

<b>AWARD/CONTRACT</b>		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)	RATING N/A	PAGE OF PAGES 1   30
2. CONTRACT (Proc. Inst. Ident.) NO. NNG12VN00C		3. EFFECTIVE DATE See Block 20C		4. REQUISITION/PURCHASE REQUEST/PROJECT NO. 4200430174
5. ISSUED BY NASA/Goddard Space Flight Center Procurement Operations Division Mayra A. Nieves-Torres / 210.P Greenbelt MD 20771	CODE GSFC	6. ADMINISTERED BY (If other than Item 5) NASA/Goddard Space Flight Center Procurement Operations Division Office of Program Support / 210.P Greenbelt MD 20771		CODE GSFC

7. NAME AND ADDRESS OF CONTRACTOR (No., Street, City, Country, State and ZIP Code)  SPACE SYSTEMS/LORAL, INC. 3825 FABIAN WAY PALO ALTO CA 94303-4604		8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below)
		9. DISCOUNT FOR PROMPT PAYMENT Net 30 days
		10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN ITEM Clause G.2

CODE QDJH2	FACILITY CODE	11. SHIP TO/MARK FOR NASA/Goddard Space Flight Center 8800 Greenbelt Road Greenbelt MD 20771	CODE GSFC	12. PAYMENT WILL BE MADE BY NASA/Shared Services Center Financial Management Division (EMD) Accounts Payable Bldg 1111, C Road NSSC-AccountsPayable@nasa.gov Stennis Space Center MS 39529-6000	CODE NSSC
---------------	---------------	---	--------------	---	--------------

13. 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) ( )	14. ACCOUNTING AND APPROPRIATION DATA BC: GHL
---	--

15A. ITEM NO	15B. SUPPLIES/SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
Continued					
15G. TOTAL AMOUNT OF CONTRACT					\$1,779,774.00

(X)	SEC.	DESCRIPTION	PAGE(S)	(X)	SEC.	DESCRIPTION	PAGE(S)
PART I - THE SCHEDULE				PART II - CONTRACT CLAUSES			
X	A	SOLICITATION/CONTRACT FORM	1	X	I	CONTRACT CLAUSES	18-29
X	B	SUPPLIES OR SERVICES AND PRICES/COSTS	3-6	PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.			
X	C	DESCRIPTION/SPECS./WORK STATEMENT	7	X	J	LIST OF ATTACHMENTS	30
X	D	PACKAGING AND MARKING	8	PART IV - REPRESENTATIONS AND INSTRUCTIONS			
X	E	INSPECTION AND ACCEPTANCE	9		K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
X	F	DELIVERIES OR PERFORMANCE	10		L	INSTRS., CONDS., AND NOTICES TO OFFERORS	
X	G	CONTRACT ADMINISTRATION DATA	11-2		M	EVALUATION FACTORS FOR AWARD	
X	H	SPECIAL CONTRACT REQUIREMENTS	13-17				

CONTRACTING OFFICER WILL COMPLETE ITEM 17 (SEALED-BID OR NEGOTIATED PROCUREMENT) OR 18 (SEALED-BID PROCUREMENT) AS APPLICABLE

17. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 2 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)	18. <input type="checkbox"/> SEALED-BID AWARD (Contractor is not required to sign this document.) Your bid on Solicitation Number _____ including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your bid, and (b) this award/contract. No further contractual document is necessary. (Block 18 should be checked only when awarding a sealed-bid contract.)
19A. NAME AND TITLE OF SIGNER (Type or print) Ronald A. Haley, Senior Vice President and CFO	20A. NAME OF CONTRACTING OFFICER Teresa N Anthony

19B. NAME OF CONTRACTOR BY Young C Lynch for Ronald A. Haley (Signature of person authorized to sign)	19C. DATE SIGNED 4/10/2012	20B. UNITED STATES OF AMERICA BY Teresa N Anthony (Signature of the Contracting Officer)	20C. DATE SIGNED 4/10/12
---	-------------------------------	--	-----------------------------

**CONTINUATION SHEET**

REFERENCE NO. OF DOCUMENT BEING CONTINUED  
 NNG12VN00C

PAGE OF  
 2 30

NAME OF OFFEROR OR CONTRACTOR  
 SPACE SYSTEMS/LORAL, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	INCO TERMS 2: Destination FOB: Destination				
001	Planning PR for Optical Comm GEO Relay Obligated Amount: \$0.00				0.00
002	Loral Hosted Payload Contract Obligated Amount: \$1,779,774.00				1,779,774.00

<b>SECTION B OF NNG12VN00C</b> .....	3
<b>SUPPLIES OR SERVICES AND PRICES/COSTS</b> .....	3
<b>B.1 Deliverable Requirements and Delivery Schedule</b> .....	3
<b>B.2 1852.216-78 Firm Fixed Price (DEC 1988)</b> .....	3
<b>B.3 Milestone Payment Schedule Base Phase</b> .....	3
<b>B.4 GSFC 52.216-92 MINIMUM/MAXIMUM AMOUNT OF SUPPLIES OR SERVICES (FIXED PRICE) (APR 2008)</b> .....	4
<b>B.5 GSFC 52.216-93 SUPPLEMENTAL TASK ORDERING PROCEDURES (FIXED PRICE) (JUL 2006)</b> .....	5
<b>B.6 Option 1</b> .....	5
<b>B.7 Milestone Payment Schedule Option 1</b> .....	5
<b>C.1 Scope of Work</b> .....	7
<b>C.2 GSFC 52.227-90 Limited Rights Data or Restricted Computer Software (MAR 2008)</b> .....	7
<b>PACKAGING AND MARKING</b> .....	8
<b>INSPECTION AND ACCEPTANCE</b> .....	9
<b>E.1 52.246-7 Inspection of Research and Development – Fixed Price (AUG 1996)</b> .....	9
<b>E.2 52.246-16 Responsibility for Supplies (APR 1984)</b> .....	9
<b>E.3 GSFC 52.246-93 Acceptance — Location(s) (APR 2008)</b> .....	9
<b>E.4 GSFC 52.246-102 Inspection System Records (OCT 1988)</b> .....	9
<b>E.5 Clauses Incorporated by Reference -- SECTION E</b> .....	9
<b>DELIVERIES OR PERFORMANCE</b> .....	10
<b>F.1 52.242-15 Stop-Work Order (AUG 1989)</b> .....	10
<b>F.2 52.247-34 F.O.B Destination (NOV 1991)</b> .....	10
<b>F.3 Period of Performance</b> .....	10
<b>F.4 GSFC 52.247-94 Shipping Instructions –Central Receiving (JUN 2006)</b> .....	10
<b>F.5 Clauses Incorporated by Reference -- SECTION F</b> .....	10
<b>CONTRACT ADMINISTRATION DATA</b> .....	11
<b>G.1 1852.227-70 New Technology (MAY 2002)</b> .....	11
<b>G.2 GSFC 52.232-95 Submission of Invoices (AUG 2008)</b> .....	11
<b>G.3 1852.227-72 Designation of New Technology Representative and Patent Representative (JUL 1997)</b> .....	11
<b>G.4 1852.245-74 IDENTIFICATION AND MARKING OF GOVERNMENT PROPERTY (JAN 2011)</b> .....	11
<b>G.5 1852.245-75 PROPERTY MANAGEMENT CHANGES (JAN 2011)</b> .....	11
<b>G.6 1852.245-76 LIST OF GOVERNMENT FURNISHED PROPERTY PURSUANT TO FAR 52.245-1 (JAN 2011)</b> .....	12
<b>G.7 Clauses Incorporated by Reference -- SECTION G</b> .....	12
<b>SPECIAL CONTRACT REQUIREMENTS</b> .....	13
<b>H.1 1852.208-81 Restrictions on Printing and Duplicating (NOV 2004)</b> .....	13
<b>H.2 1852.223-72 Safety and Health (Short Form) (APR 2002)</b> .....	13
<b>H.3 1852.223-75 Major Breach of Safety or Security (FEB 2002)</b> .....	13
<b>H.4 1852.225-70 Export Licenses (FEB 2000)</b> .....	13

