CODE: \*  
 LOCATION: \*  
 Bldg. 49  
 4555 Overlook Avenue, SW  
 Washington DC 20375-5320

(\* To be filled in at time of award.)

## SECTION G CONTRACT ADMINISTRATION DATA

### G-1 PROCURING OFFICE REPRESENTATIVE

In order to expedite administration of the contract, the Administrative Contracting Officer (ACO) will direct inquiries to the appropriate office listed below. Please do not direct routine inquiries to the person listed in Item 20A on Standard Form 26.

Security Matters- Contracting Officer for Security, Code 1221, (202) 767-2240, DSN 297-2240, email [security-group@nrl.navy.mil](mailto:security-group@nrl.navy.mil)

Safety Matters- Head, Safety Branch, Code 3540, (202)767-2232, DSN 297-2232, , email [safety@nrl.navy.mil](mailto:safety@nrl.navy.mil)

Patent Matters- Associate Counsel (Intellectual Property), Code 1008.2, (202)404-1552, DSN 297-1552, email [patents@nrl.navy.mil](mailto:patents@nrl.navy.mil)

Release of Data- Public Affairs Officer, Code 1030 (202) 767-2541, DSN 297-2541, email [publicaffairs@nrl.navy.mil](mailto:publicaffairs@nrl.navy.mil)

### G-2 PAYMENT AND INVOICE INSTRUCTIONS

In accordance with the contract clause, *Electronic Submission of Payment Requests* (DFARS 252.232-7003), the contractor must submit requests for payment electronically in the . Wide Area Workflow (WAWF). It may be accessed at its homepage <https://wawf.eb.mil/>. If the contractor has not registered with WAWF, instructions for doing so may be accessed at: <https://wawf.eb.mil/vreg.htm> . The designated Electronic Business (EB) point of contact in the Central Contractor Registration (CCR) is the person responsible for activating the company's CAGE code in WAWF by calling 1-866-618-5988.

Under "Create New Document" select "Invoice and Receiving Report (Combo)" for fixed price supply contracts OR "Invoice as 2 in 1" for fixed price services contracts. When you enter the contract number, some of the other fields in the document may fill out automatically.

Use the appropriate Item Number stated in Section B of the contract (e.g., 0001, 0002 or 0001AA, 0001AB, etc).

If the contract contains multiple accounting classification reference numbers (ACRNs), the ACRN(s) from which payment is to be made must be cited on the invoice. If more than one ACRN is cited, the invoice must indicate the amounts to be paid from each. Information may be obtained from the COR to assist the contractor in determining the appropriate ACRNs from which payment is to be made.

<b>ROUTING TABLE</b>	
<b>DATA REQUIRED FOR SUBMISSION OF INVOICE TO WAWF</b>	
Document Type	<input type="checkbox"/> Invoice and Receiving Report (COMBO) <input type="checkbox"/> Invoice as 2-in-1 (services only)
Contract Number	N00173-07-
Issued By DoDAAC	N00173
Admin By DoDAAC	
Pay DoDAAC	
LPO	N00173
Ship To DoDAAC	N00173 Extension
Service Acceptor email	N00173 Extension
CAGE Code	

**IMPORTANT:** When using WAWF, utilize the **“Send More Email Notifications”** function in WAWF. This additional notification is important to ensure the Government Acceptor is aware that the invoice documents have been submitted into the WAWF system.

<b>Send More Email Notifications</b>	
Acceptor email	@nrl.navy.mil

For assistance with the WAWF system, you may contact the Navy WAWF Assistance Line : 1-800-559-WAWF(9293).

**G-3 TECHNICAL MANAGER - FUNCTIONS AND LIMITATIONS**

\* @nrl.navy.mil is hereby designated the cognizant Technical Manager who will represent the Contracting Officer in the administration of technical details within the scope of this contract and inspection and acceptance. The Technical Manager is not otherwise authorized to make any representations or commitments of any kind on behalf of the Contracting Officer or the Government. The Technical Manager does not have the authority to alter the Contractor’s obligations or change the specifications in the contract. If, as a result of technical discussions, it is desirable to alter contract obligations or statements of work, a modification must be issued in writing and signed by the Contracting Officer.

(\* To be filled in at time of award)

**SECTION H  
SPECIAL CONTRACT REQUIREMENTS**

**H-1 TYPE OF CONTRACT**

(To be filled in at time of award)

**H-2 REPRESENTATIONS AND CERTIFICATIONS**

The Contractor's completed Representations, Certifications, and Other Statements of Offerors or Respondents is incorporated herein by reference in any resultant award.

**H-3 ELECTRONIC AND INFORMATION TECHNOLOGY (EIT)**

In accordance with Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. 794d), all EIT supplies and services provided under this contract must comply with the applicable accessibility standards issued by the Architectural and Transportation Barriers Compliance Board at 36 CFR part 1194 (see FAR Subpart 39.2). Electronic and information technology (EIT) is defined at FAR 2.101.

**H-4 SUBCONTRACTING PLAN**

The contractor's Comprehensive Small Business Subcontracting Plan is incorporated into this contract in accordance with DFARS SUBPART 219.7 *Test Program for Negotiation of Comprehensive Small Business Subcontracting Plans*.

**PART II - CONTRACT CLAUSES**  
**SECTION I**  
**CONTRACT CLAUSES**

**I-1 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>  
<http://heron.nrl.navy.mil/contracts/home.htm>

**a. FEDERAL ACQUISITION REGULATION CLAUSES**

<b>FAR CLAUSE</b>	<b>TITLE</b>
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 (JUN 2003)
52.204-4	- Printed Or Copied Double-Sided On Recycled Paper (AUG 2000)
52.204-7	- Central Contractor Registration (JUL 2006)
52.204-9	- Personal Identity Verification of Contractor Personal (NOV 2006)
52.209-6	- Protecting The Government's Interest When Subcontracting With Contractors Debarred, Suspended, Or Proposed For Debarment (SEP 2006)
52.211-5	- Material Requirements (AUG 2000)
52.211-15	- Defense Priority And Allocation Requirements (SEP 1990)
52.215-2	- Audit And Records-Negotiation (JUN 1999)
52.215-8	- Order Of Precedence - Uniform Contract Format (OCT 1997)
52.215-14	- Integrity Of Unit Prices (OCT 1997)
52.215-15	- Pension Adjustments And Asset Reversions (OCT 2004)
52.215-17	- Waiver Of Facilities Capital Cost Of Money(OCT 1997) ( <i>will be included if the successful offeror does not propose facilities capital cost of money</i> )
52.215-18	- Reversion Or Adjustment Of Plans For Post-Retirement Benefits (PRB) Other Than Pensions (JUL 2005)
52.215-19	- Notification Of Ownership Changes (OCT 1997)
52.215-21	- Requirements For Cost And Pricing Data Or Information Other Than Cost Or Pricing Data - Modifications (OCT 1997) - Alternate IV (OCT 1997)
52.219-4	- Notice Of Price Evaluation Preference For HUBZone Small Business Concerns (JUL 2005) <input type="checkbox"/> Offeror elects to waive the evaluation preference.

