

<b>SOLICITATION, OFFER AND AWARD</b>		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)		RATING <b>DOC9</b>		PAGE OF <b>1   24</b> PAGES	
2. CONTRACT NO.		3. SOLICITATION NO. <b>N00173-02-R-DL03</b>		4. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)		5. DATE ISSUED <b>6 August 2002</b>	
7. ISSUED BY CONTRACTING OFFICER NAVAL RESEARCH LABORATORY ATTN: CODE: 3220.dl WASHINGTON DC 20375-5326				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 3 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 Building 222, Room 115 until 4:00 local time 6 SEP 2002  
(Hour) (Date)

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-10. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:		A. NAME <b>Dian Lockamy</b>	B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) <b>202-767-3782</b>
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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 of receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52-232-8)		10 CALENDAR DAYS	20 CALENDAR DAYS	30 CALENDAR DAYS	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 NO. (Include area code)		15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.	17. SIGNATURE	18. OFFER DATE
		<input type="checkbox"/>		

**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 ITEM (4 copies unless otherwise specified)	
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	28. AWARD DATE
		(Signature of Contracting Officer)	

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/SERVICES AND COSTS**

ITEM NUMBER	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	ESTIMATED COST PLUS FIXED FEE
0001	The Contractor shall provide engineering and technical support services in accordance with Section C	\$	\$	\$
		\$	\$	\$
0002	Data in accordance with Exhibit A (DD 1423)	* NSP	* NSP	* NSP
<b>TOTAL ESTIMATED COST PLUS FIXED FEE</b>		\$	\$	\$

\* Not Separately Priced

**NOTICE TO OFFERORS:** In addition to inserting the estimated cost and fixed fee for the base year above, the estimated cost and fixed fee for each optional extension of the term of the contract are to be inserted in Section H.

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

**C-1 STATEMENT OF WORK**

The work and services to be performed hereunder shall be subject to the requirements and standards contained in Attachment (1), Statement of Work, with Exhibit A, Contract 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 19 October 2001 which are hereby incorporated by reference. The full text is available at <http://heron.nrl.navy.mil/contracts/home.htm>.

**SECTION D  
PACKAGING AND MARKING**

**D-1 PACKAGING AND MARKING**

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

**SECTION E  
INSPECTION AND ACCEPTANCE**

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

**FAR CLAUSE TITLE**

- 52.246-8 - Inspection Of Research And Development - Cost Reimbursement (MAR 2001)  
52.246-9 - Inspection Of Research And Development (Short Form) (APR 1984)

**DFARS CLAUSE TITLE**

- 252.246-7000 - Material Inspection And Receiving Report (DEC 1991)

**E-2 INSPECTION AND ACCEPTANCE**

Inspection and acceptance of the final 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 INCORPORATED BY REFERENCE:**

**FAR CLAUSE TITLE**

- 52.242-15 - Stop-Work Order (AUG 1989) - Alternate I (APR 1984)  
52.247-34 - F.O.B. Destination (NOV 1991)

**F-2 PERIOD AND PLACE OF PERFORMANCE**

- (a) The term of this contract is from date of contract through 12 months thereafter, with four (4) options that will extend the period of performance an additional 12 months each, if exercised.
- (b) The principal place of performance of this contract shall be the NRL, Washington D.C.

**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.

Contract Matters- \*

Security Matters- \*

Safety Matters- \*

Patent Matters- \*

Release of Data- \*

The ACO will forward invention disclosures and reports directly to the Associate Counsel for Patents, Code 1008.2, Naval Research Laboratory, Washington DC 20375-5320. The Associate Counsel for Patents will return the reports along with a recommendation to the Administrative Contracting Officer. The Associate Counsel for Patents will represent the Contracting Officer with regard to invention reporting matters arising under this contract.

( \* To be completed at time of award)

**G-2 CONTRACTING OFFICER'S REPRESENTATIVE (COR) - FUNCTIONS AND LIMITATIONS**

\* is hereby designated the cognizant COR who will represent the Contracting Officer in the administration of technical details within the scope of this contract and inspection and acceptance. The COR is not otherwise authorized to make any representations or commitments of any kind on behalf of the Contracting Officer or the Government. The COR 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. The COR is responsible for reviewing the bills and charges submitted by the Contractor and informing the ACO of areas where exceptions are to be taken.

( \* To be completed at time of award)

**G-3 TECHNICAL DIRECTION MEMORANDUM (TDM)**

- (a) For the purposes of this clause, technical direction includes the following:
- (1) Direction to the Contractor which shifts work emphasis between work areas or tasks, requires pursuit of certain lines of inquiry, fills in details or otherwise describes work which will accomplish the objectives described in the statement of work;
  - (2) Guidelines to the Contractor which assist in interpretation of drawings, specifications or

technical portions of work description.

(b) Technical instructions must be within the scope of work stated in the contract. Technical instructions may not be used to:

- (1) Assign additional work under the contract;
- (2) Direct a change as defined in the contract clause entitled "Changes";
- (3) Increase or decrease the estimated contract cost, the fixed fee, or the time required for contract performance; or
- (4) Change any of the terms, conditions or specifications of the contract

(c) The TDM shall be written by the Contracting Officer's Representative (COR), with the original given to the Contractor and a copy retained in the CORs file. Technical direction may be issued orally only in emergency situations. If technical direction is issued orally, a TDM must follow within two (2) working days from the date of the oral direction. Amendments, corrections, or changes to TDMs shall also be in written format and shall include all the information set forth in paragraph (e) below.

(d) A TDM shall be considered issued when the Government deposits it in the mail, or if transmitted by other means, when it is physically delivered to the contractor.

(e) TDMs shall include, but not be limited to, the following information:

- (1) Date of TDM,
- (2) Contract Number,
- (3) Reference to the relevant portion or item in the Statement of Work,
- (4) The specific technical direction or clarification, and
- (5) The signature of the COR.

(f) CORs shall retain all files containing TDMs for a period of two (2) years after the final contract completion date.

(g) The only individual authorized in any way to amend or modify any of the terms of this contract shall be the Contracting Officer. When, in the opinion of the Contractor, any technical direction calls for effort outside the scope of the contract or inconsistent with this special provision, the Contractor shall notify the Contracting Officer in writing within ten (10) working days after its receipt.

**G-4 SUBCONTRACTORS/CONSULTANTS**

(a) Advance notification or requests for consent pursuant to the contract clause entitled "Subcontracts" (FAR 52.244-2) shall be directed to the cognizant administrative contracting officer (ACO).

(b) The following subcontractors/consultants have been identified in the Contractor's proposal as necessary for performance of this contract:

Subcontractor/Consultant Name	Estimated Cost
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*(Paragraph (b) will be included and filled in at time of award if subcontractor/consultants are proposed by the successful offeror)*

**G-5 NAPS 5252.232-9001 - SUBMISSION OF INVOICES (COST-REIMBURSEMENT, TIME-AND-MATERIALS, LABOR-HOUR, OR FIXED PRICE INCENTIVE (JUL 1992)**

(a) "Invoice" as used in this clause includes contractor requests for interim payments using public vouchers (SF 1034) but does not include contractor requests for progress payments under fixed price

incentive contracts.

(b) The Contractor shall submit invoices and any necessary supporting documentation, in an original and 4 copies, to the contract auditor at the following address:

*(To be completed at time of award)*

unless delivery orders are applicable, in which case invoices will be segregated by individual order and submitted to the address specified in the order. In addition, an information copy shall be submitted to [See Section G for designated COR]. Following verification, the contract auditor will forward the invoice to the designated payment office for payment in the amount determined to be owing, in accordance with the applicable payment (and fee) clause(s) of this contract.

(c) Invoices requesting interim payments shall be submitted no more than once every two weeks, unless another time period is specified in the Payments clause of this contract. For indefinite delivery type contracts, interim payment invoices shall be submitted no more than once every two weeks for each delivery orders. There shall be a lapse of no more than 30 calendar days between performance and submission of an interim payment invoice.

(d) In addition to the information identified in the Prompt Payment clause herein, each invoice shall contain the following information, as applicable:

- (1) Contract line item number (CLIN)
- (2) Subline item number (SLIN)
- (3) Accounting Classification Reference Number(ACRN)
- (4) Payment terms
- (5) Procuring activity
- (6) Date supplies provided or services performed
- (7) Costs incurred and allowable under the contract
- (8) Vessel (e.g., ship, submarine or other craft) or system for which supply/service is provided

(e) A DD Form 250, "Material Inspection and Receiving Report",

- is required with each invoice submittal.
- is required only with the final invoice.
- is not required.

(f) A Certificate of Performance

- shall be provided with each invoice submittal.
- is not required.

(g) The Contractor's final invoice shall be identified as such, and shall list all other invoices (if any) previously tendered under this contract.

(h) Cost of performance shall be segregated, accumulated and invoiced to the appropriate ACRN categories to the extent possible. When such segregation of costs by ACRN is not possible for invoices submitted with CLIN/SLINS with more than one ACRN, an allocation ratio shall be established in the same ratio as the obligations cited in the accounting data so that costs are allocated on a proportional basis.

## G-6 INCREMENTAL FUNDING

Pursuant to the Limitation of Funds clause (FAR 52.232-22), the total amount allotted to this contract is \$\* and it is estimated that this amount is sufficient for contract performance through \* .

*(\*this provision will be included and completed at time of award, if applicable)*

**G-7 INFORMATIONAL SUBLINE ITEMS**

It is anticipated that the research and development services performed under this contract will be paid for from multiple sources of funds. Informational subline items will be established as necessary to identify each accounting citation classification.

**G-8 PAYMENT INSTRUCTIONS FOR MULTIPLE ACCOUNTING CLASSIFICATION CITATIONS (COST-REIMBURSEMENT)**

The purpose of these instructions is to permit the paying office to charge the accounting classification citations in the contract in a manner that reflects the performance of the contract. These instructions do not create any obligation on the part of the Government or the contractor nor do they in any way alter any obligation created by any other provision of the contract. Invoices should be paid from available ACRNs in the following order:

- (a) ACRNs cited on the contractor's invoice.
- (b) On a proportional basis from any ACRNs assigned to funds which will cancel at the end of the current fiscal year.
- (c) The ACRN assigned to the following line of accounting:  
97X4930.NH4A 000 77777 0 000173 2F 000000 N00173Z45000.
- (d) If funds appropriated in more than one fiscal year are allotted to the contract, the ACRN assigned to the oldest allotment of funds.
- (e) On a proportional basis from all ACRNs assigned to allotments of funds appropriated in a single fiscal year.