<b>H.5</b>	<b>1852.244-70 GEOGRAPHIC PARTICIPATION IN THE AEROSPACE PROGRAM (APR 1985)</b> .....	13
<b>H.6</b>	<b>1852.232-77 Limitation of Funds (Fixed- Price Contract) (MAR 1989)</b> .....	13
<b>H.7</b>	<b>1852.235-73 Final Scientific and Technical Reports (DEC 2006)</b> .....	14
<b>H.8</b>	<b>1852.235-74 Additional Reports of Work - Research and Development (FEB 2003)</b> .....	14
<b>H.9</b>	<b>GSFC 52.219-90 Small Business Subcontracting Plan and Reports (JUL 2006)</b> .....	15
<b>H.10</b>	<b>GSFC 52.227-99 RIGHTS IN DATA (MAR 2008)</b> .....	15
<b>H.11</b>	<b>REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFEROR</b> .....	16
<b>H.12</b>	<b>1852.216-80 TASK ORDERING PROCEDURE (OCT 1996) - ALTERNATE I</b> .....	16
<b>H.13</b>	<b>CLAUSES INCORPORATED BY REFERENCE – SECTION H</b> .....	17
	<b>CONTRACT CLAUSES</b> .....	18
<b>I.1 - I.72</b>	<b>CONTRACT CLAUSES INCORPORATED BY REFERENCE</b> .....	18
<b>I.73</b>	<b>52.252-2 Clauses Incorporated by Reference (FEB 1998)</b> .....	21
<b>I.74</b>	<b>52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR2000)</b> .....	21
<b>I.75</b>	<b>52.209-9 UPDATES OF PUBLICLY AVAILABLE INFORMATION REGARDING RESPONSIBILITY MATTERS (JAN 2011)</b> .....	21
<b>I.76</b>	<b>52.244-6 Subcontracts for Commercial Items (DEC 2010)</b> .....	22
<b>I.77</b>	<b>52.252-6 Authorized Deviations in Clauses (APR 1984)</b> .....	23
<b>I.78</b>	<b>1852.204-76 SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES (JAN 2011)</b> .....	23
<b>I.79</b>	<b>1852.215-84 Ombudsman (OCT 2003)</b> .....	24
<b>I.80</b>	<b>1852.219-76 NASA 8 Percent Goal (JUL 1997)</b> .....	25
<b>I.81</b>	<b>1852.237-72 Access to Sensitive Information (JUN 2005)</b> .....	26
<b>I.82</b>	<b>1852.237-73 Release of Sensitive Information (JUN 2005)</b> .....	26
<b>I.83</b>	<b>52.216-18 ORDERING (OCT 1995)</b> .....	28
<b>I.84</b>	<b>52.216-22 INDEFINITE QUANTITY (OCT 1995)</b> .....	28
<b>I.85</b>	<b>52.245-1 GOVERNMENT PROPERTY (AUG 2010)</b> .....	29
<b>I.86</b>	<b>52.245-9 USE AND CHARGES (AUG 2010)</b> .....	29
<b>I.87</b>	<b>CLAUSES INCORPORATED BY REFERENCE – SECTION I</b> .....	29
	<b>LIST OF ATTACHMENTS</b> .....	30
<b>J.1</b>	<b>LIST OF ATTACHMENTS</b> .....	30

**SECTION B OF NNG12VN00C  
SUPPLIES OR SERVICES AND PRICES/COSTS**

**B.1 Deliverable Requirements and Delivery Schedule**

The Contractor shall provide all resources (except as may be expressly stated in the contract as furnished by the Government) necessary to perform the requirements set forth in the Statement of Work incorporated as Attachment A and deliver the following documentation and reports:

<u>Item</u>	<u>Description</u>	<u>Reference</u>	<u>Quantity</u>	<u>Delivery Date</u>
1	Monthly Progress Reports	Clause H.8	16	Fifteen (15) calendar days following the month being reported.
2	Reporting of Inventions	Clause G.3	1	In accordance with (IAW) NFS 1852.227-72
3	New Technology Reports	Clause G.1	1	IAW NFS 1852.227-70
4	Small Business Subcontracting Plan Reporting	Clauses H.9, I.25 & I.65	1	IAW H.9
5	IT Security Management Plan	Clause I.74	1	30 Days After Contract Award
6	Final Report	Clause H.7	1	TBD
7	Organizational Conflicts of Interest Avoidance Plan	Clause I.77, I.78	1	30 Days After Contract Award
8	SOW deliverables	Clause J.1, Attachment A	As required	As required
9	Task Order Deliverables and Reports	Clauses B.5, H.12, I.79, I.80	As required	As required
10	Task Plans	Clauses B.5, H.12, I.79, I.80	As required	10 calendar days after receipt of request

IAW – In Accordance With

(End of Text)

**B.2 1852.216-78 Firm Fixed Price (DEC 1988)**

The total firm-fixed price of this contract is \$1,779,774

(End of clause)

**B.3 Milestone Payment Schedule Base Phase**

- (a) Subject to other limitations and conditions specified in this contract, milestone payment shall be made to the Contractor upon delivery and acceptance of the milestone events described under paragraph (b)
- (b) The payment schedule amount shall be calculated by the application of the contract percentage established per milestone event to the fixed price amount indicated under contract clause B.2, entitled "Firm-Fixed Price".

Item	Milestone Event	QTY	Contract Percentage	Unit Price	Total Amount
1	Preliminary Site Visit and Startup coordination meeting	1	5%	\$88,989	\$88,989
2	Completion and Acceptance of Clause B.1 Items 4, 5, and 7.	1	5%	\$88,989	\$88,989
3	Study Plan, Study Detailed Schedule	1	5%	\$88,989	\$88,989
4	Mission Concept Review Package, Presentation and Action Item Closure	1	25%	\$444,944	\$444,944
5	Draft Payload to S/C ICD and technical resource allocations Complete	1	10%	\$177,977	\$177,977
6	Payload integration and test planning Documentation including Flight Mission selection approach	1	10%	\$177,977	\$177,977
7	Payload to S/C ICD Draft 2 Complete	1	10%	\$177,977	\$177,977
8	PDR Package, Presentation and Action Item Closure	1	10%	\$177,977	\$177,977
9	Final Report Received	1	20%	\$355,955	\$355,955
	TOTAL		100%	-----	\$1,779,774

(c) The Contractor may submit requests for payment not more frequently than monthly, in a form and manner acceptable to the Contracting Officer. Unless otherwise authorized by the Contracting Officer, all milestone payments in any period for which payment is being requested shall be included in a single request, appropriately itemized and totaled.

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

(End of Text)

**B.4 GSFC 52.216-92 MINIMUM/MAXIMUM AMOUNT OF SUPPLIES OR SERVICES (FIXED PRICE) (APR 2008)**

**Note: This clause applies only to the IDIQ requirements of the SOW**

(a) The minimum amount of supplies or services that shall be ordered during the effective period of this contract is \$0. The maximum amount of supplies or services that may be ordered during the effective period of this contract is **\$225,000**

(b) All orders placed under this contract will be applied to the minimum and maximum specified above.

(c) The maximum amount may be adjusted unilaterally by the Government on an as needed basis. Historic, current, and/or projected workload requirements will be used to determine the amount of upward adjustment. In no event will the adjusted maximum amount exceed 0% of the original maximum amount.

(End of clause)

**B.5 GSFC 52.216-93 SUPPLEMENTAL TASK ORDERING PROCEDURES (FIXED PRICE) (JUL 2006)**

**Note: This clause applies only to the IDIQ requirements of the SOW**

(a) When the Government issues a request for a “task plan” to the Contractor in accordance with the Clause entitled “Task Ordering Procedure” of this contract, the Contractor shall prepare its estimate of the labor hours, labor categories, and other direct costs required to perform the task order requirements. The Contractor shall use only those appropriate labor categories and loaded labor rates, which may be less than but shall not exceed the rates found in **Attachment D** to calculate the proposed price for all task orders issued in accordance with the “Task Ordering Procedure” clause of this contract.

(b) The Contractor’s proposed approach/pricing of the representative tasks set forth in its proposal for award of this contract shall be used as reference by the Contracting Officer in negotiating tasks with the Contractor which are issued under this contract, but only to the extent portions of a representative task are relevant to portions of a task actually issued.