- 52.219-8 - Utilization Of Small Business Concerns (MAY 2004)
- 52.219-9 - Small Business Subcontracting Plan (SEP 2006)
- 52.219-9 - Small Business Subcontracting Plan (SEP 2006) Alternate II (OCT 2001)
- 52.219-16 - Liquidated Damages - Subcontracting Plan (JAN 1999)
- 52.222-3 - Convict Labor (JUN 2003)
- 52.222-19 - Child Labor – Cooperation With Authorities And Remedies (JUN 2004)
- 52.222-20 - Walsh-Healey Public Contracts Act (DEC 1996)
- 52.222-21 - Prohibition of Segregated Facilities (FEB 1999)
- 52.222-26 - Equal Opportunity (APR 2002)
- 52.222-35 - Equal Opportunity For Special Disabled Veterans, Veterans Of The Vietnam Era, And Other Eligible Veterans (SEP 2006)
- 52.222-36 - Affirmative Action For Workers With Disabilities (JUN 1998)
- 52.222-37 - Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, And Other Eligible Veterans (SEP 2006)
- 52.222-39 - Notification of Employee Rights Concerning Payment of Union Dues or Fees (DEC 2004)
- 52.223-3 - Hazardous Material Identification And Material Safety Data (JAN 1997)
- 52.223-6 - Drug-Free Workplace (MAY 2001)
- 52.223-14 - Toxic Chemical Release Reporting (AUG 2003)
- 52.225-13 - Restrictions On Certain Foreign Purchases (FEB 2006)
- 52.227-1 - Authorization And Consent (JUL 1995)
- 52.227-1 - Authorization And Consent (JUL 1995) Alternate I (APR 1984)
- 52.227-2 - Notice And Assistance Regarding Patent And Copyright Infringement (AUG 1996)
- 52.227-3 - Patent Indemnity (APR 1984)
- 52.227-11 - Patent Rights - Retention By The Contractor (Short Form) (JUN 1997) *(will be included if the successful offeror is a small business or a non-profit organization)*
- 52.227-12 - Patent Rights - Retention By The Contractor (Long Form) (JAN 1997) *(will be included if the successful offeror is not a small business or a non-profit organization)*
- 52.229-3 - Federal, State, And Local Taxes (APR 2003)
- 52.230-2 - Cost Accounting Standards (APR 1998)
- 52.230-3 - Disclosure And Consistency Of Cost Accounting Practices (APR 1998)
- 52.230-6 - Administration Of Cost Accounting Standards (APR 2005)
- 52.232-2 - Payments Under Fixed-Price Research And Development Contracts (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)
- 52.232-16 - Progress Payments (APR 2003)
- 52.232-17 - Interest (JUN 1996)
- 52.232-18 - Availability Of Funds (APR 1984)
- 52.232-23 - Assignment Of Claims (JAN 1986)
- 52.232-25 - Prompt Payment (OCT 2003)
- 52.232-33 - Payment By Electronic Funds Transfer-Central Contractor Registration (OCT 2003)
- 52.233-1 - Disputes (JUL 2002)
- 52.233-3 - Protest After Award (AUG 1996)
- 52.233-4 - Applicable Law For Breach of Contract Claim (OCT 2004)
- 52.239-1 - Privacy Or Security Safeguards (AUG 1996)

- 52.242-13 - Bankruptcy (JUL 1995)
- 52.243-1 - Changes - Fixed Price (AUG 1987)
- 52.243-6 - Change Order Accounting (APR 1984)
- 52.244-2 - Subcontracts (AUG 1998) - Alternate I (mar 2005)
- 52.244-5 - Competition In Subcontracting (DEC 1996)
- 52.244-6 - Subcontracts For Commercial Items (SEP 2006)
- 52.245-1 - Property Records (APR 1984)
- 52.245-2 - Government Property (Fixed-Price Contracts) (JUN 2003)
- 52.245-4 - Government-Furnished Property (Short Form) (JUN 2003)
- 52.245-5 - Government Property (Cost-Reimbursement, Time-And-Material, Or Labor-Hour Contracts) (MAY 2004)
- 52.245-9 - Use And Charges (AUG 2005)
- 52.245-19 - Government Property Furnished "As Is" (APR 1984)
- 52.246-18 - Warranty of Supplies Of A Complex Nature (MAY 2001)
- 52.246-24 - Limitation Of Liability - High-Value Items (FEB 1997)
- 52.247-63 - Preference For U.S.-Flag Air Carriers (JUN 2003)
- 52.247-64 - Preference For Privately Owned U.S. Flag Commercial Vessels (FEB 2006)
- 52.248-1 - Value Engineering (FEB 2000)
- 52.249-2 - Termination For Convenience Of The Government (Fixed Price) (SEP 1996)
- 52.249-9 - Default (Fixed-Price Research And Development) (APR 1984)
- 52.251-1 - Government Supply Sources (APR 1984)
- 52.252-6 - Authorized Deviations In Clauses (APR 1984) fill in Defense Federal Acquisition Regulation Supplement (48 CFR Chapter 2);
- 52.253-1 - Computer Generated Forms (JAN 1991)

#### **DFARS CLAUSE TITLE**

- 252.201-7000 - Contracting Officer's Representative (DEC 1991)
- 252.203-7001 - Prohibition On Persons Convicted Of Fraud Or Other Defense Contract Related Felonies (DEC 2004)
- 252.203-7002 - Display Of DoD Hotline Poster (DEC 1991)
- 252.204-7000 - Disclosure Of Information (DEC 1991)
- 252.204-7002 - Payment For Subline Items Not Separately Priced (DEC 1991)
- 252.204-7003 - Control Of Government Personnel Work Product (APR 1992)
- 252.204-7004 - Alternate A (NOV 2003)
- 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 (MAR 1998)
- 252.215-7000 - Pricing Adjustments (DEC 1991)
- 252.215-7002 - Cost Estimating System Requirements (DEC 2006)
- 252.219-7003 - Small, Small Disadvantaged And Women-Owned Small Business Subcontracting Plan (DoD Contracts) (APR 1996)
- 252.222-7006 - Combating Trafficking In Persons (OCT 2006)
- 252.223-7001 - Hazard Warning Labels (DEC 1991)
- 252.223-7004 - Drug-Free Work Force (SEP 1988)
- 252.223-7006 - Prohibition On Storage And Disposal Of Toxic And Hazardous Materials (APR 1993)

- 252.225-7001 - Buy American Act And Balance Of Payments Program (JUN 2005)
- 252.225-7002 - Qualifying Country Sources As Subcontractors (APR 2003)
- 252.225-7012 - Preference For Certain Domestic Commodities (JUN 2004)
- 252.225-7013 - Duty-Free Entry (OCT 2006)
- 252.225-7031 - Secondary Arab Boycott Of Israel (JUN 2005)
- 252.225-7036 - Buy American Act – Free Trade Agreements -- Balance Of Payments Program (OCT 2006)
  
- 252.226-7001 - Utilization of Indian Organizations, Indian-Owned Economic Enterprises, And Native Hawaiian Small Business Concerns (SEP 2004)
  
- 252.227-7000 - Non-Estoppel (OCT 1966)
- 252.227-7001 - Release Of Past Infringement (AUG 1984)
- 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)
  
- 252.227-7016 - 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)
  
- 252.227-7026 - Deferred Delivery Of Technical Data Or Computer Software (APR 1988)
- 252.227-7030 - Technical Data--Withholding Of Payment (MAR 2000)
- 252.227-7034 - Patents--Subcontracts (APR 1984)
- 252.227-7036 - Certification Of Technical Data Conformity (JAN 1997)
- 252.227-7037 - Validation Of Restrictive Markings On Technical Data (SEP 1999)
- 252.227-7039 - Patents--Reporting of Subject Inventions (APR 1990)
  
- 252.231-7000 - Supplemental Cost Principles (DEC 1991)
- 252.232-7003 - Electronic Submission of Payment Requests (MAY 2006)
- 252.232-7004 - DoD Progress Payment Rates (OCT 2001)
- 252.232-7006 - Alternate A (DEC 2003)
- 252.232-7009 - Mandatory Payment By Governmentwide Commercial Purchase Card (JUL 2000)
  
- 252.232-7010 - Levies On Contract Payments (DEC 2006)
- 252.235-7010 - Acknowledgment of Support and Disclaimer (MAY 1995)
- 252.235-7011 - Final Scientific Or Technical Report (NOV 2004)
- 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) (NOV 2005)
  
- 252.245-7001 - Reports Of Government Property (MAY 1994)
- 252.247-7023 - Transportation Of Supplies By Sea (MAY 2002)
- 252.247-7024 - Notification Of Transportation Of Supplies By Sea (MAR 2000) *(will be included if the successful offeror made a negative response to the inquiry at DFARS 252.247-7022)*
  
- 252.251-7000 - Ordering From Government Supply Sources (OCT 2002)

**I-2 FAR 52.223-11 - OZONE-DEPLETING SUBSTANCES (MAY 2001)**

(a) *Definitions.* "Ozone-depleting substance", as used in this clause, means any substance the Environmental Protection Agency designates in 40 CFR Part 82 as –

(1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or

(2) Class II, including, but not limited to, hydrochlorofluorocarbons.