**SECTION H  
SPECIAL CONTRACT REQUIREMENTS****H-1 TYPE OF CONTRACT**

This is a \*

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

**H-2 ONR 5252.237-9705 - KEY PERSONNEL (DEC 88)**

- (a) The Contractor agrees to assign to the contract tasks those persons whose resumes were submitted with its proposal and who are necessary to fulfill the requirements of the contract as "key personnel". No substitutions may be made except in accordance with this clause.
- (b) The Contractor understands that during the first ninety (90) days of the contract performance period, no personnel substitutions will be permitted unless these substitutions are unavoidable because of the incumbent's sudden illness, death or termination of employment. In any of these events, the Contractor shall promptly notify the Contracting Officer and provide the information described in paragraph (c) below. After the initial ninety (90) day period the Contractor must submit to the Contracting Officer all proposed substitutions, in writing, at least fifteen (15) days in advance (thirty (30) days if security clearance must be obtained) of any proposed substitution and provide the information required by paragraph (c) below.
- (c) Any request for substitution must include a detailed explanation of the circumstances necessitating the proposed substitution, a resume for the proposed substitute, and any other

information requested by the Contracting Officer. Any proposed substitute must have qualifications equal to or superior to the qualifications of the incumbent. The Contracting Officer or his/her authorized representative will evaluate such requests and promptly notify the Contractor of his/her approval or disapproval thereof.

(d) In the event that any of the identified key personnel cease to perform under the contract and the substitute is disapproved, the contract may be immediately terminated in accordance with the Termination clause of the contract.

The following are identified as key personnel: \*

**[REDACTED]**  
**Engineering Analyst**

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

### **H-3 ONR 5252.216-9706 - LEVEL OF EFFORT (DEC 88)**

(a) The Contractor agrees to provide the total level of effort specified in the next sentence in performance of the work described in this contract. The total level of effort for performance of this contract shall be 19,800 total hours of direct labor and 19,800 total hours of direct labor for each option, if exercised, including subcontractor direct labor for those subcontractors specifically identified in the Contractor's proposal as having hours included in the proposed level of effort. A breakdown of labor categories and hours is set forth in paragraph (k) below.

(b) The level of effort for this contract shall be expended at an average rate of 1,650 hours per month. It is understood and agreed that the rate of hours per month may fluctuate in pursuit of the technical objective, provided such fluctuation does not result in the use of the total hours of effort prior to the expiration of the term of the contract.

(c) The Contractor is required to notify the Contracting Officer when any of the following situations occur, or are anticipated to occur: If during any three consecutive months the monthly average is exceeded by 25% or, if at any time it is forecast that during the last three months of the contract less than 50% of the monthly average will be used during any given month; or, when 85% of the total level of effort has been expended.

(d) If, during the term of the contract, the Contractor finds it necessary to accelerate the expenditure of direct labor to such an extent that the total hours of effort specified would be used prior to the expiration of the term, the Contractor shall notify the Contracting Officer in writing, setting forth the acceleration required, the probable benefits which would result, and an offer to undertake the acceleration at no increase in the estimated cost or fixed fee together with an offer setting forth a proposed level of effort, cost breakdown, and proposed fixed fee for continuation of the work until expiration of the term hereof. The offer shall provide that the work proposed will be subject to the terms and conditions of this contract and any additions or changes required by then current law, regulations, or directives, and that the offer, with a written notice of acceptance by the Contracting Officer, shall constitute a binding contract. The Contractor shall not accelerate any effort until receipt of such written approval by the Contracting Officer. Any agreement to accelerate will be formalized by contract modification.

(e) The Contracting Officer may, by written order, direct the Contractor to accelerate the expenditure of direct labor such that the total hours of effort specified in paragraph (a) above would be used prior to the expiration of the term. This order shall specify the acceleration required and the resulting revised term. The Contractor shall acknowledge this order within five days of receipt.

(f) If the total level of effort specified in paragraph (a) above is not provided by the Contractor during the term of this contract, the Contracting Officer shall either (i) reduce the fixed fee of this contract as follows:

$$\text{Fee Reduction} = \text{Fixed Fee} \times \frac{(\text{Required LOE Hours} - \text{Expended LOE Hours})}{\text{Required LOE Hours}}$$

or (ii) subject to the provisions of the clause of this contract entitled "Limitation of Cost," require the Contractor to continue to perform the work until the total number of hours of direct labor specified in paragraph (a) shall have been expended, at no increase in the fixed fee of this contract.

(g) In the event the government fails to fully fund the contract in a timely manner, the term of the contract may be extended accordingly with no change to cost or fee. If the government fails to fully fund the contract, the fee will be adjusted in direct proportion to that effort which was performed.

(h) Notwithstanding any of the provisions in the above paragraphs, the Contractor may furnish hours up to five percent in excess of the total hours specified in paragraph (a) above, provided that the additional effort is furnished within the term hereof, and provided further that no increase in the estimated cost or fixed fee is required, and no adjustment in the fixed fee shall be made provided that the Contractor has delivered at least 95% of the level of effort required in paragraph (a) above.

(i) It is understood that the mix of labor categories provided by the Contractor under the contract, as well as the distribution of effort among those categories, may vary considerably from the initial mix and distribution of effort which was estimated by the government or proposed by the Contractor.

(j) Nothing herein shall be construed to alter or waive any of the rights or obligations of either party pursuant to the Clause entitled "Limitation of Costs" or "Limitation of Funds," either of which clauses as incorporated herein applies to this contract.

(k) The anticipated breakdown by labor category of the total level of effort is as follows:

<u>Labor Category</u>	<u>Hours (Per Year for the Base and Each of the Option Years, if exercised)</u>
Senior Scientist	1980
Associate Senior Scientist	1980
Scientist	1980
Associate Engineer Mechanical	1980
Engineering analyst	1980
Senior Technician	1980
Technician	1980
Planner	1980
Drafter/Mechanical Designer	1980
Senior Assembler	1980
TOTAL	19,800

**H-4 ONR 5252.235-9714 - REPORT PREPARATION (FEB 02)**

Scientific or technical reports prepared by the Contractor and deliverable under the terms of this contract will be prepared in accordance with format requirements contained in ANSI/NISO Z39.18-1995, Scientific and Technical Reports: Elements, Organization, and Design.

[NOTE: All NISO American National Standards are available as free, downloadable pdf(s) at <http://www.niso.org/standards/index.html> . NISO standards can also be purchased in hardcopy form from NISO Press Fulfillment, P. O. Box 451, Annapolis Junction, MD 20701-0451 USA. Telephone U.S. and Canada: (877) 736-6476; Outside the U.S. and Canada: 301-362-6904 fax: 301-206-9789.]

**H-5 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-6 OPTION TO EXTEND THE TERM OF THE CONTRACT**

This contract shall be renewable at the unilateral option of the Government by the Contracting Officer giving written notice of renewal to the Contractor within the existing term of the contract. The Government may exercise its option to renew the contract a total of four (4) times and each such renewal shall extend the term of the contract by twelve (12) months. The Contractor agrees that performance under each such renewal shall be accomplished in accordance with all of the terms and conditions of this contract and at the estimated cost and fixed fee set forth below:

**Option 1**

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

**Option 2**

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

**Option 3**

Estimated Cost: \$  
Fixed Fee: \$  
Estimated Cost Plus Fixed Fee: \$

**Option 4**

Estimated Cost: \$  
Fixed Fee: \$  
Estimated Cost Plus Fixed Fee: \$

**H-7 ON-SITE USE OF GOVERNMENT PROPERTY**

Government facilities and equipment specified or approved for use in the performance of any portion of the contract at the U.S. Naval Research Laboratory (NRL) or any of its field sites may be used by the contractor's personnel on a rent free basis. Access to applicable scientific/technical reports and program documents. Minor office supplies as needed. All such property shall be considered to remain in the possession and control of the NRL for property responsibility and accountability purposes.