(End of clause)

**B.6 Option 1**

The Government may increase the quantity of deliverable items by exercising the option as indicated below. The items required by this option shall be delivered as follows:

<u>Item</u>	<u>Description</u>	<u>Reference</u>	<u>Quantity</u>	<u>Delivery Date</u>
1	Monthly Progress Reports	Clause H.8	9	Fifteen (15) calendar days following the month being reported.
2	SOW deliverables	Clause J.1, Attachment A	As required	As required
3	Final Report	Clause H.7	1	30 days after contract end date

The total firm fixed price of this option is **\$1,088,593**.

The Government may require the delivery of the numbered line items identified above and in the quantity stated above. Delivery of added items shall be as indicated, above, and in Clause F.4, Shipping Instructions—Central Receiving, of this contract.

Upon exercise of Option 1, the period of performance of the contract shall be extended by Nine (9) months.

Payment for the option effort shall be made in accordance with the Milestone Payment Schedule Option 1, below. The payment schedule amount shall be calculated by the application of the contract percentage established per milestone event to the total fixed price amount for the option, as indicated in B.7.

(End of Clause)

**B.7 Milestone Payment Schedule Option 1**

(a) Subject to other limitations and conditions specified in this contract, milestone payment shall be made to the Contractor upon delivery and acceptance of the milestone events described under paragraph (b).

- (b) The payment schedule amount shall be calculated by the application of the contract percentage established per milestone event to the fixed price amount indicated under contract clause B.6 (a), entitled "Option 1".

<b>Item</b>	<b>Milestone Event</b>	<b>QTY</b>	<b>Contract Percentage</b>	<b>Unit Price</b>	<b>Total Amount</b>
1	Option 1 Kickoff Meeting, Package, Meeting and Action Item Closure	1	5%	\$54,430	\$54,430
2	Design Closure TIM	1	15%	\$163,289	\$163,289
3	Draft Payload to S/C ICD Draft 3 and technical resource allocations Complete	1	20%	\$217,719	\$217,719
4	Payload integration and test planning Documentation including Flight Mission selection approach	1	10%	\$108,859	\$108,859
5	Payload to S/C ICD Draft 4 Complete	1	10%	\$108,859	\$108,859
6	Advanced planning package for Option 2, 3 and 4		5%	\$54,430	\$54,430
7	CDR Package, Presentation and Action Item Closure	1	15%	\$163,289	\$163,289
8	Final Report Received	1	20%	\$217,718	\$217,718
	<b>TOTAL</b>		<b>100%</b>	<b>-----</b>	<b>\$1,088,593</b>

**SECTION C OF NNG12VN00C  
DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK**

**C.1 Scope of Work**

The Contractor shall provide all resources (except as may be expressly stated in the contract as furnished by the Government) necessary to perform the requirements set forth in the Statement of Work (SOW) incorporated in Section J as Attachment A.

(End of clause)

**C.2 GSFC 52.227-90 Limited Rights Data or Restricted Computer Software (MAR 2008)**

In accordance with the delivery requirements of this contract, all technical and software data rights shall be delivered in accordance with the Rights in Data – General clause, specified elsewhere in this contract, except for the following:

<b>Technical Data or Computer Software to be Furnished with Restrictions</b>	<b>Basis for Assertion</b>	<b>Asserted Rights Category</b>	<b>Name of Company Asserting Restrictions</b>
SS/L 1300 Satellite and Bus Subsystem Design, related documentation and control algorithms, and derivative designs	Developed exclusively at private expense	Limited Rights	Space Systems/Loral
SS/L Mission Assurance Plan and manufacturing process	Developed exclusively at private expense	Limited Rights	Space Systems/Loral
SS/L 1300 Satellite Software Design, descriptions, and documentation	Developed exclusively at private expense	Restricted Rights	Space Systems/Loral

(End of text)

**SECTION D OF NNG12VN00C  
PACKAGING AND MARKING**

NO CLAUSES PRESENT IN SECTION D

**SECTION E OF NNG12VN00C  
INSPECTION AND ACCEPTANCE**

**E.1 52.246-7 Inspection of Research and Development – Fixed Price (AUG 1996)**

**E.2 52.246-16 Responsibility for Supplies (APR 1984)**

**E.3 GSFC 52.246-93 Acceptance — Location(s) (APR 2008)**

The Contracting Officer or authorized representative will accomplish acceptance at the following location(s):

<u>Authorized Item</u>	<u>Location</u>	<u>Representative</u>
<b>Clause B.1 Item 1</b>	<b>GSFC</b>	<b>Contracting Officer (CO) and Contracting Officer Technical Representative (COTR)</b>
<b>Clause B.1 Items 2 through 10</b>	<b>GSFC</b>	<b>CO</b>
<b>Clause B.3 Items 1 through 10</b>	<b>GSFC</b>	<b>CO and COTR</b>
<b>Clause B.6 Items 1 through 13</b>	<b>GSFC</b>	<b>CO and COTR</b>

The Contracting Officer reserves the right to designate other Government agents as authorized representatives. The Contractor will be notified by a written notice or by a copy of the delegation letter if other agents are authorized.

(End of clause)

**E.4 GSFC 52.246-102 Inspection System Records (OCT 1988)**

The Contractor shall maintain records evidencing inspections in accordance with the Inspection clause of this contract three years after delivery of all items and/or completion of all services called for by the contract.

(End of clause)

**E.5 Clauses Incorporated by Reference -- SECTION E**

Clause(s) **E.1 and E.2** at the beginning of this Section is incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause. The full text of the clause is available at the addresses contained in clause 52.252-2, Clauses Incorporated by Reference, of this contract.

(End of clause)

**SECTION F OF NNG12VN00C  
DELIVERIES OR PERFORMANCE**

**F.1 52.242-15 Stop-Work Order (AUG 1989)**

**F.2 52.247-34 F.O.B Destination (NOV 1991)**

**F.3 Period of Performance**

The period of performance of the basic contract ends on **July 31, 2013**.

(End of clause)

**F.4 GSFC 52.247-94 Shipping Instructions –Central Receiving (JUN 2006)**

Shipments of the items required under this contract shall be to:

Receiving Officer  
Building 16W  
Code 279  
Goddard Space Flight Center  
Greenbelt, Maryland 20771

Marked for:

Technical Officer: Malcolm B. Milam  
Building: 12, N137  
Contract No. NNG12VN00C

AND

Contracting Officer: Mayra A. Nieves-Torres  
Code: 210.P  
Building: 12, N132C  
Contract No. NNG12VN00C

Compliance with this clause is necessary to assure verification of delivery and acceptance and prompt payment.

(End of clause)

**F.5 Clauses Incorporated by Reference -- SECTION F**

Clause(s) **F.1 and F.2** at the beginning of this Section is incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause. The full text of the clause is available at the addresses contained in clause 52.252-2, Clauses Incorporated by Reference, of this contract.

(End of clause)

**SECTION G OF NNG12VN00C  
CONTRACT ADMINISTRATION DATA**

**G.1 1852.227-70 New Technology (MAY 2002)**

**G.2 GSFC 52.232-95 Submission of Invoices (AUG 2008)**

Invoices shall be prepared in accordance with the Prompt Payment clause of this contract and submitted to the NASA Shared Services Center (NSSC), Financial Management Division (FMD) – Accounts Payable, Bldg 1111, C. Road, Stennis Space Center, MS 39529, Email: [NSSC-AccountsPayable@nasa.gov](mailto:NSSC-AccountsPayable@nasa.gov). For purposes of the Prompt Payment Act, the above office is considered to be the "Designated Billing Office" and the "Designated Payment Office".