(b) The Contractor shall label products which contain or are manufactured with ozone-depleting substances in the manner and to the extent required by 42 U.S.C. 7671j (b), (c), and (d) and 40 CFR Part 82, Subpart E, as follows:

**WARNING**

Contains (or manufactured with, if applicable) \* \_\_\_\_\_, a substance(s) which harm(s) public health and environment by destroying ozone in the upper atmosphere.

\*The Contractor shall insert the name of the substance(s).

**PART III - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS**

**SECTION J**

**LIST OF ATTACHMENTS**

**J-1** Attachment (1) - Specifications -10 Pages, with Exhibit A - DD Form 1423, Contract Data Requirements - 5 Pages.

**J-2** Attachment (2) - Accounting and Appropriation Data - 1 page. \*

*(\* To be included at time of award)*

**PART IV - REPRESENTATIONS AND INSTRUCTIONS**  
**SECTION K**  
**REPRESENTATIONS, CERTIFICATIONS**  
**AND OTHER STATEMENTS OF OFFERORS OR RESPONDENTS**

**K-1 REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS OR RESPONDENTS**

In accordance with FAR 4.1201, prospective contractors must complete electronic annual federal representations and certifications via the Online Representations and Certifications Application (ORCA) at <http://orca.bpn.gov> in conjunction with required registration in the Central Contractor Registration (CCR) <http://www.ccr.gov> database. The representations and certification must be updated as necessary, but at least annually, to ensure they are kept current, accurate and complete.

In addition, each offeror must submit completed DFARS and contract specific Representations, Certifications, and Other Statements Of Offerors or Respondents with its proposal which is available electronically in full text at <http://heron.nrl.navy.mil/contracts/rep sandcerts.htm> .  
Use Contract Representations and Certifications: A

**K-2 FILL IN FOR FAR 52.219-1 - SMALL BUSINESS PROGRAM REPRESENTATIONS (MAR 2001)**

The fill in information is as follows:

The NAICS code for this acquisition is 541710

The small business size standard is 500 employees.

**SECTION L**  
**INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS OR RESPONDENTS**

**L-1 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)**

This solicitation incorporates one or more solicitation provisions 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. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

<http://www.arnet.gov/far>  
<http://heron.nrl.navy.mil/contracts/home.htm>

**FAR CLAUSE TITLE**

52.204-6	-	Data Universal Numbering System (DUNS) Number (OCT 2003)
52.204-8	-	Annual Representations and Certifications (JAN 2005)
52.214-34	-	Submission Of Offers In The English Language (APR 1991)
52.214-35	-	Submission Of Offers In U.S. Currency (APR 1991)
52.215-1	-	Instructions To Offerors- Competitive Acquisition (JAN 2004)
52.215-16	-	Facilities Capital Cost Of Money (JUN 2003)
52.222-24	-	Preaward On-Site Equal Opportunity Compliance Evaluation (FEB 1999)

**DFAR CLAUSE TITLE**

252.209-7001 - Disclosure Of Ownership Or Control By The Government Of A Terrorist Country in all solicitations expected to result in contracts of \$100,000 or more. (OCT 2006)

**L-2 INSTRUCTIONS FOR SUBMISSION OF PROPOSALS/OFFERS**

All proposals shall be submitted in accordance with FAR 52.215-1- *Instructions to Offerors- Competitive Acquisition*. Proposals/offers submitted in paper media through the United States Postal Service (USPS) or overnight delivery services shall be addressed to:

Contracting Officer, ATTN: RS Code 3235  
 Naval Research Laboratory - SSC  
 Building 1008, Room 206  
 Stennis Space Center, MS 39529-5004  
 Solicitation/RFP No.: N00173-07-R-RS01  
 Closing Date: 30 APR 2007 Time 3:30 p.m. local time

Proposals may be hand delivered to the Contracting Office, NRL-SSC, Building 1008, Room 206, Stennis Space Center, MS 39529-5004 between the hours of 8AM until 3:30PM, local time, excluding weekends and federal holidays. NRL is a controlled-access facility. Photo identification will be required. Report first to the South Gate Visitor Center for access to NRL, Stennis Space Center, MS.. After receiving a1 Visitor Pass, proceed directly to Building 1008, Room 206, to deliver the proposal. All offerors shall allow sufficient time for delivery of their proposal to the Contracting Office prior to the closing date and time announced in the solicitation. Directions and additional information about NRL is

available at <http://www.nrl.navy.mil/aboutdc.htm>

If facsimile proposals are authorized, contracting officers may request offeror(s) to provide the complete; original signed proposal at a later date.

**L-3 FAR 52.211-14 - NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (SEP 1990)**

Any contract awarded as a result of this solicitation will be a  DX rated order;  DO rated order certified for national use under the Defense Priorities and Allocations system (DPAS) (15 CFR 700), and the Contractor will be required to follow all of the requirements of this regulation.

**L-4 FAR 52.215-20 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA (OCT 1997)ALTERNATE IV (OCT 1997)**

- (a) Submission of cost or pricing data is not required.
- (b) Provide information described below :  
Offerors should provide information to enable the Contracting Officer to determine that the proposed price is fair and reasonable. Such information could include published price lists, information on previous sales of the same or similar items, or the projected costs of fabricating and installing the item (material costs, labor costs, etc).

**L-5 FAR 52.216-1 - TYPE OF CONTRACT (APR 1984)**

The Government contemplates award of a Firm Fixed Price Research and Development contract resulting from this solicitation.

**L-6 FAR 52.222-18 - CERTIFICATION REGARDING KNOWLEDGE OF CHILD LABOR FOR LISTED END PRODUCTS (FEB 2001)**

The fill-in information is as follows:

Listed End Product	Listed Countries of Origin

**L-7 FAR 52.233-2 - SERVICE OF PROTEST (AUG 1996)**

(a) Protests, as defined in Section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO) shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from the Receptionist Desk, Code 3200, Bldg. 222, Rm. 115, Naval Research Laboratory, 4555 Overlook Ave., S.W., Washington DC 20375-5326.

(b) The copy of any protest shall be received in the office designated above within one day of

filing a protest with the GAO.

**L-8 DFARS 252.227-7017 - IDENTIFICATION AND ASSERTION OF USE, RELEASE, OR DISCLOSURE RESTRICTIONS (JUN 1995)**

- (a) The terms used in this provision are defined in following clause or clauses contained in this solicitation—
  - (1) If a successful offeror will be required to deliver technical data, the Rights in Technical Data--Noncommercial Items clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.
  - (2) If a successful offeror will not be required to deliver technical data, the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.
- (b) The identification and assertion requirements in this provision apply only to technical data, including computer software documents, or computer software to be delivered with other than unlimited rights. For contracts to be awarded under the Small Business Innovative Research Program, the notification requirements do not apply to technical data or computer software that will be generated under the resulting contract. Notification and identification is not required for restrictions based solely on copyright.
- (c) Offers submitted in response to this solicitation shall identify, to the extent known at the time an offer is submitted to the Government, the technical data or computer software that the Offeror, its subcontractors or suppliers, or potential subcontractors or suppliers, assert should be furnished to the Government with restrictions on use, release, or disclosure.
- (d) The Offeror's assertions, including the assertions of its subcontractors or suppliers or potential subcontractors or suppliers shall be submitted as an attachment to its offer in the following format, dated and signed by an official authorized to contractually obligate the Offeror:

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software.