**H-8 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.

**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

<u>FAR CLAUSE</u>	<u>TITLE</u>
52.202-1	- Definitions (DEC 2001)
52.203-3	- Gratuities (APR 1984)
52.203-5	- Covenant Against Contingent Fees (APR 1984)
52.203-6	- Restrictions On Subcontractor Sales To The Government (JUL 1995)
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 1997)
52.204-2	- Security Requirements (AUG 1996)
52.204-4	- Printed Or Copied Double-Sided On Recycled Paper (AUG 2000)
52.209-6	- Protecting The Government's Interest When Subcontracting With Contractors Debarred, Suspended, Or Proposed For Debarment (JUL 1995)
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)
52.215-11	- Price Reduction For Defective Cost Or Pricing Data - Modifications (OCT 1997)
52.215-13	- Subcontractor Cost Or Pricing Data Modifications (OCT 1997)
52.215-14	- Integrity Of Unit Prices (OCT 1997)
52.215-15	- Pension Adjustments And Asset Reversions (DEC 1998)
52.215-17	- Waiver Of Facilities Capital Cost Of Money (OCT 1997) ( will be included if the successful offeror does not propose facilities capital cost of money)
52.215-18	- Reversion Or Adjustment Of Plans For Post-Retirement Benefits (PRB) Other Than Pensions (OCT 1997)
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)
52.216-7	- Allowable Cost And Payment (FEB 2002)
52.216-8	- Fixed-Fee (MAR 1997)
52.219-4	- Notice Of Price Evaluation Preference For HUBZone Small Business Concerns (JAN 1999) <input type="checkbox"/> Offeror elects to waive the evaluation preference.
52.219-8	- Utilization Of Small Business Concerns (OCT 2000)
52.219-9	- Small Business Subcontracting Plan (JAN 2002) - Alternate II (OCT 2001)
52.219-16	- Liquidated Damages-Subcontracting Plan (JAN 1999)
52.219-25	- Small Disadvantaged Business Participation Program-Disadvantaged Status And Reporting (OCT 1999)
52.222-2	- Payment For Overtime Premiums (JUL 1990) -The Use Of Overtime Is Authorized Under This Contract If The Overtime Premium Does Not Exceed " <u>0</u> "
52.222-3	- Convict Labor (AUG 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 (DEC 2001)
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 (DEC 2001)
- 52.223-3 - Hazardous Material Identification And Material Safety Data (JAN 1997)
- 52.223-5 - Pollution Prevention And Right-To-Know Information (APR 1998)
- 52.223-6 - Drug-Free Workplace (MAY 2001)
- 52.223-10 - Waste Reduction Program (AUG 2000)
- 52.223-14 - Toxic Chemical Release Reporting (OCT 2000)
- 52.225-13 - Restrictions On Certain Foreign Purchases (JUL 2000)
- 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)
- 52.227-11 - 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)*
- 52.228-7 - Insurance - Liability To Third Persons (MAR 1996)
- 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 (NOV 1999)
- 52.232-9 - Limitation On Withholding Of Payments (APR 1984)
- 52.232-17 - Interest (JUN 1996)
- 52.232-18 - Availability Of Funds (APR 1984)
- 52.232-20 - Limitation Of Cost (APR 1984) *(Applicable when the contract or task order is fully funded)*
- 52.232-22 - Limitation Of Funds (APR 1984) *(Applicable when the contract or task order is not fully funded)*
- 52.232-23 - Assignment Of Claims (JAN 1986) Alternate I (APR 1984)
- 52.232-25 - Prompt Payment (FEB 2002)
- 52.232-33 - Payment By Electronic Funds Transfer-Central Contractor Registration (MAY 1999)
- 52.233-1 - Disputes (DEC 1998) - Alternate I (DEC 1991)
- 52.233-3 - Protest After Award (AUG 1996) - Alternate I (JUN 1985)
- 52.237-2 - Protection Of Government Buildings, Equipment And Vegetation (APR 1984)
- 52.242-1 - Notice Of Intent To Disallow Costs (APR 1984)
- 52.242-3 - Penalties For Unallowable Costs (MAY 2001)
- 52.242-4 - Certification Of Final Indirect Costs (JAN 1997)
- 52.242-13 - Bankruptcy (JUL 1995)
- 52.243-2 - Changes - Cost-Reimbursement (AUG 1987) - Alternate V (APR 1984)
- 52.244-2 - Subcontracts (AUG 1998) - Alternate I (AUG 1998)
- 52.244-5 - Competition In Subcontracting (DEC 1996)
- 52.244-6 - Subcontracts For Commercial Items (MAY 2002)
- 52.245-5 - Government Property (Cost-Reimbursement, Time-And-Material, Or Labor-Hour Contracts) (JAN 1986) (DEVIATION)
- 52.246-23 - Limitation Of Liability (FEB 1997)
- 52.246-25 - Limitation Of Liability - Services (FEB 1997)
- 52.247-1 - Commercial Bill Of Lading Notations (APR 1984)
- 52.247-63 - Preference For U. S. Flag Carriers (JAN 1997)
- 52.249-6 - Termination (Cost-Reimbursement) (SEP 1996)

- 52.249-14 - Excusable Delays (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)

**b. DEPARTMENT OF DEFENSE FEDERAL ACQUISITION REGULATION CLAUSES**

**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 (MAR 1999)
- 252.203-7002 - Display Of DoD Hotline Poster (DEC 1991)
- 252.204-7000 - Disclosure Of Information (DEC 1991)
- 252.204-7003 - Control Of Government Personnel Work Product (APR 1992)
- 252.204-7004 - Required Central Contractor Registration (NOV 2001)
- 252.204-7005 - Oral Attestation Of Security Responsibilities (NOV 2001)
- 252.205-7000 - Provision Of Information To Cooperative Agreement Holders (DEC 1991)
- 252.209-7000 - Acquisition From Subcontractors Subject To On-Site Inspection Under The Intermediate-Range Nuclear Forces (INF) Treaty (NOV 1995)
- 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)
- 252.219-7003 - Small Business And Small Disadvantaged Business Subcontracting Plan (DoD Contracts) (APR 1996)
- 252.219-7004 - Small, Small Disadvantaged And Women-Owned Small Business Subcontracting Plan (Test Program) (JUN 1997)
- 252.223-7004 - Drug-Free Work Force (SEP 1988)
- 252.223-7006 - Prohibition On Storage And Disposal Of Toxic And Hazardous Materials (APR 1993)
- 252.225-7012 - Preference For Certain Domestic Commodities (AUG 2000)
- 252.225-7026 - Reporting Of Contract Performance Outside The United States (JUN 2000)
- 252.225-7031 - Secondary Arab Boycott Of Israel (JUN 1992)
- 252.225-7043 - Antiterrorism/Force Protection Policy For Defense Contractors Outside The United States (JUN 1998) (fill in : Naval Criminal Investigative Service (NCIS), Code 24, telephone, DSN 228-9113 or commercial (202)433-9113)
- 252.226-7001 - Utilization of Indian Organizations and Indian-Owned Economic Enterprises-DoD Contracts (SEP 2001)
- 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)
- 252.227-7030 - Technical Data--Withholding Of Payment (MAR 2000)

- 252.227-7034 - Patents--Subcontracts (APR 1984)
- 252.227-7036 - Declaration 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)
- 252.235-7010 - Acknowledgment Of Support And Disclaimer (MAY 1995)
- 252.235-7011 - Final Scientific Or Technical Report (SEP 1999)
- 252.242-7000 - Post Award Conference (DEC 1991)
- 252.242-7004 - Material Management And Accounting System (DEC 2000)
- 252.243-7002 - Requests For Equitable Adjustment (MAR 1998)
- 252.244-7000 - Subcontracts For Commercial Items And Commercial Components (DOD Contracts) (MAR 2000)
- 252.245-7001 - Reports Of Government Property (MAY 1994)
- 252.246-7001 - Warranty Of Data (DEC 1991)
- 252.247-7023 - Transportation Of Supplies By Sea (MAR 2000)
- 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 (MAY 1995)

#### **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).

#### **I-3 DFARS 252.225-7008 - SUPPLIES TO BE ACCORDED DUTY- FREE ENTRY (MAR 1998)**

In accordance with paragraph (b) of the Duty-Free Entry clause of this contract, in addition to duty-free entry for all qualifying country supplies (end products and components) and all eligible end products subject to applicable trade agreements (if this contract contains the Buy American Act - Trade Agreements - Balance of Payments Program clause or the Buy American Act - North American Free Trade Agreement Implementation Act - Balance of Payments Program clause ), the following

foreign end products that are neither qualifying country end products nor eligible end products under a trade agreement, and the following nonqualifying country components, are accorded duty free entry.

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

- J-1** Attachment (1) - Statement Of Work - 7 Pages, With Exhibit A - DD Form 1423, Contract Data Requirements List, 2 Pages.
- J-2** Attachment (2) - DD Form 254, Contract Security Classification Specification, Ser: 032-02 Dated 5/16/2002 w/Attachments 2 Pages.
- J-3** Attachment (3) – Personnel Qualifications, 5 Pages.
- J-4** Attachment (4) – 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**

Each Offeror must submit a completed 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&certs.htm>

**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 (JUNE 1999)  |
| 52.215-1  | - | Instructions To Offerors- Competitive Acquisition (MAY 2001) Alternate I (OCT 1997)  |
| 52.215-5  | - | Facsimile Proposals (OCT 1997)<br>Paragraph (c) is completed as follows: (202) 767-3782 (primary) or (202) 767-0494 (alternate). In addition facsimile proposals may be transmitted by e-mail to lockamy@contracts.nrl.navy.mil (primary) or bays@contracts.nrl.navy.mil (alternate) in either Microsoft Word (version 97 or earlier) or pdf format. |
| 52.215-16 | - | Facilities Capital Cost Of Money (OCT 1997)  |
| 52.219-24 | - | Small Disadvantaged Business Participation Program - Targets (OCT 2000)  |
| 52.222-24 | - | Preaward On-Site Equal Opportunity Compliance Evaluation (FEB 1999)  |

**L-2 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-3 INSTRUCTIONS FOR RECEIPT 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 Office  
Naval Research Laboratory (NRL)  
4555 Overlook Avenue, S.W.  
Washington, D.C. 20375

Solicitation/RFP No. – N00173-02-R-DL03

Closing Date: 6 September 2002    Time: 4:00 PM EST

Proposals may be hand delivered to the Contracting Office, NRL, 4555 Overlook Avenue, S.W.,

Washington, D.C. 20375, Building 222, Room 115 between the hours of 8AM until 4PM, local time, excluding weekends and federal holidays. NRL is a controlled-access facility. Photo identification will be required. Report first to Building 72, Visitor Control for access to NRL. After receiving a Visitor Pass, proceed directly to Building 222, Room 115, Contracting Office Receptionist 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-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: **See L-12, Volume II - Business Proposal**

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

The Government contemplates award of a Cost Plus Fixed Fee Term Contract resulting from this solicitation.

**L-6 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 Control 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-7 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

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(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-8 DFARS 252.227-7028 - TECHNICAL DATA OR COMPUTER SOFTWARE PREVIOUSLY DELIVERED TO THE GOVERNMENT (JUN 1995)**

The Offeror shall attach to its offer an identification of all documents or other media incorporating technical data or computer software it intends to deliver under this contract with other than unlimited rights that are identical or substantially similar to documents or other media that the Offeror has produced for, delivered to, or is obligated to deliver to the Government under any contract or subcontract. The attachment shall identify - -

- (a) The contract number under which the data or software were produced;
- (b) The contract number under which, and the name and address of the organization to whom, the data or software were most recently delivered or will be delivered; and
- (c) Any limitations on the Government's rights to use or disclose the data or software, including, when applicable, identification of the earliest date the limitations expire.

**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 9 of the Standard Form 33, "Solicitation, Offer and Award," no less than fifteen (15) days before closing. The Government will not consider questions received after this date. Offerors are cautioned against directing any questions concerning this RFP to technical personnel at the Naval Research Laboratory.

**L-11 INSTRUCTIONS FOR SUBMISSION AND INFORMATION REQUIRED TO EVALUATE PROPOSALS**

(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. N00173-02-R-DL03**  
**Closing Date:**  
**(As specified in Block 9, RFP face page)**  
**Attn: Code 3220.dl**

(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, the Statement of Work, company's organization and accounting structure, and proposed cost estimate. 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 3 COPIES .

### **A. PERSONNEL QUALIFICATIONS**

Identify the key and supporting personnel to be assigned to this program and describe their previous research and accomplishments on similar or closely related projects. Indicate availability of key personnel for the contract period. Propose in accordance with the level of effort breakdown identified in Section H-3.