(End of clause)

**G.3 1852.227-72 Designation of New Technology Representative and Patent Representative (JUL 1997)**

(a) For purposes of administration of the clause of this contract entitled "New Technology" or "Patent Rights - Retention by the Contractor (Short Form)," whichever is included, the following named representatives are hereby designated by the Contracting Officer to administer such clause:

Title	Office Code	Address (including zip code)
New Technology	504	Goddard Space Flight Center Representative Greenbelt, MD 20771
Patent	140.1	Goddard Space Flight Center Representative Greenbelt, MD 20771

(b) Reports of reportable items, and disclosure of subject inventions, interim reports, final reports, utilization reports, and other reports required by the clause, as well as any correspondence with respect to such matters, should be directed to the New Technology Representative unless transmitted in response to correspondence or request from the Patent Representative. Inquires or requests regarding disposition of rights, election of rights, or related matters should be directed to the Patent Representative. This clause shall be included in any subcontract hereunder requiring a "New Technology" clause or "Patent Rights - Retention by the Contractor (Short Form)" clause, unless otherwise authorized or directed by the Contracting Officer. The respective responsibilities and authorities of the above-named representatives are set forth in 1827.305-370 of the NASA FAR Supplement.

(End of clause)

**G.4 1852.245-74 IDENTIFICATION AND MARKING OF GOVERNMENT PROPERTY (JAN 2011)**

**G.5 1852.245-75 PROPERTY MANAGEMENT CHANGES (JAN 2011)**

**G.6 1852.245-76 LIST OF GOVERNMENT FURNISHED PROPERTY PURSUANT TO FAR 52.245-1 (JAN 2011)**

**Fill in:**

<b>Government Furnished Property Description</b>	<b>Delivery Date</b>
1. Functional block diagram and physical partitioning of the Laser Communications Experiment	ATP plus 30 days
2. Size, weight and power estimates for all elements of the Experiment	ATP plus 30 days
3. Interface definitions for all elements of the Experiment TBD	ATP plus 30 days
4. Bus interface performance requirements and constraints, such as pointing, attitude knowledge, jitter, thermal and other environmental conditions	ATP plus 30 days
5. Unique processing and testing requirements and constraints during the spacecraft integration of the Experiment	ATP plus 30 days

\*ATP: Authority to Proceed

**G.7 Clauses Incorporated by Reference -- SECTION G**

Clause G.1, and G.4 through G.6 in this Section are incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause. The full text of the clause is available at the addresses contained in clause 52.252-2, Clauses Incorporated by Reference, of this contract.

(End of clause)

**SECTION H OF NNG12VN00C  
SPECIAL CONTRACT REQUIREMENTS**

- H.1 1852.208-81 Restrictions on Printing and Duplicating (NOV 2004)**
- H.2 1852.223-72 Safety and Health (Short Form) (APR 2002)**
- H.3 1852.223-75 Major Breach of Safety or Security (FEB 2002)**
- H.4 1852.225-70 Export Licenses (FEB 2000)**
- H.5 1852.244-70 GEOGRAPHIC PARTICIPATION IN THE AEROSPACE PROGRAM (APR 1985)**
- H.6 1852.232-77 Limitation of Funds (Fixed- Price Contract) (MAR 1989)**

(a) Of the total price of items through **Phase A/FY12**, the sum of **\$1,779,774** is presently available for payment and allotted to this contract. It is anticipated that from time to time additional funds will be allocated to the contract in accordance with the following schedule, until the total price of said items is allotted:

**SCHEDULE FOR ALLOTMENT OF FUNDS**

Date	Amounts
<b>At contract award</b>	<b>\$1,779,774</b>

(b) The Contractor agrees to perform or have performed work on the items specified in paragraph (a) of this clause up to the point at which, if this contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause would, in the exercise of reasonable judgment by the Contractor, approximate the total amount at the time allotted to the contract. The Contractor is not obligated to continue performance of the work beyond that point. The Government is not obligated in any event to pay or reimburse the Contractor more than the amount from time to time allotted to the contract, anything to the contrary in the Termination for Convenience of the Government clause notwithstanding.

(c) (1) It is contemplated that funds presently allotted to this contract will cover the work to be performed until the end of the Base period.

(2) If funds allotted are considered by the Contractor to be inadequate to cover the work to be performed until that date, or an agreed date substituted for it, the Contractor shall notify the Contracting Officer in writing when within the next 60 days the work will reach a point at which, if the contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause will approximate 75 percent of the total amount then allotted to the contract.

(3) (i) The notice shall state the estimate when the point referred to in paragraph (c) (2) of this clause will be reached and the estimated amount of additional funds required to continue performance to the date specified in paragraph (c) (1) of this clause, or an agreed date substituted for it.

(ii) The Contractor shall, 60 days in advance of the date specified in paragraph (c) (1) of this clause, or an agreed date substituted for it, advise the Contracting Officer in writing as to the estimated amount of additional funds required for the timely performance of the contract for a further period as may be specified in the contract or otherwise agreed to by the parties.

(4) If, after the notification referred to in paragraph (c) (3) (ii) of this clause, additional funds are not allotted by the date specified in paragraph (c) (1) of this clause, or an agreed date substituted for it, the Contracting Officer shall, upon the Contractor's written request, terminate this contract on that date or on the date set forth in the request, whichever is later, pursuant to the Termination for Convenience of the Government clause.

(d) When additional funds are allotted from time to time for continued performance of the work under this contract, the parties shall agree on the applicable period of contract performance to be covered by these funds. The provisions of paragraphs (b) and (c) of this clause shall apply to these additional allotted funds and the substituted date pertaining to them, and the contract shall be modified accordingly.

(e) If, solely by reason of the Government's failure to allot additional funds in amounts sufficient for the timely performance of this contract, the Contractor incurs additional costs or is delayed in the performance of the work under this contract, and if additional funds are allotted, an equitable adjustment shall be made in the price or prices (including appropriate target, billing, and ceiling prices where applicable) of the items to be delivered, or in the time of delivery, or both.

(f) The Government may at any time before termination, and, with the consent of the Contractor, after notice of termination, allot additional funds for this contract.

(g) The provisions of this clause with respect to termination shall in no way be deemed to limit the rights of the Government under the default clause of this contract. The provisions of this Limitation of Funds clause are limited to the work on and allotment of funds for the items set forth in paragraph (a) of this clause. This clause shall become inoperative upon the allotment of funds for the total price of said work except for rights and obligations then existing under this clause.

(h) Nothing in this clause shall affect the right of the Government to terminate this contract pursuant to the Termination for Convenience of the Government clause of this contract.

(End of clause)

**H.7 1852.235-73 Final Scientific and Technical Reports (DEC 2006)**

**H.8 1852.235-74 Additional Reports of Work - Research and Development (FEB 2003)**

In addition to the final report required under this contract, the Contractor shall submit the following report(s) to the Contracting Officer:

(a) Monthly progress reports. The Contractor shall submit separate monthly reports of all work accomplished during each month of contract performance. Reports shall be in narrative form, brief, and informal. They shall include a quantitative description of progress, an indication of any current problems that may impede performance, proposed corrective action, and a discussion of the work to be performed during the next monthly reporting period. Monthly reports shall also address, Schedule, Technical resource budgets and risk management.

(b) Submission dates. Monthly reports shall be submitted by the 15th day of the month following the month being reported. If the contract is awarded beyond the middle of a month, the first monthly report shall cover the period from award until the end of the following month. No monthly report need be submitted for the final month of contract effort since that period will be covered in the final report. The final report shall be submitted within 30 days after the completion of the effort under the contract.

(End of text)

## **H.9 GSFC 52.219-90 Small Business Subcontracting Plan and Reports (JUL 2006)**

### **a. Subcontracting Plan (Contractor)**

FAR clause 52.219-9, "Small Business Subcontracting Plan" is included in this contract. The agreed to Subcontracting Plan required by the clause is included as an attachment to the contract.

### **b. Subcontracting Plan (Subcontractors)**

In accordance with FAR clause 52.219-9, the Contractor must require that certain subcontractors adopt a plan similar to the Plan agreed to between the Contractor and the Government.

### **c. Individual Subcontract Reports (ISRs)**

The Contractor shall prepare and submit their Individual Subcontract Reports (ISRs) (formerly known as the Standard Form 294), in accordance with the instructions listed in the Electronic Subcontract Reporting System (eSRS), available at <http://esrs.gov>.

ISRs must be submitted electronically in eSRS on a semi-annual basis. This report must be received no later than April 30 and October 30 each year for the reporting periods ending March 31 and September 30, respectively. Reports are required when due, regardless of whether there has been any subcontracting activity since the inception of the contract or since the last reporting period.