The Offeror asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data or computer software should be restricted:

Technical Data Computer Software to be Furnished With Restrictions*	Basis for Assertion **	Asserted Rights Category ***	Name of Person Asserting Restrictions****
(List)*****	(List)	(List)	(List)

- \* For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such items, component, or process. For computer software or computer software documentation identify the software or documentation.
- \*\* Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions. For technical data, other than computer software documentation, development refers to development of the item, component, or process to which the data pertain. The Government's rights in computer software documentation generally may not be restricted. For computer software, development refers to the software. Indicate whether development was accomplished exclusively or partially at private expense. If development was not accomplished at private expense, or for computer software documentation, enter the specific basis for asserting restrictions.
- \*\*\* Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited, restricted, or government purpose rights under this or a prior contract, or specially negotiated licenses).
- \*\*\*\* Corporation, individual, or other person, as appropriate.
- \*\*\*\*\* Enter "none" when all data or software will be submitted without restrictions.

Date \_\_\_\_\_  
 Printed Name and Title \_\_\_\_\_  
 \_\_\_\_\_  
 Signature \_\_\_\_\_

(End of identification and assertion)

- (e) An offeror's failure to submit, complete, or sign the notification and identification required by paragraph (d) of this provision with its offer may render the offer ineligible for award.
- (f) If the Offeror is awarded a contract, the assertions identified in paragraph (d) of this provision shall be listed in an attachment to that contract. Upon request by the Contracting Officer, the Offeror shall provide sufficient information to enable the Contracting Officer to evaluate any listed assertion.

**L-9 GOVERNMENT-FURNISHED PROPERTY**

No material, labor, or facilities will be furnished by the Government unless provided for in the solicitation.

**L-10 INQUIRIES CONCERNING THE RFP**

Any questions concerning the RFP must be submitted in writing to the Contracting Officer at the location noted in blocks 7 and 10 of the Standard Form 33, "Solicitation, Offer and Award," no less than fifteen (10) days before closing. Offerors are cautioned against directing any questions concerning this RFP to technical personnel at the Naval Research Laboratory.

## **L-11 PROPOSAL ORGANIZATION**

(1) Information for the technical/management proposal shall be placed in Volume I and be completely separate from the business proposal (Volume II).

(2) Proposal Identification/Mailing - The proposal should be packaged for delivery so as to permit safe and timely arrival at destination. The proposal package should be sent to the address shown in Block 7 of the RFP face page and marked:

**Solicitation No. N00173-07-R-RS01**  
**Closing Date: (As specified in Block 9, RFP face page)**  
**Attn: Code 3235:RDS**

(3) Proposal Format and Length - No attempt is made to restrict the proposal format and style. However, the proposal should be written and organized so as to be compatible with the RFP. Offerors are encouraged to use recycled paper and maximize the use of double sided copying when preparing responses to solicitations.

## **L-12 VOLUME I - TECHNICAL/MANAGEMENT PROPOSAL**

**REQUIRED COPIES: 1 ORIGINAL AND 4 COPIES OF THE TECHNICAL PROPOSAL**

### **L.12.A GENERAL PROPOSAL CONTENT:**

Offerors are required to furnish an original and four copies of a detailed TECHNICAL PROPOSAL with sufficient detail to show compliance with the requirements stated in each subparagraph of Section C and Attachment 1 of this solicitation. Specific cost or pricing details shall be omitted from the Technical Proposal.

The technical proposal shall include any drawings, diagrams, schematics (including schematic drawings), which will enable independent technical evaluation of the proposal.

The technical proposal shall clearly and concisely identify and discuss the Offeror's technical and managerial qualifications and approaches to accomplishing the requirements outlined in Section C.

The technical proposal shall be subdivided into a "Proposal Summary" section, a "Conformance with Technical Description" section, and a "Corporate Past Performance Information" section in that order.

The technical proposal shall also contain responses to each of the individual requirements listed in Attachment 1. Each response shall furnish the Government with sufficient detail to enable the technical evaluation panel to independently evaluate each response against the respective Government requirement as stated in Section C and Section M.

**L.12.B SPECIFIC REQUIREMENTS:****L.12.B.1 Proposal Summary**

The proposal summary is an unevaluated requirement. The Offeror shall provide a concise summary, exclusive of cost information, of its proposal. This summary should be complete, stand on its own, and provide executive level reviewers with an understanding of the content of the proposal. The summary should summarize the highlights, responses, plans and qualification contained in the body of the technical proposal.

**L.12.B.2 Conformance with Technical Description**

The Offeror shall discuss in detail its proposed technical approach to accomplishment of those requirements listed in Section C and Attachment 1 of this solicitation, which will lead to delivery of the required Small-Pitch, Large-Format, Short Wavelength Infrared Focal Plane Arrays. This discussion shall be in sufficient detail to (a) demonstrate the Offeror's compliance with the requirements specified in Section C and Attachment 1 of this solicitation; (b) demonstrate the Offeror's technical competence and understanding of the purpose, objectives and scope of the required work; (c) demonstrate the Offeror's understanding of the specific technical issues dealt with in Section C and Attachment 1; (d) present the Offeror's proposed procedures and solutions to address the requirements in Section C and Attachment 1; (e) provide a detailed description of the final deliverables; and (f) address all other pertinent technical issues.

**L.12.B.3 Corporate Past Performance**

(a) Offerors shall submit the following information as part of their proposal. (Offerors are encouraged to submit the information prior to other parts of the proposal to assist the government in reducing the length of the evaluation period.) List the last contracts or subcontracts completed by the offeror or predecessor companies during the past years for services similar in nature to this requirement. Include in the any current contracts or subcontracts for similar services that were awarded at least one year prior to the date of this solicitation. Offerors that have no similar previous or current contracts should provide the requested information for proposed subcontractors that will perform major or critical aspects of the requirement or for the proposed project manager or key personnel responsible for major or critical aspects of the requirement.

1. Name of contracting organization.
2. Contract number
3. Contract type
4. Total contract value
5. Description of the contract work
6. Contracting officer and telephone number
7. Contracting officer's representative, program manager, or similar official and telephone number

(b) Offerors shall contact the contracting organizations identified pursuant to paragraph (a) as soon as possible and request them to send past performance information on the identified contracts to the address in Block 7 of the face page of this solicitation. The past performance report which is available electronically in full text at <http://heron.nrl.navy.mil/contracts/home.htm> is to be provided to the contracting organization for this purpose. If the contracting organization has already collected

past performance information on the contract pursuant to FAR Subpart 42.15, the format used to collect the information may be used instead of the past performance report.

(c) Offerors may include in their proposals specific information relating to problems encountered in performing the identified contracts and any corrective actions by the offeror. Offerors should not provide general information on their performance on the identified contracts as this will be obtained from the contracting organizations.

**VOLUME II - BUSINESS PROPOSAL**

L.12.C        REQUIRED COPIES: 1 ORIGINAL AND 2 COPIES

L.12.C.1     PRICE PROPOSAL

The offeror shall submit a business proposal that includes a price proposal with supporting information. The supporting breakdown shall include such elements as materials, direct labor, indirect expenses and any other costs associated with the design, development, production, testing, and delivery of the final hardware deliverables. The offeror shall provide exhibits as necessary to substantiate the price.

## **SECTION M EVALUATION FACTORS FOR AWARD**

### **M-1 EVALUATION**

The Government will award a contract resulting from this solicitation to the responsible offeror whose offer, conforming to the solicitation, will provide the best value to the Government, price and other factors considered.

### **M-2 EVALUATION FACTORS FOR AWARD**

The specific technical evaluation criteria to be use shall include (a) Conformance with Technical Description, and (b) Corporate Past Performance. The Technical evaluation will consider the Offeror's overall approach to, understanding of, and capability to provide the requirements listed in Section C and Attachment 1 of this solicitation, as reflected in the Offeror's responses to the evaluation criteria listed in Section L.12.B.2. Technical scores will be based on an evaluative determination of whether the Offeror's proposal meets, does not meet, or, as proposed, is more advantageous than the Government's minimum requirements.

Of the evaluated components within the Technical Category, "Conformance with Technical Description" carries a significantly higher weight than "Corporate Past Performance".