Document that the personnel proposed have the required security clearances, pertinent experience, educational background, and past accomplishments as set forth in Attachment (3), Personnel Qualifications.

### **B. TECHNICAL UNDERSTANDING**

Demonstrate a complete understanding of the technical requirements of the statement of work and compliance with the solicitation. Demonstrate a sound approach by a feasible and workable program for each task response. Clearly identify the offeror's intent to satisfy the "deliverables" reporting requirements in the statement of work.

### **C. MANAGEMENT PLAN**

Demonstrate the offeror's capability to oversee and schedule required task demands. Identify the overall soundness of the Offeror's effective management control; simplicity and low cost. Provide schedules used in planning approach for completing tasks. Demonstrate corporate project experience in performing related projects.

## **L-13 VOLUME II - BUSINESS PROPOSAL**

REQUIRED COPIES: 1 ORIGINAL AND 3 COPIES

### **(1) COST PROPOSAL**

(a) The offeror shall submit a business proposal that includes a cost proposal with supporting information for each cost element consistent with offeror's cost accounting system. The supporting breakdown should include such elements as materials, direct labor, indirect cost, and other costs such as travel. The offeror shall provide exhibits as necessary to substantiate each cost element. Should rates be used in the proposal which are not DCAA approved, the offeror shall provide

complete documentation and the rationale for their use at time of proposal submission. However, offerors are advised to use actual labor rates of proposed personnel as the basis for estimating labor costs when practicable.

(b) It is requested that offerors provide one copy of their cost proposal on a PC formatted disk or CD Rom using software compatible with Microsoft Excel 97.

## **(2) SMALL BUSINESS PARTICIPATION**

(a) In addition to complying with the clause at FAR 52.219-9, Small Business Subcontracting Plan (JAN 2002) with its Alternate II (OCT 2000), proposals must include information to permit evaluation of the extent of participation of small businesses and historical black colleges or universities and minority institutions in performance of the contract. Participation to be identified may be in the form of a joint venture, teaming arrangement, or subcontract. Small business concerns that are not required by FAR 52.219-9 to submit a subcontracting plan must indicate the extent to which proposed joint ventures, teaming arrangements, or subcontracts are with historically black colleges or universities and minority institutions. Information provided should include the extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.

(b) Proposals must also include information to permit evaluation of the extent of participation of small disadvantaged business concerns in performance of the contract. See the provision at FAR 52.219-24, Small Disadvantaged Business Participation Program--Targets (OCT 2000), and the clause at 52.219-25, Small Disadvantaged Business Participation Program--Disadvantaged Status and Reporting (OCT 1999). Any targets will be incorporated into and become part of any resulting contract. Information provided should include the extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.

## **L-14 TRAVEL AND MATERIAL ESTIMATES AND OTHER DIRECT COSTS (FOR EVALUATION PURPOSES ONLY)**

The travel and material estimates and other direct costs set forth must be included in each offeror's cost proposal for evaluation purposes only. During the term of this contract, the contractor will be reimbursed actual and allowable travel, material, and other direct expenses.

The Government estimates the travel costs for this effort to be \$100,000.00 for the basic award and \$100,000.00 per each option period, if exercised.

The Government estimates the material costs for this effort to be \$1,250,000.00 for the basic award and \$1,250,000.00 per each option period, if exercised.

These estimates are direct costs, and the offeror should add any applicable indirect costs.

## SECTION M EVALUATION FACTORS FOR AWARD

### M-1 EVALUATION

Award will be made to that offeror whose proposal is determined to be the best value to the Government, proposed cost and other factors considered. The Government reserves the right to make award to other than the low offeror. Although technical considerations are more important than the cost factor, the closer the technical scores of the various proposals are to one another, the more important the business considerations become.

### M-2 EVALUATION FACTORS FOR AWARD

Proposals will be evaluated in accordance with the following criteria. The "Technical/Management" factor is more important than the "Cost to the Government" factor, and the "Cost to the Government" factor is more important than the "Small Business Participation" factor. The "Technical/Management" subfactors are listed in descending order of importance. The "Small Business Participation" subfactors are of equal importance.

#### M-2-1. TECHNICAL/MANAGEMENT

##### (1) PERSONNEL QUALIFICATIONS

The proposed personnel will be evaluated on the experience and qualifications of the proposed personnel relevant to the proposed task; identification of the key and supporting personnel and their previous research and accomplishments on similar or closely related projects; and the previous experience of the key personnel including the degree to which they meet the requirements set forth in the Personnel Qualifications. Proposed key personnel must be dedicated full time to the contract.

##### (2) TECHNICAL UNDERSTANDING

Evaluation will be based on the degree to which the offeror demonstrates a complete understanding of the task requirements of the statement of work, and compliance with solicitation requirements, and demonstration of a sound approach by a feasible and workable program for each tasks response, the offeror's intent to satisfy the deliverables required in the statement of work. The offeror's ability to demonstrate a soundness of approach by a feasible and workable program for each task.

##### (3) MANAGEMENT PLAN

Management will be evaluated on the offeror's capability to oversee and schedule required task demands. The overall soundness of effective management control, simplicity and low cost. Identification of corporate project experience in performing related projects.

**M-2-2 COST TO THE GOVERNMENT**

Proposed estimated cost to the Government. The Government may adjust the proposed cost for purposes of evaluation based upon an evaluation of cost realism. Cost Realism means that the costs in an offeror's proposal are realistic for the work to be performed; reflect a clear understanding of the requirements; and are consistent with the various elements of the offeror's technical proposal. The cost realism evaluation includes an analysis of the adequacy of the hours, labor mix, and other direct costs to perform the work as proposed in the technical proposal as well as the proposed labor and indirect rates. It also includes evaluation of the likelihood that the risks inherent in the offeror's technical approach will result in higher actual costs than anticipated.

**M-2-3 SMALL BUSINESS PARTICIPATION**

- (a) The extent of participation of small businesses and historically black colleges or universities and minority institutions in performance of the contract will be evaluated on the basis of the proposed extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.
- (b) The extent of participation of small disadvantaged business concerns in performance of the contract will be evaluated on the basis of the proposed extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.

**M-3 FAR 52.217-5 - EVALUATION OF OPTIONS (JUL 1990)**

Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

# **ESM Technology Development Support**

## **STATEMENT OF WORK**

### **1.0 INTRODUCTION**

This Statement of Work describes the engineering and technical support services to be provided to the Tactical Electronic Warfare Division (TEWD) of the Naval Research Laboratory (NRL), Washington, D.C.

### **2.0 BACKGROUND**

The Naval Research Lab (NRL) has developed advanced EW technology to support NRL's research and development (R&D) mission and provide the operational US Navy with technology and equipment needed in operational mission as well as training activities. Electronic Warfare Support Measures (ESM) technology development at NRL focuses on the ability to sense and analyze signals in the tactical environment to provide a timely and precise representation of the tactical environment. ESM functions are performed using specialized hardware and software tools to sense analyze and present scenario information. ESM developments are applicable to a wide range of naval platforms including ships, aircraft, submarines and unmanned vehicles. Simulation serves to stimulate state-of-the art EW receivers and signal processors for thorough test and evaluation. Test and evaluation techniques employ either RF signals, digital or software descriptions of environment emissions. The ESM Branch supports Electronic Warfare sensor and processing development for a wide range of platforms. Surface ship ESM technology development is provided through the AN/SLQ-32 and AN/SLY-2 programs as well as the AMRFC and the ONR Self Protection research initiatives. Likewise, aircraft ESM is supported for F-18, E-2 and EP-3 aircraft. Continued research at NRL is expected to focus on the continuing improvement of ESM hardware and software capabilities to in order to provide accurate environment data as radiating sources evolve.

The Naval Research Laboratory conducts research into advanced ESM collection and processing techniques – typically including ESM system design and prototype development. Work spans the spectrum of ESM system design and development including RF, digital and analog signal processing, and software.

### **3.0 SCOPE**

The required technical support defined herein comprises a number of interrelated task areas which vary in both their technical dimensions and deliverable product. Therefore, a high degree of inter-task coordination will be required to perform the tasking described below. The contractor shall provide scientific, technical, engineering and administrative support to accomplish the various taskings, which include ESM equipment engineering (hardware and software); ESM systems analysis (addressing architectural and functional tradeoffs addressing the ESM operationally-driven system metric); and ESM equipment test and evaluation data collection, analysis and database management. Data and special signal processing equipment availability as well as security requirements dictates that a portion of the work be performed at NRL.

This contract requires SCI data installation in NRL developed research equipment. Therefore, the NRL research product implemented with this contract contains SCI. In addition, this contract requires installation, training, maintenance and retrieval of NRL equipment at SCI installations of the Services, Navy, Army, Air Force and Marines, as well as intelligence community installations. Consequently, this contract requires that the support research be performed at the SCI security level as required.

The contractor shall provide engineering and technical support for NRL developed ESM systems and software tasks by developing hardware concepts, performing systems analysis and systems engineering tasks, developing software programs and technology demonstrations, and performing test and evaluation of demonstration concepts. The contractor shall provide engineering and technical support for NRL prototype ESM system design, development, test, and evaluation as covered under the task items.

### **3.1 TASKS**

- 3.1.1 **TASK I -- ESM Technology Development Using Multi-Disciplinary, Highly-integrated Functional Components**
- 3.1.2 **TASK II -- ESM Systems Analysis Support (Addressing Architectural and Functional Tradeoffs to Optimize Performance in Accordance with the ESM Operationally-Driven System Metric)**
- 3.1.3 **TASK III -- ESM Hardware and Software Engineering Support**
- 3.1.4 **TASK IV -- ESM Electronic, Mechanical and Optical Specialist Support**
- 3.1.5 **TASK V -- ESM Equipment Test and Evaluation Data Collection, Analysis and Database Management**
- 3.1.6 **TASK VI -- ESM Technology Development Support to Demonstrate Critical ESM Processing Functions**

3.2. All work, travel and material purchases associated with these tasks are subject to prior written Contracting Officer Representative (COR) approval. Work under the tasks shall be proposed in writing for COR approval showing estimated time to complete as well as estimated labor and material costs. Prior to any travel, contractor shall submit a travel plan showing itinerary, estimated travel and estimated material purchase costs.