A final Individual Subcontract Report (ISR) must be submitted after contract completion. The final ISR submittal must be received no later than the due date for what would have been the next semi-annual report.

### **d. Summary Subcontract Reports (SSRs)**

The Contractor shall prepare and submit Summary Subcontract Reports (SSRs)(formerly known as the Standard Form 295), in accordance with the instructions listed in the Electronic Subcontract Reporting System (eSRS), available at <http://esrs.gov> and in accordance with NASA FAR Supplement clause 1852.219-75, "Small Business Subcontracting Reporting" of this contract.

The SSRs must be submitted electronically in eSRS on a semi-annual basis no later than April 30 and October 30 each year for the reporting periods ending March 31 and September 30, respectively.

### **e. Subcontractor Reporting**

FAR clause 52.219-9 and NASA FAR Supplement clause 1852.219-75 require that the Contractor ensure that ISR and SSR reports are submitted by those subcontractors that have been required to adopt a Subcontracting Plan under the terms of the clause. These subcontractor reports must be submitted as required by paragraphs (c) and (d) above. The reports may be submitted through the Contractor or submitted directly. Regardless, the Contractor is responsible for ensuring proper and timely submittal of the required reports.

(End of clause)

## **H.10 GSFC 52.227-99 RIGHTS IN DATA (MAR 2008)**

The default Data Rights clause under this contract is FAR 52.227-14 RIGHTS IN DATA-GENERAL as modified by NASA FAR Supplement 1852.227-14—Alternate II, Alternate III, Alternate V and GSFC 52.227-90.

(End of text)

## **H.11 REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFEROR**

The completed provision 52.204-8, Annual Representations and Certifications, including any amended representation(s) made at paragraph (b) of the provision; and other representations, certifications and other statements contained in Section K completed and submitted as part of the offer dated January 31, 2012 are hereby incorporated by reference in this resulting contract.

(End of Clause)

## **H.12 1852.216-80 TASK ORDERING PROCEDURE (OCT 1996) - ALTERNATE I**

**Note: This clause applies only to the IDIQ requirements of the SOW**

(a) Only the Contracting Officer may issue task orders to the Contractor, providing specific authorization or direction to perform work within the scope of the contract and as specified in the schedule. The Contractor may incur costs under this contract in performance of task orders and task order modifications issued in accordance with this clause. No other costs are authorized unless otherwise specified in the contract or expressly authorized by the Contracting Officer.

(b) Prior to issuing a task order, the Contracting Officer shall provide the Contractor with the following data:

(1) A functional description of the work identifying the objectives or results desired from the contemplated task order.

(2) Proposed performance standards to be used as criteria for determining whether the work requirements have been met.

(3) A request for a task plan from the Contractor to include the technical approach, period of performance, appropriate cost information, and any other information required to determine the reasonableness of the Contractor's proposal.

(c) Within 10 calendar days after receipt of the Contracting Officer's request, the Contractor shall submit a task plan conforming to the request.

(d) After review and any necessary discussions, the Contracting Officer may issue a task order to the Contractor containing, as a minimum, the following:

(1) Date of the order.

(2) Contract number and order number.

(3) Functional description of the work identifying the objectives or results desired from the task order, including special instructions or other information necessary for performance of the task.

(4) Performance standards, and where appropriate, quality assurance standards.

(5) Maximum dollar amount authorized (cost and fee or price). This includes allocation of award fee among award fee periods, if applicable.

(6) Any other resources (travel, materials, equipment, facilities, etc.) authorized.

(7) Delivery/performance schedule including start and end dates.

(8) If contract funding is by individual task order, accounting and appropriation data.

(e) The Contractor shall provide acknowledgment of receipt to the Contracting Officer within 2 calendar days after receipt of the task order.

(f) If time constraints do not permit issuance of a fully defined task order in accordance with the procedures described in paragraphs (a) through (d), a task order which includes a ceiling price may be issued.

(g) The Contracting Officer may amend tasks in the same manner in which they were issued.

(h) In the event of a conflict between the requirements of the task order and the Contractor's approved task plan, the task order shall prevail.

(i) Contractor shall submit monthly task order progress reports. As a minimum, the reports shall contain the following information:

(1) Contract number, task order number, and date of the order.

(2) Task ceiling price.

(3) Cost and hours incurred to date for each issued task.

(4) Costs and hours estimated to complete each issued task.

(5) Significant issues/problems associated with a task.

(6) Cost summary of the status of all tasks issued under the contract.

### **H.13 CLAUSES INCORPORATED BY REFERENCE – SECTION H**

Clause(s) **H.1 through H.5, and H.7** at the beginning of this Section is incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause. The full text of the clause is available at the addresses contained in clause 52.252-2, Clauses Incorporated by Reference, of this contract.

(End of clause)

**SECTION I OF NNG12VN00C  
CONTRACT CLAUSES**

- I.1 52.202-1 Definitions (JAN 2012)**
- I.2 52.203-3 Gratuities (APR 1984)**
- I.3 52.203-5 Covenant Against Contingent Fees (APR 1984)**
- I.4 52.203-7 Anti-Kickback Procedures (OCT 2010)**
- I.5 52.203-8 Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity (JAN 1997)**
- I.6 52.203-10 Price or Fee Adjustment for Illegal or Improper Activity (JAN 1997)**
- I.7 52.203-12 Limitation on Payments to Influence Certain Federal Transactions (OCT 2010)**
- I.8 52.203-13 Contractor Code of Business Ethics and Conduct (APR 2010)**
- I.9 52.203-14 Display Of Hotline Poster(s) (DEC 2007)**  
(b)(3) – Inspector General Hotline Posters may be obtained from NASA Office of Inspector General, Code W, Washington, DC 20546-001
- I.10 52.204-4 Printed or Copied Double-Sided on Postconsumer Fiber Content Paper (May 2011)**
- I.11 52.204-7 Central Contractor Registration (APR 2008)**
- I.12 52.204-10 Reporting Executive Compensation and First-Tier Subcontract Awards (JUL 2010)**
- I.13 52.209-6 Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (DEC 2010)**
- I.14 52.227-11 Patent Rights- Ownership by the Contractor (DEC 2007)**
- I.15 52.209-10 Prohibition on Contracting with Inverted Domestic Corporations (MAY 2011)**
- I.16 52.210-1 Market Research (APR 2011)**
- I.17 52.215-2 Audit and Records - Negotiation (OCT 2010)**
- I.18 52.215-8 Order of Precedence - Uniform Contract Format (OCT 1997)**
- I.19 52.215-10 Price Reduction for Defective Certified Cost or Pricing Data (AUG 2011)**
- I.20 52.215-12 Subcontractor Certified Cost or Pricing Data (OCT 2010)**
- I.21 52.215-14 Integrity of Unit Prices (OCT 2010)**
- I.22 52.215-15 Pension Adjustments and Asset Reversions (OCT 2010)**
- I.23 52.215-18 Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other Than Pensions (JUL 2005)**