Corporate Past Performance - Past performance will be evaluated on the basis of the quality of the work performed or supplies delivered and timeliness of performance or delivery. The evaluation will be based on the information provided pursuant to Section L.12.3 and other sources if available. The evaluation will take into account past performance information regarding predecessor companies, subcontractors that will perform major or critical aspects of the requirement, or the proposed project manager or key personnel responsible for major or critical aspects of the requirement. Offerors that have no relevant performance history or for which past performance information is not available will not be evaluated favorably or unfavorably on past performance. The government may begin proposal evaluation prior to receipt of past performance information. If, after completion of proposal evaluation except evaluation of past performance, the contracting officer determines that evaluation of past performance will not affect the outcome of competitive selection, the contracting officer may waive its evaluation in accordance with FAR 15.304(c)(3)(iii).

#### **M-2-2 PRICE TO THE GOVERNMENT**

Proposed estimated price to the Government.

### **M-4 AWARD BY FULL QUANTITY**

An offeror shall propose on all items in this solicitation to be eligible for award.

## **Spec/SOW for SWIR 2K FPA**

### **Background**

**A.1** The Optical Sciences Division (OSD) of the Naval Research Laboratory requires two (2) small-pitch, large-format, short-wavelength infrared (SWIR) focal plane arrays (FPAs) for use in daytime hyperspectral imaging sensor developments. These FPAs shall be provided integrated into permanently sealed vacuum dewars, which in turn shall be equipped with associated cryogenic cooling subsystems for reducing the FPAs' operating temperature to a value at which the performance requirements can be met. The integration mode shall be snapshot (i.e. integration period begins and ends simultaneously for all pixels, as opposed to ripple or rolling integration)

### **Statement of Work**

The contractor shall fabricate, integrate, test, and deliver two (2) SWIR FPAs in permanent-dewar packages IAW the attached specifications of performance, interface, and configuration. Delivery of the fully compliant FPAs shall be preceded by delivery of a device which represents the electrical interface operation of the eventual deliverable; this device, which need not exhibit optical sensitivity, shall be used by OSD for early checkout of system integration provisions. Additionally, the Contractor shall provide documentation for the controls and cabling needed for operation of the FPA by OSD personnel in the laboratory environment. Deliveries shall be IAW the schedule detailed below.

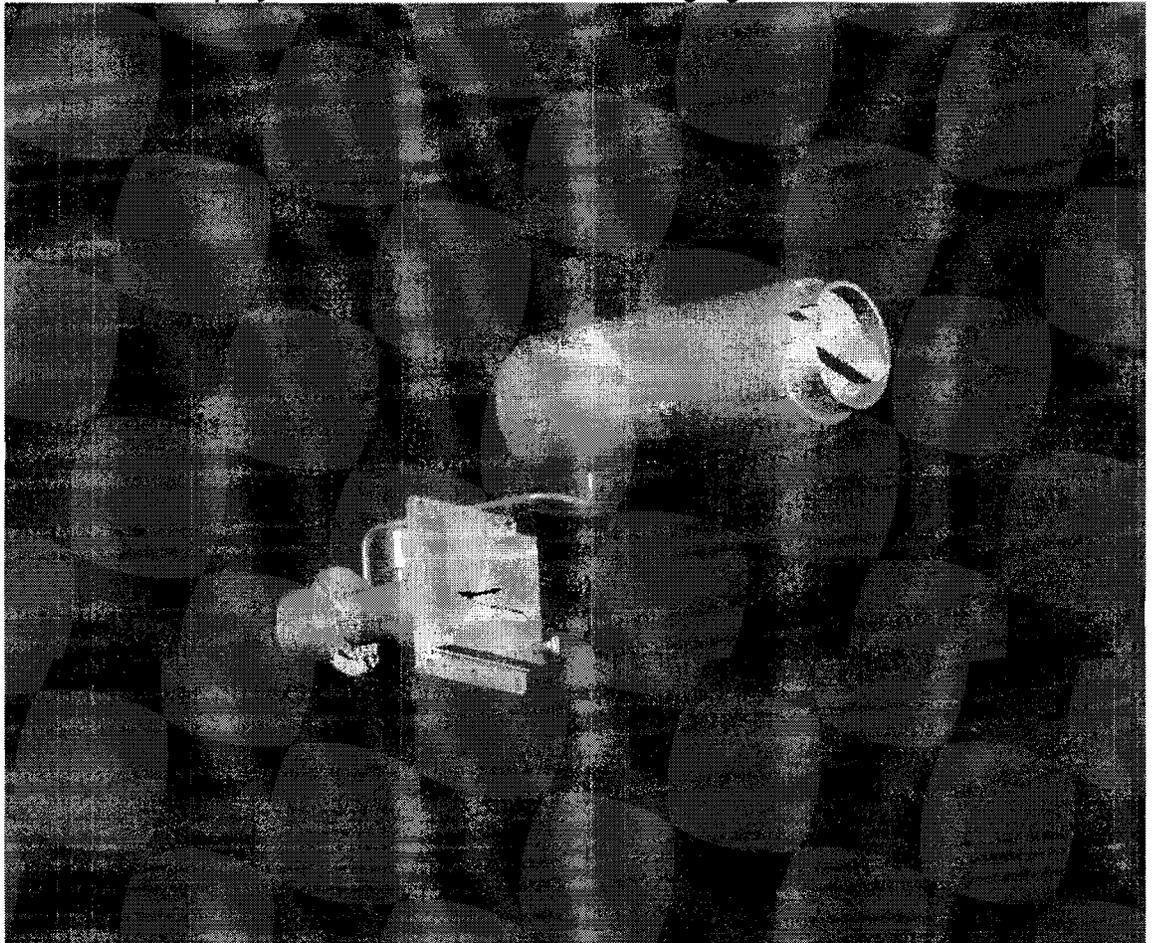
During the course of the development, the vendor shall conduct design and progress reviews IAW the schedule detailed below, and shall deliver design and presentation documentation per the attached DD1423. Deliverables required under this contract shall include monthly cost and progress reports, a final technical report, design drawings, interface control documentation, and an operating manual.

### **B. FPA/Dewar Configuration Specification**

- B.1** Pixel count:  $\geq 1920 \times \geq 512$  pixels (Note: While all  $\geq 1920$  pixels will be used in one array dimension, only 512 pixels will be used in the other array dimension if it is larger. If a larger array is used, the supplier may position the array in order to utilize an area with minimum defects.)
- B.2** Unit cell pitch: 20 microns square
- B.3** Packaging: The FPAs shall be delivered integrated into permanently-sealed evacuated cooler/dewar assemblies IAW outline & mounting (O&M) specifications below; incorporating windows and internal

spectral filters IAW specifications below. The compressor/cooler shall be the Carleton LC1056 or equivalent. While the details of the mechanical interface will be determined, and the contractor shall work with the government to arrive at mutually agreeable mechanical interface, the integrated cooler/dewar assembly and any heat transfer mechanism shall not exceed a volume with dimensions 2.8" X 2.92" X 4.28". The 4.28" dimension is parallel to the chief ray for this telecentric optical illumination system.

**B.3.1 Envelope:** The dewar/expander assembly, inclusive of any CFE external electronics including the cryogenic cooler controller, shall fit within a rectilinear envelope shown in the Shrink Wrap STEP file attached. One projection is shown in the following figure.



**B.3.2 Mounting:** The dewar assembly shall be mounted by a flange having mounting holes in a plane parallel to and adjacent to the plane of the FPA as shown in the attached STEP file. Details of the mechanical interface (to include which side of the flange is to meet the precision requirements) will be provided by OSD NLT 4 weeks prior to CDR.

**B.3.3 Alignment:** The FPA top surface and detector plane shall be aligned parallel to the mounting plane within 1  $\mu\text{m}$ . The FPA shall be aligned in translation along the axes parallel to the mounting plane with an accuracy of  $\pm 50$  microns; the required relationship between the FPA center and mounting flange features may be further defined by OSD NLT 2 weeks prior to CDR. The FPA shall be oriented in rotation about the perpendicular axis such that the pixel grid aligns with TBD mounting flange features within 10  $\mu\text{m}$ ; the required relationship between FPA orientation and mounting flange features will be defined by OSD NLT 2 weeks prior to CDR.