3.3 All work performed under this task will be fully documented. A required deliverable for this task will be a detailed document set describing the work performed. Document set to include, but not limited to, hardware design documentation and software design documentation, and performance analysis reports. Additional deliverables for this task will be technical reports, trip reports, monthly progress reports and monthly fiscal reports.

#### 4.0 DEFINITIONS:

Electronic Warfare: Any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. The three major subdivisions within electronic warfare are electronic attack, electronic protection and electronic warfare support.

Electronic Warfare Support: That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify and locate sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition. Thus, electronic warfare support provides information required for immediate decisions involving electronic warfare operations, threat avoidance, targeting and other tactical actions. Also called ES.

Electronic Warfare Support Measures: That division of electronic warfare involving actions taken under direct control of an operational commander to search for, intercept, identify and locate sources of radiated electromagnetic energy for the purpose of immediate threat recognition. Thus, electronic warfare support measures provide a source of information required for immediate decisions involving ECM, ECCM, avoidance, targeting and other tactical employment of forces. Also called ESM.

ESM Receiver: A receiver used to scan the microwave electromagnetic spectrum looking for radiated activity. When a signal is detected, it could be from a radar or from a communication data link. The ESM receivers discussed in this SOW are being tested for radar signal detection only. An ESM receiver is composed of (1) an RF front end that converts the RF pulses in the environment into an intermediate pulse format (IF, analog, or digital), (2) a preprocessor that converts the intermediate pulse format environment into a digital pulse format, and (3) the processor that converts the digital pulse format of the environment into a signal level description of the environment.

RF: Radio Frequency. In this context, RF is loosely defined as electromagnetic energy having a frequency anywhere from 400 Mhz up through 110 GHz.

**Scenario:** A description of the movements and emissions of radiating and moving platforms over a defined period of time. A scenario is typically defined for a specific geographical location. For purposes of this SOW, the ESMES must work at the pulse level using the information from a scenario. Typically a data file is used by the ESMES system that describes the time, location, and movement of radar and ESM platforms within a geographical lay-down.

## **5.0 WORK REQUIREMENTS**

### **5.1 TECHNICAL REQUIREMENTS**

#### **5.1.1 TASK I -- ESM Technology Development Using Multi-Disciplinary, Highly-integrated Functional Components**

Current and projected emitter environments focuses research emphasis on advanced Electronic Warfare Support Measure (ESM) technology that, when applied to systems, can perform multiple, co-pulse, simultaneous signal detection and analysis at great throughput rates. As such, equipment is applied to various system architectures in support of ESM systems development to detect and resolve increasingly dense emitter environments with individual emitter characteristics that include varied forms of radio frequency (RF) modulation.

The contractor shall develop ESM technology demonstration equipment and perform evaluations. The proposed demonstrations may include a wide range of functional elements, including receivers, delay lines, converters, tuners, quantizers and processors.

The contractor shall also provide engineering and technical support for the analysis, design, development and performance evaluation of ESM equipment development proposed by the Contracting Officer Representative (COR), or by the contractor with COR approval. The contractor shall implement critical circuit elements using miniaturization fabrication techniques for compact ESM equipment implementation for lightweight shipboard and/or airborne applications.

The ESM equipment has application to advanced capability demonstrations. A primary system metric is high probability of intercept with high fidelity parameter measurement in dense and highly diverse emitter environments. Compact ESM equipment packaging supports needs for lightweight, low-in-power consumption characteristics, suitable for use in adverse military environments. The maximum use of monolithic circuits, and batch processing technology (VLSI, MMIC, MSW, optical processing) will be required where technically feasible. The ESM architectures utilized shall be proposed by the contractor, with implementation subject to the COR's approval. The contractor shall design, develop and test components and sub-assemblies necessary for the fabrication of the designated equipment. Where applicable, the contractor shall be responsible for the fabrication of hybrid integrated components necessary for the construction of a complete receiver/processor system.

The contractor shall further provide detailed descriptions of its proposed ESM equipment architectures, microelectronics capabilities and integrated receiver/processor performance for the COR's approval. The contractor shall then fabricate, test and deliver to the COR individual or integrated operating assemblies.

Estimated level of effort per year for this task is three (3) man-years.

**5.1.2 TASK II -- ESM Systems Analysis Support (Addressing Architectural and Functional Tradeoffs to Optimize Performance in Accordance with the ESM Operationally-Driven System Metric)**

The contractor shall provide system engineering support for the development of ESM System Architecture(s) required to perform designated ESM projects, which includes:

- (a) Analysis of ESM mission requirements, including consideration of current and projected threat emitter signal environments;
- (b) Consideration of platform physical constraints such as space, weight, power, ship and aircraft platform structures and physical environment factors;
- (c) Identification and discussion of tradeoffs between the functional element approaches necessary to satisfy the ESM system technical requirements for parameter measurement precision, signal densities, command, control and reporting requirements;
- (d) Development of optimized ESM System architecture(s) that addresses the system metric and satisfies the technical requirements in (c) above;

In accomplishing this task, the contractor shall apply detailed knowledge of state-of-the-art ESM sub-system components, such as wideband delay lines, channelizers, dynamic range selective limiters, antennas, microwave receiver front-ends, a wide range of ESM architectures and control and display functions (hardware and software implementations). In addition, the contractor shall define and specify interfaces within the system and with the operator personnel.

The contractor shall also provide support in preparing sub-system procurement specifications, test and evaluation procedures for evaluation of sub-system performance, fabrication and assembly of system hardware and test and evaluation of the ESM receiver/processor system. Final system testing will be performed in the field; the contractor shall support these tests and evaluations as well as those conducted at NRL.

Estimated level of effort per year for this task is two (2) man-years.

### 5.1.3 TASK III – ESM Hardware and Software Engineering Support

The contractor shall provide ESM hardware and software development support to NRL programs as defined by detailed tasking from the COR.

The contractor shall be required to design and develop both hardware (RF, digital) and software capabilities to meet NRL ESM. The contractor may be required to manage the contractor personnel for the design, development, and testing tasks set forth at the direction of the COR.

The contractor shall provide engineering support to NRL ESM R&D projects and system demonstrations with hardware and software engineering expertise as required by the COR. The contractor may be required to manage contractor personnel for tasks that execute the designs produced under this task at the direction of the COR. Top-level software and hardware designs, as well as the hardware platforms, operating systems and programming languages to be used will be selected or approved by the NRL COR.

The contractor shall support software design and development for NRL ESM R&D activities. Software work requires creating future ESM R&D prototype systems including top-level software system design as selected or approved by the NRL COR.

Source code developed under this contract will be the property of the Naval Research Laboratory. Use of contractor owned software will require prior approval by the NRL COR; any such software will be made available to NRL in source code form for its nonexclusive use. Appropriate use of third party software libraries, purchased by NRL, will be approved by the NRL COR.

The contractor shall provide software support to NRL R&D efforts requiring programming in the C, C++, and JAVA programming languages. NRL R&D work often requires the development of prototype ESM systems, which include software for control, signal processing, and display. The task requires some familiarity with the field of radar pulse processing. Familiarity with the VxWorks operating system is desirable. Support personnel will be expected to gain a thorough understanding of existing and developmental pulse processing systems and use that knowledge to create and maintain software under the direction of Branch employees.

The contractor shall be responsible for following Software Engineering procedures as established by NRL code 5720 personnel, including Version Control, Unit Testing, System Testing, and software source code documentation.

All work, travel and material purchases associated with this task are subject to prior written COR approval. Work under this task shall be proposed in writing for COR approval showing estimated time to complete as well as estimated labor and material costs. Prior to any travel, contractor shall submit a travel plan showing itinerary, estimated travel costs and estimated material purchase costs.

All work performed under this task will be fully documented. A required deliverable for

this task will be a detailed document set describing the work performed. Document set to include, but not limited to, hardware design documentation and software design documentation, and performance analysis reports. Additional deliverables for this task will be technical reports, trip reports, monthly progress reports and monthly fiscal reports.

This task may require that time be spent on-site at NRL. This requirement will vary with the specific work task. For example during times of system integration and test, this task will be performed on-site. Source code will not be transported or transmitted out of NRL building 210 without the prior approval of the COR. On site location will be at the direction of the COR.

Estimated level of effort per year for this task is five (5) man-years.

#### **5.1.4 TASK IV -- ESM Electronic, Mechanical and Optical Specialist Activities**

The contractor shall provide engineering and technical support for a number of NRL projects. Specifically, the contractor shall specify, design, assemble and test electronic, mechanical and optical components and subassemblies. The contractor shall maintain records of design data and test results. The contractor shall develop test and trouble-shooting techniques necessary to determine proper operation, or cause of malfunction, of electronic and mechanical subassemblies.

The contractor shall also assist NRL Code 5700 scientific personnel in electronic, mechanical and optical design and development in support of microwave and optical processing projects. The contractor shall perform mechanical layout and construction and aid engineering personnel in evaluating sub-assemblies and equipment under development. Since much of the work under this task area spans the technology disciplines, the contractor shall provide precision fabrication and assembly techniques not customarily required in mechanical assemblies. The contractor shall fabricate microwave components and hardware to support digital receiver/processor technology.

The contractor shall further provide engineering and technical support of the Tactical Electronic Warfare Environment Simulator (TEWES) family of systems when used in the evaluation of ESM equipment, including electronic, microwave, MSW and acousto-optical modules. The contractor shall provide support during the integration of the TEWES system with the ESM equipment under evaluation and provide technical data for inclusion in the test and evaluation reports.

Estimated level of effort per year for this task is four (4) man-years.

**5.1.5 TASK V -- ESM Equipment Test and Evaluation Data Collection,  
Analysis and Database Management**

The contractor shall provide ESM data collection experiments within the continental United States-(CONUS) and/or at locations overseas. The contractor shall operate and maintain ESM equipment developed at NRL.

The contractor shall also train civilian and military personnel in the operation and maintenance of ESM receiver/processors developed by NRL. The contractor shall prepare training notes and manuals to support the training sub-tasks.

The contractor personnel shall document their efforts, both in the operation and maintenance of ESM equipment and in the training of military and civilian government field personnel.

Estimated level of effort per year for this task is four (4) man-years.

**5.1.6 TASK VI -- ESM Technology Development Support to Demonstrate  
Critical ESM Processing Functions**

New, state-of-the-art ESM technologies are required to address the operational need for more rapid and precise assessment of the electromagnetic environment, even as the proliferation and modulation complexity of radar controlled equipment increases. Task I employs available collateral technology constructed to perform the system. function required. Task VI addresses the development of basic research into module level tools that can be applied within ESM system architectures.