- I.24 52.219-8 Utilization of Small Business Concerns (JAN 2011)**
- I.25 52.219-9 Small Business Subcontracting Plan (JAN 2011)**
- I.26 52.219-16 Liquidated Damages - Subcontracting Plan (JAN 1999)**
- I.27 52.222-1 Notice to the Government of Labor Disputes (FEB 1997)**
- I.28 52.222-3 Convict Labor (JUN 2003)**
- I.29 52.222-21 Prohibition of Segregated Facilities (FEB 1999)**
- I.30 52.222-26 Equal Opportunity (MAR 2007)**
- I.31 52.222-35 Equal Opportunity for Veterans (SEP 2010)**
- I.32 52.222-36 Affirmative Action for Workers with Disabilities (OCT 2010)**
- I.33 52.222-37 Employment Reports on Veterans (SEP 2010)**
- I.34 52.222-50 Combating Trafficking in Persons (FEB 2009)**
- I.35 52.222-54 Employment Eligibility Verification (JAN 2009)**
- I.36 52.223-6 Drug-Free Workplace (MAY 2001)**
- I.37 52.223-18 Encouraging Contractor Policies to Ban Text Messaging While Driving (AUG 2011)**
- I.38 52.223-19 Compliance with Environmental Management Systems (May 2011)**
- I.39 52.225-13 Restrictions on Certain Foreign Purchases (JUN 2008)**
- I.40 52.225-25 Prohibition on Contracting with Entities Engaging in Sanctioned Activities Relating to Iran--Representation and Certification (NOV 2011)**
- I.41 52.227-1 Authorization and Consent (DEC 2007)**
- I.42 52.227-2 Notice and Assistance Regarding Patent and Copyright Infringement (DEC 2007)**
- I.43 52.227-16 Additional Data Requirements (JUN 1987)**
- I.44 52.229-3 Federal, State, and Local Taxes (APR 2003)**
- I.45 52.230-2 Cost Accounting Standards (OCT 2010)**
- I.46 52.230-6 Administration of Cost Accounting Standards (JUN 2010)**
- I.47 52.232-2 Payments under Fixed-Price Research and Development Contracts (APR 1984)**
- I.48 52.232-17 Interest (OCT 2010)**
- I.49 52.232-18 Availability of Funds (APR 1984)**
- I.50 52.232-23 Assignment of Claims (JAN 1986)**

- I.51 52.232-25 Prompt payment (OCT 2008)**
- I.52 52.232-33 Payment by Electronic Funds Transfer - Central Contractor Registration (OCT 2003)**
- I.53 52.233-1 Disputes (JUL 2002)**
- I.54 52.233-3 Protest after Award (AUG 1996)**
- I.55 1852.227-84 Patent Rights Clauses (DEC 1989)**
- I.56 52.233-4 Applicable Law for Breach of Contract Claim (OCT 2004)**
- I.57 52.242-13 Bankruptcy (JUL 1995)**
- I.58 52.243-1 Changes - Fixed-Price (AUG 1987) - Alternate V (APR 1984)**
- I.59 52.244-5 Competition in Subcontracting (DEC 1996)**
- I.60 52.246-23 Limitation of Liability (FEB 1997)**
- I.61 52.247-63 Preference for U.S.-Flag Air Carriers (JUN 2003)**
- I.62 52.249-2 Termination for Convenience of the Government (Fixed-Price) (MAY 2004)**
- I.63 52.249-9 Default (Fixed-Price Research and Development) (APR 1984)**
- I.64 1852.219-74 Use of Rural Area Small Businesses (SEP 1990)**
- I.65 1852.219-75 Small Business Subcontracting Reporting (MAY 1999)**
- I.66 1852.219-77 NASA Mentor-Protege Program (MAY 2009)**
- I.67 1852.223-74 Drug-and alcohol-free workforce (MAR 1996)**
- I.68 1852.235-70 Center for AeroSpace Information (DEC 2006)**
- I.69 1852.243-71 Shared Savings (MAR 1997)**
- I.70 52.227-14 Rights in Data- General- Alternate II, III, and V (DEC 2007)**  
Alternate II fill in:
  - (i) Use (except for manufacture) by support service contractors
  - (ii) Evaluation by nongovernment evaluators
  - (iii) Use (except for manufacture) by other contractors participating in the Government's program of which the specific contract is a part.
  - (iv) Emergency repair or overhaul work.
  - (v) Release to a foreign government, or its instrumentalities, if required to serve the interests of the U.S. Government, for information or evaluation, or for emergency repair or overhaul work by the foreign government.
  - (vi) Any Government purpose
- I.71 1852.227-11 Patent Rights—Retention by the Contractor (Short Form)**
- I.72 1852.227-14 Rights in Data—General**

**I.73 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): For Federal Acquisition Regulation (FAR) clauses, see <http://www.acqnet.gov/far/>

For NASA FAR Supplement (NFS) clauses, see <http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>

(End of clause)

**I.74 52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT MAR 2000)**

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

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

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed **Twenty Six (26) Months**.

(End of clause)

**I.75 52.209-9 UPDATES OF PUBLICLY AVAILABLE INFORMATION REGARDING RESPONSIBILITY MATTERS (FEB 2012)**

(a) The Contractor shall update the information in the Federal Awardee Performance and Integrity Information System (FAPIS) on a semi-annual basis, throughout the life of the contract, by posting the required information in the Central Contractor Registration database via <https://www.acquisition.gov>.

(b) As required by section 3010 of the Supplemental Appropriations Act, 2010 (Pub. L. 111-212), all information posted in FAPIS on or after April 15, 2011, except past performance reviews, will be publicly available. FAPIS consists of two segments—

(1) The non-public segment, into which Government officials and the Contractor post information, which can only be viewed by—

(i) Government personnel and authorized users performing business on behalf of the Government; or

(ii) The Contractor, when viewing data on itself; and

(2) The publicly-available segment, to which all data in the non-public segment of FAPIS is automatically transferred after a waiting period of 14 calendar days, except for—

(i) Past performance reviews required by subpart 42.15;

(ii) Information that was entered prior to April 15, 2011; or

(iii) Information that is withdrawn during the 14-calendar-day waiting period by the Government official who posted it in accordance with paragraph (c)(1) of this clause.

(c) The Contractor will receive notification when the Government posts new information to the Contractor's record.

(1) If the Contractor asserts in writing within 7 calendar days, to the Government official who posted the information, that some of the information posted to the non-public segment of FAPIIS is covered by a disclosure exemption under the Freedom of Information Act, the Government official who posted the information must within 7 calendar days remove the posting from FAPIIS and resolve the issue in accordance with agency Freedom of Information procedures, prior to reposting the releasable information. The contractor must cite 52.209-9 and request removal within 7 calendar days of the posting to FAPIIS.

(2) The Contractor will also have an opportunity to post comments regarding information that has been posted by the Government. The comments will be retained as long as the associated information is retained, *i.e.*, for a total period of 6 years. Contractor comments will remain a part of the record unless the Contractor revises them.

(3) As required by section 3010 of Pub. L. 111-212, all information posted in FAPIIS on or after April 15, 2011, except past performance reviews, will be publicly available.

(d) Public requests for system information posted prior to April 15, 2011, will be handled under Freedom of Information Act procedures, including, where appropriate, procedures promulgated under E.O. 12600.

(End of clause)

#### **I.76 52.244-6 Subcontracts for Commercial Items (DEC 2010)**

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

"Commercial item" has the meaning contained in Federal Acquisition Regulation 2.101, Definitions.

"Subcontract" includes a transfer of commercial items between divisions, subsidiaries, or affiliates of the Contractor or subcontractor at any tier.

(b) To the maximum extent practicable, the Contractor shall incorporate, and require its subcontractors at all tiers to incorporate, commercial items or non-developmental items as components of items to be supplied under this contract.

(c)(1) The Contractor shall insert the following clauses in subcontracts for commercial items:

(i) 52.203-13, Contractor Code of Business Ethics and Conduct (APR 2010) (Pub. L. 110-252, Title VI, Chapter 1 (41 U.S.C. 251 note)), if the subcontract exceeds \$5,000,000 and has a performance period of more than 120 days. In altering this clause to identify the appropriate parties, all disclosures of violation of the civil False Claims Act or of Federal criminal law shall be directed to the agency Office of the Inspector General, with a copy to the Contracting Officer.

(ii) 52.203-15, Whistleblower Protections Under the American Recovery and Reinvestment Act of 2009 (JUN 2010) (Section 1553 of Pub. L. 111-5), if the subcontract is funded under the Recovery Act.

(iii) 52.219-8, Utilization of Small Business Concerns (DEC 2010) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds \$650,000 (\$1.5 million for construction of any public facility), the

subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(iv) 52.222-26, Equal Opportunity (MAR 2007) (E.O. 11246).

(v) 52.222-35, Equal Opportunity for Veterans (SEP 2010) (38 U.S.C. 4212(a)).

(vi) 52.222-36, Affirmative Action for Workers with Disabilities (OCT 2010) (29 U.S.C. 793).

(vii) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (DEC 2010) (E.O. 13496), if flow down is required in accordance with paragraph (f) of FAR clause 52.222-40.

(viii) 52.222-50, Combating Trafficking in Persons (FEB 2009) (22 U.S.C. 7104(g)).