**B.3.4 FPA-to-window dimension:** The distance from the focal plane to the front of the sapphire dewar/window shall not exceed the dimension in the STEP file.

**B.4 Dewar/Cooler:**

**B.4.1 Implementation:** Each cryogenic cooler subsystem shall consist of a closed-cycle split-Stirling compressor/expander unit, along with the associated controller and transfer line. The controller shall allow adjustment of focal plane temperature to the maximum value at which the required performance can reliably be achieved, to minimize power dissipation. The transfer line shall be configured IAW a drawing to be furnished by OSD NLT 2 weeks prior to CDR.

**B.4.2 Envelope:** The cryogenic compressor shall fit within the envelope 6 cm in diameter by 16 cm long. The contractor shall supply O&M drawings of the compressor,. (CDRL A003).

**B.4.3 Heat rejection:** Heat produced by the dewar/expander and the compressor shall primarily be dissipated convectively, augmented by fins (within the allowable volume envelopes) if desired. The contractor shall supply ICD drawings for the fin/mounting areas of the compressor and expander, and shall specify requirements for fin area and airflow in the area of such fins (CDRL A003). The contractor shall supply and assemble the cooling fin assemblies.

**B.4.4 Vibration:** The contractor shall ensure that the varying force produced by the cooling subsystem is less than 1.0 N, with a goal of less than 0.2 N, zero-to-peak at the operating frequency of the cryogenic cooler, during normal operation after cooldown of the system has been completed.

**B.4.5 Vacuum life:** The dewar shall maintain sufficient vacuum for a period of two (2) years without servicing in order for the system to transition from ambient to the design operating temperature within 5 minutes.

**B.5 Dewar feedthroughs:** The contractor shall connect the FPA/dewar assembly through the dewar to their respective external electronics

assemblies. The connector(s) and pinouts shall be IAW the external electronics ICD discussed elsewhere (CDRL A004).

**B.6** Window: The dewar window shall provide an aperture of approximately 25 X 50 mm; exact dimensions will be provided to OSD NLT 2 weeks before CDR.

**B.7** Filter(s):

B.7.1 Cut-on: The dewar window and/or order-sorting filter (OSF) shall effectively block light of wavelength  $< 0.9$  microns from entering the volume containing the FPA.

B.7.2 OSF: An OSF with a nominal thickness of 3 mm shall be supplied and installed into each dewar assembly parallel to and just in front of the FPA. The OSF back surface shall be within approximately 125 microns of the FPA. The OSF shall be aligned in translation in the axes perpendicular to the chief ray with an accuracy of  $\pm 125$  microns. It shall be oriented in rotation such that a perfectly straight linear feature on the filter would maintain the specified alignment tolerance wrt the pixel grid across the maximum extent of the FPA.

### **C. FPA Assembly Performance Specification**

**C.1** Spectral Response: 0.9-2.5 microns

**C.2** Average quantum efficiency:  $> 70\%$  (in-band, through dewar window and filter(s))

**C.3** Response operability: greater than 99.4%, where operability is defined as having responsivity  $> \frac{1}{2}$ \*(mean responsivity)

**C.4** Response uniformity: less than 10% sigma/mean at 50% average well filling and adequate correctibility to reduce residual spatial noise below temporal noise for the time period of a mission.

**C.5** Response Linearity: less than  $\pm 2\%$  deviation from linear over 80% of the dynamic range specified below

**C.6** Integration mode: Snapshot (i.e. integration period begins and ends simultaneously for all pixels, as opposed to ripple or rolling integration)