The contractor shall develop ESM technology demonstrations and module technology and perform evaluations. Functions that the contractor will be required to pursue include channelization, high throughput signal analysis, dynamic range extension, wideband RF conversion and wideband RF delay. Technologies will be implemented in modules and applied to ESM equipment in support of ESM systems development to detect and resolve increasingly dense emitter environments with individual emitter characteristics that include varied forms of RF modulation.

The contractor shall also provide engineering and technical support for the analysis, design, development and performance evaluation of ESM technology demonstrations and modules proposed by the COR, or by the contractor with the COR's approval. The contractor shall implement critical circuit elements using miniaturization fabrication techniques for compact ESM module implementation for multiple applications.

The ESM modules have application to advanced capability ESM system demonstrations. Compact ESM module packaging supports needs for lightweight, low-in-power consumption characteristics, suitable for use in adverse military environments. The maximum use of monolithic circuits and batch processing technology (VLSI, MMIC, MSW, optical processing) will be required where technically feasible. The contractor shall design, develop and test components and sub-assemblies

necessary for the fabrication of the designated equipment. The contractor shall be responsible for the fabrication of hybrid integrated components necessary for ESM equipment.

The contractor shall further provide detailed descriptions of its proposed functional modules, microelectronics capabilities and integrated receiver/processor performance for the COR's approval. The contractor shall then fabricate, test and deliver to the COR individual or integrated operating assemblies.

Estimated level of effort per year for this task is two (2) man-years.

# CONTRACT DATA REQUIREMENTS LIST

(7 Data Item)

Form Approved  
OMB No. 0704-0188

The 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 (0701-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. 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 address. Send completed form to the Government issuing

<b>A. CONTRACT LINE ITEM NO.</b> 0002/0004/0006/0008/0010	<b>B. EXHIBIT</b> A	<b>C. CATEGORY:</b> TDP      TM -      OTHER
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<b>D. SYSTEM / ITEM</b> ESM Technology Development Support	<b>E. CONTRACT / PR NO.</b> 57-2103-02	<b>F. CONTRACTOR</b>
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<b>1. DATA ITEM NO.</b> A001	<b>2. TITLE OF DATA ITEM</b> Monthly Progress Reports	<b>3. SUBTITLE</b>
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<b>4. AUTHORITY (Data Acquisition Document No.)</b>	<b>5. CONTRACT REFERENCE</b>	<b>6. REQUIRING OFFICE</b> NRL Code 5720
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<b>7. DD 280 REQ</b> LT	<b>8. DIST STATEMENT REQUIRED</b> N/A	<b>9. FREQUENCY</b> Monthly	<b>10. DATE OF FIRST SUBMISSION</b> 40 DAC	<b>14. DISTRIBUTION</b>	
<b>8. APP CODE</b> N/A	<b>9. AS OF DATE</b>	<b>11. DATE OF SUBSEQUENT SUBMISSION</b>	<b>a. ADDRESSEE</b>	<b>b. COPIES</b>	
				Draft	Final
					Reg    Repr

<b>15. REMARKS</b> The contractor shall prepare a monthly progress report for each Task, which shall include, but not be limited to, the following information:  (a) Description of progress for each task during the reporting period. Any change in technical approach reported previously shall be supported with reasons for the change in approach.  (b) Notification of any change in key personnel associated with the contract during the reporting period.  (c) Summary of substantive information derived from trips, meetings, scientific papers and special conferences held in connection with the contract during the reporting period.  (d) Summary of problems or areas of concern on which Government assistance or guidance is desired.  (e) Statement relative to any anticipated deviation in the contractors planned effort to achieve the object of the contract.  (f) List of material purchased for each task during the current reporting period. For each item purchased the following data will be supplied: associated contract task, manufacturer, part or model number, item cost, quantity ordered, order date and expected delivery date.  (g) List of material that was ordered prior to the current reporting period and that has not yet been delivered. For each item purchased the following data will be supplied: associated contract task, manufacturer, part or model number, item cost, quantity ordered, order date and expected delivery date.  (h) List of material received during the current reporting period. For each item received the following data will be supplied: associated contract task, manufacturer, part or model number, item cost, quantity ordered, quantity received and quantity on backorder.  (i) Estimated date of completion of the task or sub-task, where appropriate.	NRL Code		3	
		<b>18. TOTAL</b> →		3

<b>G. PREPARED BY</b> NRL Code 5720	<b>H. DATE</b> 5/14/02	<b>I. APPROVED BY</b>	<b>J. DATE</b>
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<b>17. PRICE GROUP</b>
<b>18. ESTIMATED TOTAL PRICE</b>

# CONTRACT DATA REQUIREMENTS LIST

(2 Data Items)

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OMB No. 0704-0188

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<b>A. CONTRACT LINE ITEM NO.</b> 0002/0004/0006/0008/0010	<b>B. EXHIBIT</b> A	<b>C. CATEGORY:</b> TDP _____ TM- _____ OTHER _____
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<b>D. SYSTEM / ITEM</b>	<b>E. CONTRACT / PR NO.</b> 57-2103-02	<b>F. CONTRACTOR</b>
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<b>1. DATA ITEM NO.</b> A002	<b>2. TITLE OF DATA ITEM</b> Trip Reports	<b>3. SUBTITLE</b>
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<b>4. AUTHORITY (Data Acquisition Document No.)</b>	<b>5. CONTRACT REFERENCE</b>	<b>6. REQUIRING OFFICE</b> NRL Code 5720
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<b>7. DD 280 REQ</b> LT	<b>8. DIST STATEMENT REQUIRED</b>	<b>10. FREQUENCY</b> ASREQ	<b>12. DATE OF FIRST SUBMISSION</b> 10 days after trip	<b>14. DISTRIBUTION</b>		
<b>8. APP CODE</b> N/A	N/A	<b>11. AS OF DATE</b>	<b>13. DATE OF SUBSEQUENT SUBMISSION</b> 10 days after trip	<b>a. ADDRESSEE</b>		<b>b. COPIES</b>

<b>16. REMARKS</b> Provide trip reports for any travel conducted in association with this contract. Trip reports are to be delivered independently of any other reporting requirements listed in this document and may be classified. The trip report shall include but not be limited to: (a) Objective/goal of trip. State reasons for travel. Provide a detailed description of mission objectives. (b) Contract task and Navy program that the trip supports. (c) Itinerary. List work performance locations only. (d) Degree of success. Describe the level to which stated objectives were met. (e) Discuss technical issues encountered. Provide an estimate of the cause of the technical issue as well as a proposed solution. (f) Contracts made. List and describe relevant contracts with other government personnel, contractors and foreign national encountered.	<b>15. TOTAL</b> →
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<b>17. PRICE GROUP</b>
<b>18. ESTIMATED TOTAL PRICE</b>

<b>1. DATA ITEM NO.</b> A003	<b>2. TITLE OF DATA ITEM</b> Interim Technical Report	<b>3. SUBTITLE</b>
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<b>4. AUTHORITY (Data Acquisition Document No.)</b>	<b>5. CONTRACT REFERENCE</b>	<b>6. REQUIRING OFFICE</b> NRL Code 5720
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<b>7. DD 280 REQ</b> LT	<b>8. DIST STATEMENT REQUIRED</b>	<b>10. FREQUENCY</b> QRTLY	<b>12. DATE OF FIRST SUBMISSION</b> 120 DAC	<b>14. DISTRIBUTION</b>		
<b>8. APP CODE</b> N/A	N/A	<b>11. AS OF DATE</b>	<b>13. DATE OF SUBSEQUENT SUBMISSION</b> QRTLY	<b>a. ADDRESSEE</b>		<b>b. COPIES</b>

<b>16. REMARKS</b> The contractor shall prepare quarterly interim technical report for all tasks and subtasks in progress. These reports shall include a detailed discussion of the technical findings and accomplishments made on active tasks and subtasks conducted during this period. The reports shall be of publication quality and include subject reference matter. The reports shall include, but not be limited to, the following information: (a) discussion of task or sub-task objectives; (b) Discussion of technical requirements; (c) technical results; (d) conclusions and recommendations for further research; (e) Description of significant hardware and/or software developments.	<b>15. TOTAL</b> →
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<b>17. PRICE GROUP</b>
<b>18. ESTIMATED TOTAL PRICE</b>

<b>G. PREPARED BY</b> NRL Code 5720	<b>H. DATE</b> 5/14/02	<b>I. APPROVED BY</b>	<b>J. DATE</b>
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# CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved  
OMB No. 0704-0188

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<b>A. CONTRACT LINE ITEM NO.</b> 0002/0004/0006/0008/0010	<b>B. EXHIBIT</b> A	<b>C. CATEGORY:</b> TDP      TM -      OTHER
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<b>D. SYSTEM / ITEM</b>	<b>E. CONTRACT / PR NO.</b> 57-2103-02	<b>F. CONTRACTOR</b>
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<b>1. DATA ITEM NO.</b> A006	<b>2. TITLE OF DATA ITEM</b> Software Design Documentation	<b>3. SUBTITLE</b>
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<b>4. AUTHORITY (Data Acquisition Document No.)</b>	<b>5. CONTRACT REFERENCE</b>	<b>6. REQUIRING OFFICE</b> NRL Code 5720
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<b>7. DD 250 REQ</b> LT	<b>8. DIST STATEMENT REQUIRED</b> N/A	<b>9. FREQUENCY</b> *See Blk 16	<b>10. DATE OF FIRST SUBMISSION</b> *See Blk 16	<b>14. DISTRIBUTION</b>	
<b>8. APP CODE</b> N/A	<b>11. AS OF DATE</b>	<b>13. DATE OF SUBSEQUENT SUBMISSION</b> *See Blk 16	<b>a. ADDRESSEE</b> NRL Code 5720		<b>b. COPIES</b>
					<b>Draft</b>
					<b>Final</b>
					<b>Reg</b>
					<b>Repro</b>