(ix) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (FEB 2006) (46 U.S.C. App. 1241 and 10 U.S.C. 2631), if flow down is required in accordance with paragraph (d) of FAR clause 52.247-64.

(2) While not required, the Contractor may flow down to subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(d) The Contractor shall include the terms of this clause, including this paragraph (d), in subcontracts awarded under this contract.

(End of clause)

**I.77 52.252-6 Authorized Deviations in Clauses (APR 1984)**

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

(b) The use in this solicitation or contract of any [*insert regulation name*] (48 CFR [ ]) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

**I.78 1852.204-76 SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES (JAN 2011)**

(a) The contractor shall protect the confidentiality, integrity, and availability of NASA Electronic Information and IT resources and protect NASA Electronic Information from unauthorized disclosure.

(b) This clause is applicable to all NASA contractors and sub-contractors that process, manage, access, or store unclassified electronic information, to include Sensitive But Unclassified (SBU) information, for NASA in support of NASA's missions, programs, projects and/or institutional requirements. Applicable requirements, regulations, policies, and guidelines are identified in the Applicable Documents List (ADL) provided as an attachment to the contract. The documents listed in the ADL can be found at: <http://www.nasa.gov/offices/ocio/itsecurity/index.html>. For policy information considered sensitive, the documents will be identified as such in the ADL and made available through the Contracting Officer.

(c) Definitions.

(1) IT resources means any hardware or software or interconnected system or subsystem of equipment, that is used to process, manage, access, or store electronic information.

(2) NASA Electronic Information is any data (as defined in the Rights in Data clause of this contract) or information (including information incidental to contract administration, such as financial, administrative,

cost or pricing, or management information) that is processed, managed, accessed or stored on an IT system(s) in the performance of a NASA contract.

(3) IT Security Management Plan--This plan shall describe the processes and procedures that will be followed to ensure appropriate security of IT resources that are developed, processed, or used under this contract. Unlike the IT security plan, which addresses the IT system, the IT Security Management Plan addresses how the contractor will manage personnel and processes associated with IT Security on the instant contract.

(4) IT Security Plan--this is a FISMA requirement; see the ADL for applicable requirements. The IT Security Plan is specific to the IT System and not the contract. Within 30 days after award, the contractor shall develop and deliver an IT Security Management Plan to the Contracting Officer; the approval authority will be included in the ADL. All contractor personnel requiring physical or logical access to NASA IT resources must complete NASA's annual IT Security Awareness training. Refer to the IT Training policy located in the IT Security Web site at <https://itsecurity.nasa.gov/policies/index.html>.

(d) The contractor shall afford Government access to the Contractor's and subcontractors' facilities, installations, operations, documentation, databases, and personnel used in performance of the contract. Access shall be provided to the extent required to carry out a program of IT inspection (to include vulnerability testing), investigation and audit to safeguard against threats and hazards to the integrity, availability, and confidentiality of NASA Electronic Information or to the function of IT systems operated on behalf of NASA, and to preserve evidence of computer crime.

(e) At the completion of the contract, the contractor shall return all NASA information and IT resources provided to the contractor during the performance of the contract in accordance with retention documentation available in the ADL. The contractor shall provide a listing of all NASA Electronic information and IT resources generated in performance of the contract. At that time, the contractor shall request disposition instructions from the Contracting Officer. The Contracting Officer will provide disposition instructions within 30 calendar days of the contractor's request. Parts of the clause and referenced ADL may be waived by the contracting officer, if the contractor's ongoing IT security program meets or exceeds the requirements of NASA Procedural Requirements (NPR) 2810.1 in effect at time of award. The current version of NPR 2810.1 is referenced in the ADL. The contractor shall submit a written waiver request to the Contracting Officer within 30 days of award. The waiver request will be reviewed by the Center IT Security Manager. If approved, the Contractor Officer will notify the contractor, by contract modification, which parts of the clause or provisions of the ADL are waived.

(f) The contractor shall insert this clause, including this paragraph in all subcontracts that process, manage, access or store NASA Electronic Information in support of the mission of the Agency.

(End of clause)

#### **I.79 1852.215-84 Ombudsman (OCT 2003)**

(a) An ombudsman has been appointed to hear and facilitate the resolution of concerns from offerors, potential offerors, and contractors during the preaward and postaward phases of this acquisition. When requested, the ombudsman will maintain strict confidentiality as to the source of the concern. The existence of the ombudsman is not to diminish the authority of the contracting officer, the Source Evaluation Board, or the selection official. Further, the ombudsman does not participate in the evaluation of proposals, the source selection process, or the adjudication of formal contract disputes. Therefore, before consulting with an ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations to the contracting officer for resolution.

(b) If resolution cannot be made by the contracting officer, interested parties may contact the installation ombudsman. The current list of Center Ombudsmen is available at [http://prod.nais.nasa.gov/pub/pub\\_library/Omb.html](http://prod.nais.nasa.gov/pub/pub_library/Omb.html). Concerns, issues, disagreements, and recommendations which cannot be resolved at the installation may be referred to the NASA ombudsman,

the Director of the Contract Management Division, at 202-358-0445, facsimile 202-358-3083, e-mail james.a.balinskas@nasa.gov. Please do not contact the ombudsman to request copies of the solicitation, verify offer due date, or clarify technical requirements. Such inquiries shall be directed to the Contracting Officer or as specified elsewhere in this document.

(End of clause)

**I.80 1852.219-76 NASA 8 Percent Goal (JUL 1997)**

(a) Definitions.

"Historically Black Colleges or University," as used in this clause, means an institution determined by the Secretary of Education to meet the requirements of 34 CFR Section 608.2. The term also includes any nonprofit research institution that was an integral part of such a college or university before November 14, 1986.

"Minority institutions," as used in this clause, means an institution of higher education meeting the requirements of section 1046(3) of the Higher Education Act of 1965 (20 U.S.C. 1135d-5(3)) which for the purposes of this clause includes a Hispanic-serving institution of higher education as defined in section 316(b)(1) of the Act (20 U.S.C. 1059c(b)(1)).

"Small disadvantaged business concern," as used in this clause, means a small business concern that (1) is at least 51 percent unconditionally owned by one or more individuals who are both socially and economically disadvantaged, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more socially and economically disadvantaged individuals, and (2) has its management and daily business controlled by one or more such individuals. This term also means a small business concern that is at least 51 percent unconditionally owned by an economically disadvantaged Indian tribe or Native Hawaiian Organization, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more of these entities, which has its management and daily business controlled by members of an economically disadvantaged Indian tribe or Native Hawaiian Organization, and which meets the requirements of 13 CFR 124.

"Women-owned small business concern," as used in this clause, means a small business concern (1) which is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women, and (2) whose management and daily business operations are controlled by one or more women.

(b) The NASA Administrator is required by statute to establish annually a goal to make available to small disadvantaged business concerns, Historically Black Colleges and Universities, minority institutions, and women-owned small business concerns, at least 8 percent of NASA's procurement dollars under prime contracts or subcontracts awarded in support of authorized programs, including the space station by the time operational status is obtained.

(c) The contractor hereby agrees to assist NASA in achieving this goal by using its best efforts to award subcontracts to such entities to the fullest extent consistent with efficient contract performance.

(d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as small disadvantaged business concerns, Historically Black Colleges and Universities, minority institutions, and women-owned small business concerns.

(End of clause)

**L81 1852.237-72 Access to Sensitive Information (JUN 2005)**

(a) As used in this clause, "sensitive information" refers to information that a contractor has developed at private expense, or that the Government has generated that qualifies for an exception to the Freedom of Information Act, which is not currently in the public domain, and which may embody trade secrets or commercial or financial information, and which may be sensitive or privileged.

(b) To assist NASA in accomplishing management activities and administrative functions, the Contractor shall provide the services specified elsewhere in this contract.

(c) If performing this contract entails access to sensitive information, as defined above, the Contractor agrees to--

(1) Utilize any sensitive information coming into its possession only for the purposes of performing the services specified in this contract, and not to improve its own competitive position in another procurement.

(2) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.

(3) Allow access to sensitive information only to those employees that need it to perform services under this contract.