**C.7** Frame rate:  $\geq 200$  Hz (for a window  $1920 \times \geq 512$ )

**C.8** Variable integration time: 30 microseconds to 30 milliseconds

**C.9** SNR

C.9.1 Well capacity:  $> 70000$  electrons

C.9.2 Noise:  $< 50$  photoelectrons at 180K operating temperature

C.9.3 Gain:  $> 30$  microvolt/electron

**C.10** Windowing: Externally configurable windowing by row, with start and stop rows selectable in 32-row increments.

**C.11** Output voltage swing:  $\geq 2.3$  volt full-swing

**C.12** External serial interface control for the following functions:

C.12.1 Read frame

C.12.2 Start integrate

C.12.3 Set integration time

C.12.4 Set integration mode

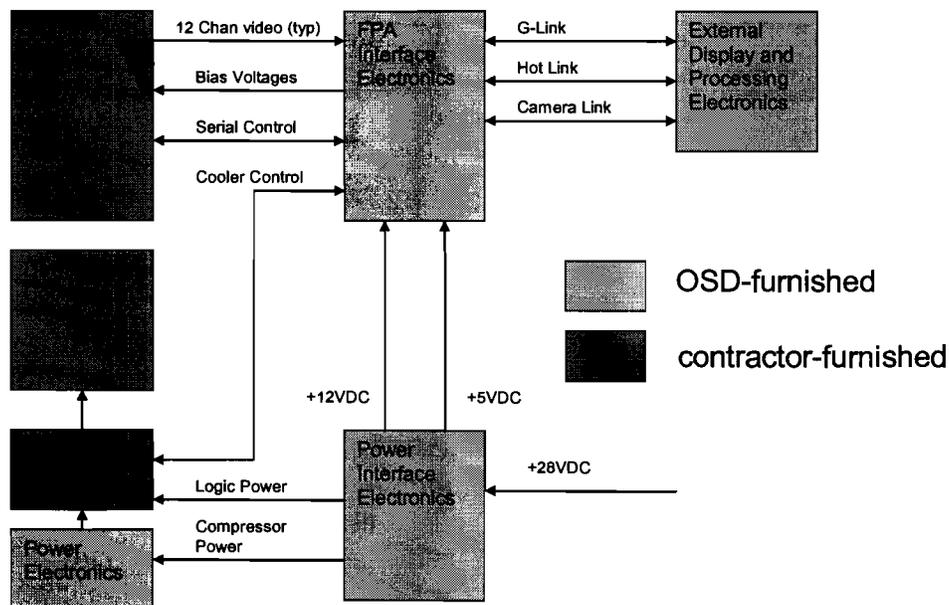
C.12.5 Set output mode

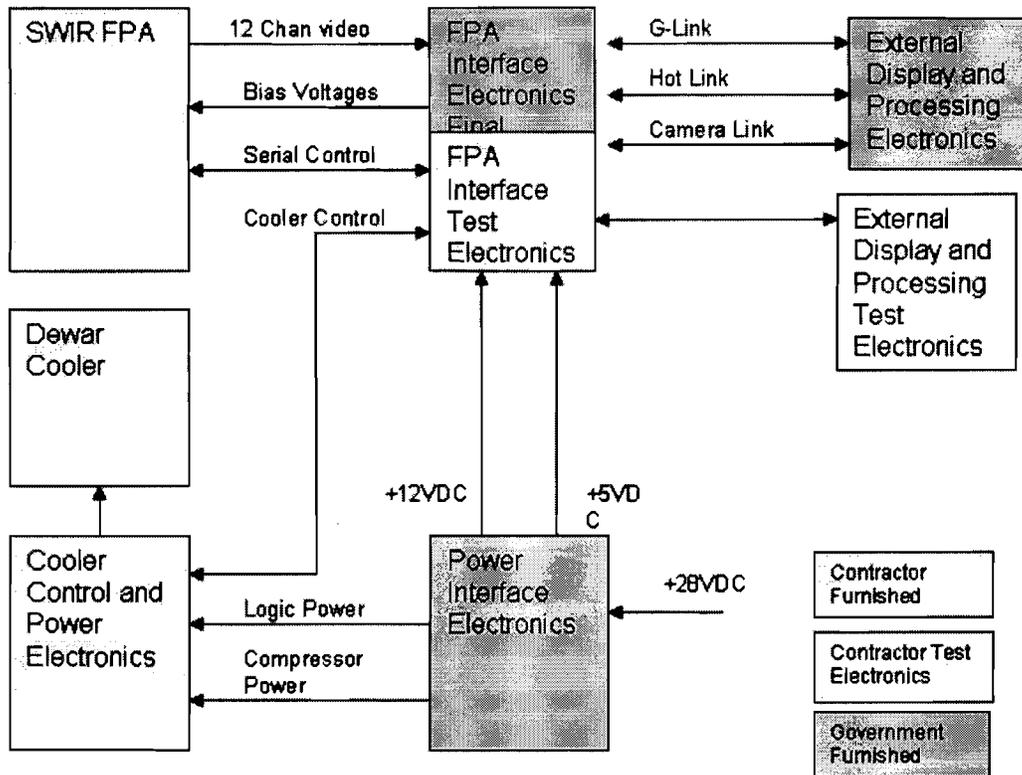
**D. External Electronics/Testing**

It is OSD's intention to operate these FPAs in eventual system applications using readout electronics provided by a third-party vendor. Intended functions of these external electronics shall include: clock and bias generation; reception of the multiplexed analog signal(s) from the FPA output(s), with any needed gain and/or offset adjustment; digitization of the analog samples; and any required formatting to interface with downstream processing. Accordingly, proposals shall describe the vendor's preferred interface with these external electronics, and shall address the approach whereby achievement of the specified performance levels may be demonstrated at the contractor's facility prior to acceptance of the deliverables.

OSD commits to have the external readout electronics meet the FPA contractor's specified interface requirements. Therefore, during conduct of this development, the vendor shall prepare and deliver an Interface Control Document (ICD) controlling the interface with the external electronics (CDRL A004). The vendor shall demonstrate achievement of the requisite FPA performance using his own in-house readout electronics, so long as the demonstration includes evidence that an explicit FPA/electronics interface exists which complies with the ICD; in this case, OSD accepts responsibility for the level of performance eventually achieved using the third-party external electronics. The vendor shall assist OSD to demonstrate performance using OSD's third-party electronics, which would be GFE under the contract;

The following figure conveys OSD's concept of the block diagram of the external electronics in relation to the contractor-furnished equipment.





The following table conveys OSD's concept of the operation of the external electronics.

The contractor shall deliver one (1) readout circuit of the same type used in the delivered focal planes to support design and trouble-shooting of the external control electronics. The contractor shall also supply up to 80 man-hours of engineering consultation in support of OSD's electronics development.

### **E. Data Deliverables**

- E.1**      Reports: Reports shall be submitted monthly summarizing costs and technical progress. (CDRL's A001, A002)
- E.2**      Ad hoc meetings: Technical interchange working meetings will be scheduled when required. It is anticipated that approximately 4 such meetings shall take place, most of them by teleconference. These meetings shall include exchange of data on the mechanical and electrical system interfaces, as well as executive summaries of design review material as required. (CDRL A003)
- E.3**      Cryogenic subsystem ICDs: IAW SOW paragraphs A.4.2 and A.4.3 (CDRL A004)
- E.4**      External readout electronics ICD: IAW SOW paragraphs A.5 & C (CDRL A005)
- E.5**      Critical Design Review: A review of the final design shall be conducted at the contractor's facilities NLT 30 days after contract award. Topics to be covered at the CDR include:
- E.5.1 A discussion of configuration design trade studies and designs, including O&M diagrams and documentation of external interfaces for the FPA/dewar assembly and the cooling subsystem
  - E.5.2 A discussion of performance design trade studies, with discussion of predicted performance and operating modes of the delivered FPAs
  - E.5.3 Firm program schedules and budgets, including the status of all long-lead and major components and hardware to be purchased
  - E.5.4 Updated "Action Item List", including a complete description of what OSD needs to do or supply in order to support integration and testing
  - E.5.5 Definition of the controls and cabling to be provided by the contractor, and of the required OSD facilities and support equipment needed for operation of the FPA by OSD personnel in the laboratory
  - E.5.6 Preliminary test plan for the contractor's factory tests which will demonstrate the ability of the deliverable SWIR FPA systems to meet the performance specifications.
  - E.5.7 The contractor shall deliver copies of all presentation materials and design documentation to OSD at the CDR. (CDRL A006).
- E.6**      Factory Test Plan: The contractor shall provide a final test plan for the factory test which will demonstrate the ability of the cryogenic system and array to meet the performance specifications for the array. The contractor shall include in the plan tests to demonstrate nonuniformity correction, and suitability for operation in the airborne environment . Dewar seal integrity should be demonstrated by showing that cooldown time does not increase over a two-week period prior to or during final

factory testing. The draft of the final test plan will be reviewed by OSD, and any revisions suggested to the contractor within two weeks. The contractor shall provide, if necessary, a revised final test plan within 30 days of the initial submission. The contractor shall provide electronic copies of the final plan and schedule for factory testing (CDRL A007).

- E.7** Factory Test Results: The contractor shall provide two copies of the factory test performance results to OSD at the time of delivery of the FPAs. (CDRL A007)
- E.8** User's Guide: The contractor shall provide a user's guide to NRL in draft form, and after readability is accepted by NRL, two final copies are to be provided. The user's guide must explain cooling system operation, focal plane array installation and expected performance. It must include an annotated glossary of commonly used symbols and abbreviations, as well as ample pictures and diagrams to support comprehension. (CDRL A008)

#### **F. Factory Testing And Delivery**

- F.1** Factory Test: The contractor shall execute the agreed factory test plan at his facility. Following successful completion of the tests, which may be witnessed by OSD personnel with prior arrangement, the contractor shall pack and ship each FPA to NRL. Any lab test support equipment **THE CONTRACTOR** agreed at CDR **TO FURNISH TO OSD FOR LAB OPERATION** shall also be shipped at this time. OSD shall accept each FPA **in accordance with Section E of this Solicitation/Contract.**

**G. GFE/GFI**

<b>Item</b>	<b>Schedule (NLT)</b>
Specification of mechanical interface for mounting dewar into system	2 weeks prior to CDR
Definition of mounting flange features with respect to which FPA translation and rotation are referenced	2 weeks prior to CDR
Specification of cryogenic transfer line configuration	2 weeks prior to CDR
Specification of dewar window configuration	2 weeks prior to CDR
Delivery of order-sorting filter	As specified in proposal
Delivery of external electronics (to demonstrate performance using these)	As specified in proposal