<b>16. REMARKS</b> The contractor shall provide software documentation at the conclusion of tasks and subtasks that include software development or modifications to existing software. The software design document will be delivered concurrent with the product delivery. This requirement applies to all software implementation or modification work performed under this contract. The contractor shall document all software developed and/or modified with text that includes the following as a minimum: (a) Name and purpose of the software program; (b) Name and purpose of the software with which the designed software will be used. Definition of hardware and software interfaces, as required; (c) File names and other information describing the identification and location of software; a flow diagram that graphically links the software files with their function; (d) Detailed, comprehensive operator (user) instructions; (e) On-line HELP shall be utilized to the greatest extent practicable, where applicable; software that directly interfaces to the human system operator must support HELP functions to assist the operator in normal system operations; (f) All software shall be documented within the source code to the extent necessary to permit a qualified computer programmer to understand and continue the development of the software; this type of documentation is referred to as "in-line" documentation; in-line documentation shall be provided to the extent that software functionality is not impaired.  Sufficient information in the executable program shall be provided such that an uninitiated person can understand the use of the software. Software documentation resulting from designs applied to specific ESM equipment shall be delivered in a format and on a medium appropriate, and considered standard for, that system. Industry-standard software compilers shall be used to the greatest extent practicable.	<b>15. TOTAL</b> → 3
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<b>17. PRICE GROUP</b>
<b>18. ESTIMATED TOTAL PRICE</b>

<b>G. PREPARED BY</b> NRL Code 5720	<b>H. DATE</b> 5/14/02	<b>I. APPROVED BY</b>	<b>J. DATE</b>
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DEPARTMENT OF DEFENSE CONTRACT SECURITY CLASSIFICATION SPECIFICATION <i>(The requirements of the DoD Industrial Security Manual apply to all security aspects of this effort.)</i>				1. CLEARANCE AND SAFEGUARDING SER:032-02			
				a. FACILITY CLEARANCE REQUIRED		TOP SECRET	
				b. LEVEL OF SAFEGUARDING REQUIRED		SECRET	
2. THIS SPECIFICATION IS FOR: <i>(X and complete as applicable)</i>				3. THIS SPECIFICATION IS: <i>(X and complete as applicable)</i>			
a. PRIME CONTRACT NUMBER		X		a. ORIGINAL <i>(Complete date in all cases)</i>		DATE (YYYYMMDD) 20020516	
b. SUBCONTRACT NUMBER				b. REVISED <i>(Supersedees all previous specs)</i>		REVISION NO. DATE (YYYYMMDD)	
X c. SOLICITATION OR OTHER NUMBER 57-2103-02		DUE DATE (YYYYMMDD)		c. FINAL <i>(Complete item 5 in all cases)</i>		DATE (YYYYMMDD)	
4. IS THIS A FOLLOW-ON CONTRACT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO. If Yes, complete the following: Classified material received or generated under _____ <i>(Preceding Contract Number)</i> is transferred to this follow-on contract.							
5. IS THIS A FINAL DD FORM 2847 <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO. If Yes, complete the following: In response to the contractor's request dated _____, retention of the classified material is authorized for the period of _____.							
6. CONTRACTOR <i>(Include Commercial and Government Entity (CAGE) Code)</i>							
a. NAME, ADDRESS, AND ZIP CODE			b. CAGE CODE		c. COGNIZANT SECURITY OFFICE <i>(Name, Address, and Zip Code)</i>		
FOR RFP PURPOSES ONLY, NOT VALID FOR ACTUAL CONTRACT AWARD					N/A		
7. SUBCONTRACTOR							
a. NAME, ADDRESS, AND ZIP CODE			b. CAGE CODE		c. COGNIZANT SECURITY OFFICE <i>(Name, Address, and Zip Code)</i>		
N/A					N/A		
8. ACTUAL PERFORMANCE							
a. LOCATION			b. CAGE CODE		c. COGNIZANT SECURITY OFFICE <i>(Name, Address, and Zip Code)</i>		
N/A					N/A		
9. GENERAL IDENTIFICATION OF THIS PROCUREMENT							
ESM TECHNOLOGY DEVELOPMENT SUPPORT							
10. CONTRACTOR WILL REQUIRE ACCESS TO:				11. IN PERFORMING THIS CONTRACT, THE CONTRACTOR WILL:			
a. COMMUNICATIONS SECURITY (COMSEC) INFORMATION	YES	NO		a. HAVE ACCESS TO THE CONTRACTOR'S FACILITY OR A SUPPORT ACTIVITY	YES	NO	
b. RESTRICTED DATA		X		b. RECEIVE CLASSIFIED DOCUMENTS ONLY			X
c. CRITICAL NUCLEAR WEAPON DESIGN INFORMATION		X		c. RECEIVE AND GENERATE CLASSIFIED MATERIAL		X	
d. FORMERLY RESTRICTED DATA		X		d. FABRICATE, MODIFY, OR STORE CLASSIFIED HARDWARE			X
e. INTELLIGENCE INFORMATION				e. PERFORM SERVICES ONLY			X
(1) Sensitive Compartmented Information (SCI)	X			f. HAVE ACCESS TO THE CONTRACTOR'S FACILITY OR A SUPPORT ACTIVITY			X
(2) Non-SCI	X			g. RECEIVE AND GENERATE CLASSIFIED INFORMATION			X
f. SPECIAL ACCESS INFORMATION		X		h. REQUIRE A COMSEC ACCOUNT			X
g. NATO INFORMATION		X		i. HAVE TEMPEST REQUIREMENTS			X
h. FOREIGN GOVERNMENT INFORMATION		X		j. HAVE OPERATIONS SECURITY (OPSEC) REQUIREMENTS			X
i. LIMITED DISSEMINATION INFORMATION		X		k. BE AUTHORIZED TO USE THE DEFENSE COURIER SERVICE			X
j. FOR OFFICIAL USE ONLY INFORMATION		X		l. OTHER <i>(Specify)</i>			
k. OTHER <i>(Specify)</i>							

**12. PUBLIC RELEASE.** Any information (classified or unclassified) pertaining to this contract shall not be released for public dissemination except as provided by the Industrial Security Manual or unless it has been approved for public release by appropriate U.S. Government authority. Proposed public releases shall be submitted for approval prior to release  Direct  Through (Specify)

COMMANDING OFFICER, NAVAL RESEARCH LABORATORY, WASHINGTON, DC 20375-5320, CODE 5721.  
NO PUBLIC RELEASE OF SCI AUTHORIZED

to the Directorate for Freedom of Information and Security Review, Office of the Assistant Secretary of Defense (Public Affairs)\* for review.  
\*In the case of non-DoD User Agencies, requests for disclosure shall be submitted to that agency.

**13. SECURITY GUIDANCE.** The security classification guidance needed for this classified effort is identified below. If any difficulty is encountered in applying this guidance or if any other contributing factor indicates a need for changes in this guidance, the contractor is authorized and encouraged to provide recommended changes; to challenge the guidance or the classification assigned to any information or material furnished or generated under this contract; and to submit any questions for interpretation of this guidance to the official identified below. Pending final decision, the information involved shall be handled and protected at the highest level of classification assigned or recommended. (Fill in as appropriate for the classified effort. Attach, or forward under separate correspondence, any documents/guides/extracts referenced herein. Add additional pages as needed to provide complete guidance.)

Access to classified information is not required for the purpose of submitting a bid/proposal for this statement of work. However, prior to award of contract, the successful contractor will be required to have a TOP SECRET facility clearance, SECRET storage capabilities and personnel eligible for Sensitive Compartmented Information.

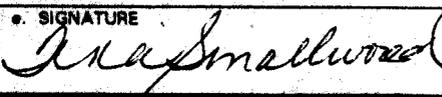
**14. ADDITIONAL SECURITY REQUIREMENTS.** Requirements, in addition to ISM requirements, are established for this contract.  Yes  No  
(If Yes, identify the pertinent contractual clauses in the contract document itself, or provide an appropriate statement which identifies the additional requirements. Provide a copy of the requirements to the cognizant security office. Use Item 13 if additional space is needed.)

**15. INSPECTIONS.** Elements of this contract are outside the inspection responsibility of the cognizant security office.  Yes  No  
(If Yes, explain and identify specific areas or elements carved out and the activity responsible for inspections. Use Item 13 if additional space is needed.)

**16. CERTIFICATION AND SIGNATURE.** Security requirements stated herein are complete and adequate for safeguarding the classified information to be released or generated under this classified effort. All questions shall be referred to the official named below.

a. TYPED NAME OF CERTIFYING OFFICIAL TINA SMALLWOOD	b. TITLE CONTRACTING OFFICER, SECURITY	c. TELEPHONE (Include Area Code) (202)767-2240/2521
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d. ADDRESS (Include Zip Code)  
NAVAL RESEARCH LABORATORY  
4555 OVERLOOK AVE., SW  
WASHINGTON, DC 20375-5320

e. SIGNATURE  


**17. REQUIRED DISTRIBUTION**

<input checked="" type="checkbox"/>	a. CONTRACTOR
<input type="checkbox"/>	b. SUBCONTRACTOR
<input checked="" type="checkbox"/>	c. COGNIZANT SECURITY OFFICE FOR PRIME AND SUBCONTRACTOR
<input type="checkbox"/>	d. U.S. ACTIVITY RESPONSIBLE FOR OVERSEAS SECURITY ADMINISTRATION
<input type="checkbox"/>	e. ADMINISTRATIVE CONTRACTING OFFICER
<input checked="" type="checkbox"/>	f. OTHERS AS NECESSARY 1221.1, 1223.1, 5721, 5702, ONI-532

## PERSONNEL QUALIFICATIONS

### 2.0 LABOR CATEGORIES/QUALIFICATIONS

#### **Labor Category: SENIOR SCIENTIST**

**Education Requirements:** MS or PE in Electrical Engineering or Physics, or equivalent technical education and/or technical experience at the Senior Scientist level. Education and experience is substituted on a one year to one year ratio. (Ex: one year of education and five years of experience would equal a MS/PE degree; two years of education and four years of experience would equal a MS/PE degree, etc.).

**Experience Requirements:** In addition to the above stated education requirements or equivalencies, the following experience is required: 15 years experience in electronic warfare (EW) systems design, EW systems integration and/or technology development for EW systems. Demonstrated intricate knowledge of the requirements, alternatives, workings, interrelationships and tradeoffs of EW systems and leading-edge technologies relevant to these systems. 10 years experience in EW technology development. Demonstrated knowledge of electronic warfare support measures (ESM) system architectures and system metrics for tactical EW and surveillance functions aboard aircraft, ships, submarines and spacecraft. Demonstrated knowledge of emerging EW technologies, including high temperature superconductors (HTS), fiber optics, monolithic microwave integrated circuits (MMIC), magnetostatic wave circuits (MSW) and optical processing. Demonstrated ability to define system functional interfaces, incorporate leading edge EW technology into functional modules and transition them into developed system architectures. Demonstrated ability to communicate (i.e., liaison) with leading scientists in the areas of EW technology interest in an effort to develop modules and system level demonstrations. This also includes a demonstrated capability in system and module definition and documentation and fluency in computer aided design (CAD) modeling of systems, microwave, optical and digital circuitry.

#### **Labor Category: ASSOCIATE SENIOR SCIENTIST**

**Education Requirements:** MS or PE in Electrical Engineering or Physics, or equivalent technical education and/or technical experience at the Associate Senior Scientist level. Education and experience is substituted on a one year to one year ratio. (Ex: one year of education and five years of experience would equal a MS/PE degree; two years of education and four years of experience would equal a MS/PE degree, etc.).

**Experience Requirements:** In addition to the above stated education requirements or equivalencies, the following experience is required: 5 years experience in EW parallel processing system architectures. 10 years experience in ESM system integration. Demonstrated intricate knowledge of the requirements, alternatives, workings, interrelationships, and tradeoffs of EW systems and leading-edge technologies relevant to these systems. 5 years experience in EW technology development. Demonstrated knowledge of ESM system architectures and system metrics for tactical EW and surveillance functions aboard aircraft, ships, submarines and spacecraft. Demonstrated knowledge of emerging EW technologies, high temperature superconductors (HTS), fiber optics, monolithic microwave integrated circuits (MMIC), magnetostatic wave circuits (MSW) and optical processing. Demonstrated ability to communicate

(i.e., liaison) with leading scientists in the areas of EW technology interest in an effort to develop modules and system level demonstrations. This also includes a demonstrated capability in system and module definition and documentation and fluency in computer aided design (CAD) modeling of systems, microwave, optical and digital circuitry.

**Labor Category: SCIENTIST**

**Education Requirements:** BS in Electrical Engineering or Physics, or equivalent technical education and/or technical experience at the Scientist level. Education and experience is substituted on a one year to one year ratio. (Ex: one year of education and three years of experience would equal a BS degree; two years of education and two years of experience would equal a BS degree, etc.).

**Experience Requirements:** In addition to the above stated education requirements or equivalencies, the following experience is required: 3 years experience in ESM receiver technology development. Demonstrated knowledge of the requirements, alternatives, workings, interrelationships and tradeoffs of EW systems and leading-edge technologies relevant to these systems. Demonstrated knowledge of emerging EW technologies, including high temperature superconductors (HTS), fiber optics, monolithic microwave integrated circuits (MMIC), magnetostatic wave circuits (MSW) and optical processing. Demonstrated ability to communicate (i.e., liaison) with leading scientists in the areas of EW technology interest in an effort to develop modules and system level demonstrations. This also includes a demonstrated capability in system and module definition and documentation and fluency in computer aided design (CAD) modeling of systems, microwave, optical and digital circuitry.

**Labor Category: ASSOCIATE ENGINEER (ELECTRICAL)**

**Education Requirements:** BS in Electrical Engineering or Physics, or equivalent technical education and/or technical experience at the Associate Engineer (Electrical) level. Education and experience is substituted on a one year to one year ratio. (Ex: one year of education and three years of experience would equal a BS degree; two years of education and two years of experience would equal a BS degree, etc.).

**Experience Requirements:** - In addition to the above stated education requirements or equivalencies, the following experience is required: 1 year experience in ESM receiver technology development. Demonstrated knowledge of the requirements, alternatives, workings, interrelationships and tradeoffs of EW systems and leading-edge technologies relevant to these systems. Demonstrated ability to work with emerging EW technologies, including high temperature superconductors (HTS), fiber optics, monolithic microwave integrated circuits (MMIC), magnetostatic wave circuits (MSW) and optical processing. Demonstrated ability to communicate (i.e., liaison) with leading scientists in the areas of EW technology interest in an effort to develop modules and system level demonstrations. This also includes a demonstrated capability in system and module definition and documentation and fluency in computer aided design (CAD) modeling of systems, microwave, optical and digital circuitry.

**Labor Category: ASSOCIATE ENGINEER (MECHANICAL)**

**Education Requirements:** BS in Mechanical Engineering, or equivalent technical education and/or technical experience at the Associate Engineer (Mechanical) level. Education and experience is substituted on a one year to one year ratio. (Ex: one year of education and three years of experience would equal a BS degree; two years of education and two years of experience would equal a BS degree, etc.).

**Experience Requirements:** In addition to the above stated education requirements or equivalencies, the following experience is required: 3 years experience in the performing thermal, structural and reliability analysis on ESM modules, systems and processing assemblies. Demonstrated knowledge of the physical workings, interrelationships, tradeoffs and mechanical characteristics of ESM microwave electronic components, assemblies and fabrication processes. Demonstrated ability to derive the environmental impact of shock, vibration, thermal cycling and weathering elements on electronic assemblies. Demonstrated fluency in computer aided modeling procedures associated with finite element analysis. Demonstrated familiarity with fabrication, plating and finishing processes associated with the exotic materials utilized in optical, MIC and MSW assemblies and packaging. Demonstrated familiarity with assembly operations and procedures such as bonding, welding, soldering and epoxy attachment of GaAs dies and electronic chip components to substrates and carriers.

**Labor Category: ENGINEERING ANALYST**

**Education Requirements:** BS in Electrical Engineering or Physics, or equivalent technical education and/or technical experience at the Engineer Analyst level. Education and experience is substituted on a one year to one year ratio.

(Ex: one year of education and three years of experience would equal a BS degree; two years of education and two years of experience would equal a BS degree, etc.). **Experience Requirements:** In addition to the above stated education requirements or equivalencies, the following experience is required: 1 year experience in ESM system integration. Demonstrated knowledge of ESM functional elements using state-of-the-art MSW, fiber optic, MMIC, optical processing and VLSI, including their tradeoff characteristics. Demonstrated ability to work cooperatively with subcontractors, mechanical designers, system designers and technicians in integrating system functional elements and establishing the required performance level in a sequential building block fashion that includes integration, troubleshooting and performance verification to specifications. Demonstrated ability to develop and write test plans and procedures. Demonstrated working knowledge of computer aided design (CAD) modeling of RF/microwave/millimeter wave circuitry using HP/EEs of Touchstone and/or Compac Harmonica. Demonstrated working knowledge of advanced RF/microwave/millimeter wave test equipment.

**Labor Category: SENIOR TECHNICIAN**

**Education Requirements:** High School Diploma and 1 year of vocational training in electronics

**Experience Requirements:** In addition to the above stated education requirements, the following experience is required: 10 years experience in ESM system and microwave technology. 10 years experience in fiber optics, MSW, MMIC and optical processing assembly, design and testing. Demonstrated extensive experience in assembly, testing and tuning of ESM modules and

equipment, MIC-hybrid RF, microwave, millimeter wave circuitry, over dc to 40 GHz. 10 years experience in fiber optics, MSW, MMIC and optical processing assembly, design and testing. Demonstrated knowledge of and capability in the alignment and testing of ESM functional modules to verify performance.

Demonstrated fluency in the operation of vector and scalar network analyzers, spectrum analyzers, noise figure and power meters. Demonstrated ability to work from MIL-T31 000, Level 2 mechanical drawings and schematics. Demonstrated experience in generating ESM module test procedures.

**Labor Category: TECHNICIAN**

**Education Requirements:** High School Diploma and 1 year of vocational training in electronics.

**Experience Requirements:** In addition to the above stated education requirements, the following experience is required: 5 years experience in ESM system and microwave technology assembly, design and testing. Demonstrated experience in assembly, testing and tuning of ESM modules and equipment, MIC-hybrid RF, microwave, millimeter wave circuitry, over dc to 40 GHz.

Demonstrated knowledge of and capability in the alignment and testing of ESM functional modules to verify performance. Demonstrated capability in the operation of vector and scalar network analyzers, spectrum analyzers, noise figure and powermeters. Demonstrated ability to work from MIL-T-31000, Level 12 mechanical drawings and schematics. Demonstrated experience in generating ESM module test procedures.

**Labor Category: PLANNER**

**Education Requirements:** High School Diploma and 1 year of vocational training in program planning.

**Experience Requirements:** In addition to the above stated education requirements, the following experience is required: 5 years experience in the tracking, procurement and in-house flow of electronic/mechanical components. 5 years experience in the scheduling of work activities. Demonstrated hands-on experience in using a personal computer with software, including spreadsheet, project management and word-processing.

**Labor Category: DRAFTER/MECHANICAL DESIGNER**

**Education Requirements:** High School Diploma and 1 year of vocational training in drafting/designing.

**Experience Requirements:** In addition to the above stated education requirements, the following experience is required: 5 years experience in electromechanical packaging design. 2 years experience in rack enclosure packaging design. Demonstrated extensive understanding of the parameters of mechanical design for military systems hardware. Demonstrated knowledge of high-tolerance, precision- machining techniques. Demonstrated working knowledge of interconnect electronics, RF components and microwave packaging constraints. Demonstrated ability to arrange various components of the package for optimum signal flow with minimum I/O crossover. Demonstrated knowledge of the design, fabrication, assembly and wiring of multi-rack systems.

Demonstrated understanding of ANSI Y14.5 geometric dimensioning and tolerancing.  
Demonstrated mechanical engineering skills in producing both mechanical and electrical drawings.

**Labor Category: SENIOR ASSEMBLER**

**Education Requirements:** High School Diploma and 1 year of vocational training in electronics assembly.

**Experience Requirements:** In addition to the above stated education requirements, the following experience is required: 3 years experience in the assembly of electronics modules and subsystems. Demonstrated hands-on experience in the use of sheetmetal brake, rack installations, wire harnessing, welding, riveting and PC board assembly and flow soldering. Demonstrated experience in reading and interpreting drawings, parts handling and the picking and placing of small components with the use of a vision enhancement instruments. A demonstrated thorough knowledge of solder/braze/weld/epoxy attachment of components from chip to the module components. Demonstrated experience in the operations of an electronic assembly clean room used for Hybrid assembly. Demonstrated ability to interpret assembly drawings, work instructions, assembly procedures and schematics.