**E. Schedule of Performance**

CDR: 30 Days ARO

LCC readout chip delivery: 6 mo ARO

FPA1 delivery: 10 mo ARO

FPA2 delivery: 11 mo ARO

<b>CONTRACT DATA REQUIREMENTS LIST</b> <i>(2 Data Items)</i>						<i>Form Approved</i> <i>OMB No. 0704-0188</i>					
<small>The public reporting burden for this collection of information is estimated to average 220 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 the burden, to the Department of Defense, Executive Services and Communications Directorate (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please do not return your form to the above organization. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.</small>											
<b>A. CONTRACT LINE ITEM NO.</b> 0002		<b>B. EXHIBIT</b> A		<b>C. CATEGORY:</b> TDP _____ TM _____ OTHER _____							
<b>D. SYSTEM/ITEM</b>			<b>E. CONTRACT/PR NO.</b> N00173-07-R-RS01		<b>F. CONTRACTOR</b> To Be Provided At Time Of Award						
<b>1. DATA ITEM NO.</b> A001	<b>2. TITLE OF DATA ITEM</b> Master Schedule and Work Breakdown Structure				<b>3. SUBTITLE</b>						
<b>4. AUTHORITY (Data Acquisition Document No.)</b>			<b>5. CONTRACT REFERENCE</b> RFP ATTACHMENT 1-SECTION E			<b>6. REQUIRING OFFICE</b> Naval Research Laboratory					
<b>7. DD 250 REQ</b> DD	<b>9. DIST STATEMENT REQUIRED</b> D	<b>10. FREQUENCY</b> ONE		<b>12. DATE OF FIRST SUBMISSION</b> 45 DAC		<b>14. DISTRIBUTION</b>					
<b>8. APP CODE</b>		<b>11. AS DF DATE</b> N/A		<b>13. DATE OF SUBSEQUENT SUBMISSION</b> N/A		<b>a. ADDRESSEE</b>	<b>b. COPIES</b>				
							Draft	Final			
							Reg	Repro			
<b>16. REMARKS</b> The Contractor shall provide a Master Schedule and Work Breakdown Structure to the Government not later than 45 days after contract award.						CODE			2		
						CODE			1		
						<b>15. TOTAL</b> →					
<b>1. DATA ITEM NO.</b> A002	<b>2. TITLE OF DATA ITEM</b> ADHOC MEETING REPORTS				<b>3. SUBTITLE</b>						
<b>4. AUTHORITY (Data Acquisition Document No.)</b>			<b>5. CONTRACT REFERENCE</b> ATTACHMENT 1-SECTION E			<b>6. REQUIRING OFFICE</b> Naval Research Laboratory					
<b>7. DD 250 REQ</b> LT	<b>9. DIST STATEMENT REQUIRED</b>	<b>10. FREQUENCY</b> ASREQ		<b>12. DATE OF FIRST SUBMISSION</b>		<b>14. DISTRIBUTION</b>					
<b>8. APP CODE</b>		<b>11. AS OF DATE</b> SEE BLK. 16		<b>13. DATE OF SUBSEQUENT SUBMISSION</b>		<b>a. ADDRESSEE</b>	<b>b. COPIES</b>				
							Draft	Final			
							Reg	Repro			
<b>16. REMARKS</b> The Contractor shall provide reports and minutes of all Adhoc meeting that take place over the period of performance of this contract. The required reports shall, as a minimum, document the data exchanges and executive summaries of design review material that is presented at these meetings.						CODE			2		
						CODE			1		
						<b>15. TOTAL</b> →					
<b>G. PREPARED BY</b> RICHARD D. SEWELL			<b>H. DATE</b> 29 JAN 2007		<b>I. APPROVED BY</b>		<b>J. DATE</b>				

<b>17. PRICE GROUP</b>
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<b>18. ESTIMATED TOTAL PRICE</b>
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<b>17. PRICE GROUP</b>
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<b>18. ESTIMATED TOTAL PRICE</b>
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CONTRACT DATA REQUIREMENTS LIST <i>(2 Data Items)</i>						Form Approved OMB No. 0704-0188			
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A. CONTRACT LINE ITEM NO. 0002		B. EXHIBIT A		C. CATEGORY: TDP _____ TM _____ OTHER _____					
D. SYSTEM/ITEM			E. CONTRACT/PR NO. N00173-07-R-RS01		F. CONTRACTOR To Be Provided At Award				
1. DATA ITEM NO. A003	2. TITLE OF DATA ITEM CRYOGENIC SUBSYSTEM ICDs			3. SUBTITLE					
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE RFP ATTACHMENT 1-SECTION E		6. REQUIRING OFFICE Naval Research Laboratory				
7. DD 250 REQ DD	9. DIST STATEMENT REQUIRED	10. FREQUENCY OTIME	12. DATE OF FIRST SUBMISSION SEE BLK. 16		14. DISTRIBUTION				
8. APP CODE		11. AS OF DATE SEE BLK. 16	13. DATE OF SUBSEQUENT SUBMISSION		a. ADDRESSEE		b. COPIES		
16. REMARKS The Contractor shall provide Cryogenic Subsystem ICDs in accordance with paragraphs A.4.2 and A.4.3 of Attachment 1-SOW. The ICDs shall include O&M drawings for cryogenic compressor and cooler controller electronics, as well as fin mounting areas of compressor and expander. Cryogenic Subsystem ICDs shall be provided at the Critical Design Review.					CODE			2	
					CODE			1	
15. TOTAL					0	1	2		
1. DATA ITEM NO. A004	2. TITLE OF DATA ITEM EXTERNAL READOUT ELECTRONICS ICD			3. SUBTITLE					
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE ATTACHMENT 1-SECTION E		6. REQUIRING OFFICE Naval Research Laboratory				
7. DD 250 REQ DD	9. DIST STATEMENT REQUIRED	10. FREQUENCY OTIME	12. DATE OF FIRST SUBMISSION SEE BLK. 16		14. DISTRIBUTION				
8. APP CODE		11. AS OF DATE SEE BLK. 16	13. DATE OF SUBSEQUENT SUBMISSION		a. ADDRESSEE		b. COPIES		
16. REMARKS The Contractor shall provide External Readout Electronics ICD in accordance with paragraphs A.5 and C of Attachment 1-SOW. External Readout Electronics ICD shall be provided at the Critical Design Review.					CODE			2	
					CODE			1	
15. TOTAL					0	1	2		
G. PREPARED BY RICHARD D. SEWELL			H. DATE 29 JAN 2007	I. APPROVED BY		J. DATE			

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18. ESTIMATED TOTAL PRICE

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CONTRACT DATA REQUIREMENTS LIST <i>(2 Data Items)</i>						Form Approved OMB No. 0704-0188		
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A. CONTRACT LINE ITEM NO. 0002		B. EXHIBIT A		C. CATEGORY: TDP _____ TM _____ OTHER _____				
D. SYSTEM/ITEM			E. CONTRACT/PR NO. N00173-07-R-RS01		F. CONTRACTOR To Be Provided At Award			
1. DATA ITEM NO. A005	2. TITLE OF DATA ITEM Critical Design Review Materials: Minutes & Documentation			3. SUBTITLE				
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE RFP ATTACHMENT 1-SECTION E		6. REQUIRING OFFICE Naval Research Laboratory			
7. DD 250 REQ DD	9. DIST STATEMENT REQUIRED	10. FREQUENCY OTIME	12. DATE OF FIRST SUBMISSION SEE BLK. 16		14. DISTRIBUTION			
8. APP CODE		11. AS OF DATE SEE BLK. 16	13. DATE OF SUBSEQUENT SUBMISSION		a. ADDRESSEE	b. COPIES		
					Draft	Final		
						Reg	Repro	
16. REMARKS The Contractor shall provide provide copies of all presentation materials and design documentation, and the minutes associated with the Critical Design Review required under Section E.5 of RFP Attachment 1 . This material shall be provided at the Critical Design Review.					CODE		2	
					CODE		1	
					15. TOTAL	0	1	2
1. DATA ITEM NO. A006	2. TITLE OF DATA ITEM Factory Test Plan and Test Results			3. SUBTITLE				
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE ATTACHMENT 1-SECTION E		6. REQUIRING OFFICE Naval Research Laboratory			
7. DD 250 REQ DD	9. DIST STATEMENT REQUIRED	10. FREQUENCY OTIME	12. DATE OF FIRST SUBMISSION See Blk. 16		14. DISTRIBUTION			
8. APP CODE		11. AS OF DATE See Blk. 16	13. DATE OF SUBSEQUENT SUBMISSION		a. ADDRESSEE	b. COPIES		
					Draft	Final		
						Reg	Repro	
16. REMARKS The Contractor shall provide a Factory Test Plan in accordance with paragraphs E.6 of Attachment 1-SOW. Factory Test Plan shall be provided not later than 90 days after contract award.  The Contractor shall provide two copies of the factory test performance results at the time of delivery of the FPAs, in accordance with paragraph E.7 of Attachment 1-SOW.					CODE		2	
					CODE		1	
					15. TOTAL	0	1	2
G. PREPARED BY RICHARD D. SEWELL			H. DATE 29 JAN 2007	I. APPROVED BY		J. DATE		

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18. ESTIMATED TOTAL PRICE

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**ATTACHMENT 4:**  
**ACCOUNTING AND APPROPRIATION DATA**

(ACCOUNTING AND APPROPRIATION DATA WILL BE PROVIDED AT  
AWARD)