(4) Preclude access and disclosure of sensitive information to persons and entities outside of the Contractor's organization.

(5) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in this contract and to safeguard it from unauthorized use and disclosure.

(6) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.

(7) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.

(d) The Contractor will comply with all procedures and obligations specified in its Organizational Conflicts of Interest Avoidance Plan, which this contract incorporates as a compliance document.

(e) The nature of the work on this contract may subject the Contractor and its employees to a variety of laws and regulations relating to ethics, conflicts of interest, corruption, and other criminal or civil matters relating to the award and administration of government contracts. Recognizing that this contract establishes a high standard of accountability and trust, the Government will carefully review the Contractor's performance in relation to the mandates and restrictions found in these laws and regulations. Unauthorized uses or disclosures of sensitive information may result in termination of this contract for default, or in debarment of the Contractor for serious misconduct affecting present responsibility as a government contractor.

(f) The Contractor shall include the substance of this clause, including this paragraph (f), suitably modified to reflect the relationship of the parties, in all subcontracts that may involve access to sensitive information

(End of clause)

**L82 1852.237-73 Release of Sensitive Information (JUN 2005)**

(a) As used in this clause, "Sensitive information" refers to information, not currently in the public domain,

that the Contractor has developed at private expense, that may embody trade secrets or commercial or financial information, and that may be sensitive or privileged.

(b) In accomplishing management activities and administrative functions, NASA relies heavily on the support of various service providers. To support NASA activities and functions, these service providers, as well as their subcontractors and their individual employees, may need access to sensitive information submitted by the Contractor under this contract. By submitting this proposal or performing this contract, the Contractor agrees that NASA may release to its service providers, their subcontractors, and their individual employees, sensitive information submitted during the course of this procurement, subject to the enumerated protections mandated by the clause at 1852.237-72, Access to Sensitive Information.

(c) (1) The Contractor shall identify any sensitive information submitted in support of this proposal or in performing this contract. For purposes of identifying sensitive information, the Contractor may, in addition to any other notice or legend otherwise required, use a notice similar to the following:

Mark the title page with the following legend:

This proposal or document includes sensitive information that NASA shall not disclose outside the Agency and its service providers that support management activities and administrative functions. To gain access to this sensitive information, a service provider's contract must contain the clause at NFS 1852.237-72, Access to Sensitive Information. Consistent with this clause, the service provider shall not duplicate, use, or disclose the information in whole or in part for any purpose other than to perform the services specified in its contract. This restriction does not limit the Government's right to use this information if it is obtained from another source without restriction. The information subject to this restriction is contained in pages *[insert page numbers or other identification of pages]*. Mark each page of sensitive information the Contractor wishes to restrict with the following legend:

Use or disclosure of sensitive information contained on this page is subject to the restriction on the title page of this proposal or document.

(2) The Contracting Officer shall evaluate the facts supporting any claim that particular information is "sensitive." This evaluation shall consider the time and resources necessary to protect the information in accordance with the detailed safeguards mandated by the clause at 1852.237-72, Access to Sensitive Information. However, unless the Contracting Officer decides, with the advice of Center counsel, that reasonable grounds exist to challenge the Contractor's claim that particular information is sensitive, NASA and its service providers and their employees shall comply with all of the safeguards contained in paragraph (d) of this clause.

(d) To receive access to sensitive information needed to assist NASA in accomplishing management activities and administrative functions, the service provider must be operating under a contract that contains the clause at 1852.237-72, Access to Sensitive Information. This clause obligates the service provider to do the following:

(1) Comply with all specified procedures and obligations, including the Organizational Conflicts of Interest Avoidance Plan, which the contract has incorporated as a compliance document.

(2) Utilize any sensitive information coming into its possession only for the purpose of performing the services specified in its contract.

(3) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.

(4) Allow access to sensitive information only to those employees that need it to perform services under its contract.

(5) Preclude access and disclosure of sensitive information to persons and entities outside of the service provider's organization.

(6) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in its contract and to safeguard it from unauthorized use and disclosure.

(7) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.

(8) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.

(e) When the service provider will have primary responsibility for operating an information technology system for NASA that contains sensitive information, the service provider's contract shall include the clause at 1852.204-76, Security Requirements for Unclassified Information Technology Resources. The Security Requirements clause requires the service provider to implement an Information Technology Security Plan to protect information processed, stored, or transmitted from unauthorized access, alteration, disclosure, or use. Service provider personnel requiring privileged access or limited privileged access to these information technology systems are subject to screening using the standard National Agency Check (NAC) forms appropriate to the level of risk for adverse impact to NASA missions. The Contracting Officer may allow the service provider to conduct its own screening, provided the service provider employs substantially equivalent screening procedures.

(f) This clause does not affect NASA's responsibilities under the Freedom of Information Act.

(g) The Contractor shall insert this clause, including this paragraph (g), suitably modified to reflect the relationship of the parties, in all subcontracts that may require the furnishing of sensitive information.

(End of clause)

### **I.83 52.216-18 ORDERING (OCT 1995)**

**Note: This clause applies only to the IDIQ requirements of the SOW**

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

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

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

(End of clause)

### **I.84 52.216-22 INDEFINITE QUANTITY (OCT 1995)**

**Note: This clause applies only to the IDIQ requirements of the SOW**

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

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

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

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; *provided*, that the Contractor shall not be required to make any deliveries under this contract six (6) after the end of the period of performance.

**I.85 52.245-1 GOVERNMENT PROPERTY (AUG 2010)**

**I.86 52.245-9 USE AND CHARGES (AUG 2010)**

**I.87 CLAUSES INCORPORATED BY REFERENCE -- SECTION I**

Clause(s) I.1 through I.72 and I.85 through I.86 in this Section are incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause. The full text of the clause is available at the addresses contained in clause 52.252-2, Clauses Incorporated by Reference, of this contract.

(End of clause)

## LIST OF ATTACHMENTS

### J.1 LIST OF ATTACHMENTS

The following documents are attached hereto and made a part of this contract:

<u>Attachment</u>	<u>Description</u>	<u>Date</u>	<u>Pages</u>
A	Statement of Work (SOW)	12/19/11	8
B	Small Business Plan	01/26/2012	9
C	IT Security Management Plan	To Be Submitted 30 Days After Contract Award	
D	IDIQ Rate Matrix	01/31/2012	1
E	Organizational Conflicts of Interest (OCI) Avoidance Plan	To Be Submitted 30 Days After Contract Award	
F	IT Security Applicable Documents List	January 2012	5

## STATEMENT OF WORK CONTENTS

Section	Page
1	SCOPE ..... 1
2	APPLICABLE DOCUMENTS ..... 1
3	SCHEDULE AND MEETINGS ..... 2
4	TASKS ..... 3
4.1	TASK 1 - DETAILED STUDY PLAN ..... 3
4.2	TASK 2 - MISSION & EXPERIMENT REQUIREMENTS DEFINITION ..... 3
4.3	TASK 3 - LCRD EXPERIMENT ACCOMMODATION CONCEPT DEFINITION ..... 4
4.4	TASK 4 - CANDIDATE HOST SPACECRAFT IDENTIFICATION ..... 4
4.5	TASK 5 - PRELIMINARY LCRD EXPERIMENT ACCOMMODATION DESIGN ..... 5
4.5.1	Task 5.1 - Experiment Implementation Design Studies ..... 5
4.5.2	Task 5.2 - ICD Development ..... 5
4.5.3	Task 5.3 - Preliminary Design Definition ..... 5
4.6	TASK 6 - INTEGRATION AND TEST PLANNING ..... 5
4.7	TASK 7 - RISK ASSESSMENT AND MITIGATION ..... 6
4.8	TASK 8 - DEVELOPMENT AND IMPLEMENTATION PLANNING ..... 6
4	DOCUMENTATION ..... 6
6	SPECIAL STUDIES ..... 6
7	DELIVERY INTEGRATION TESTING AND OPERATION ..... 7
8	DELIVERABLES ..... 7

## Statement of Work

### 1 SCOPE

This statement of work (SOW) defines schedule, tasks, and deliverables for the accommodation of the Laser Communications Relay Demonstration (LCRD) package as a hosted experiment on a Space Systems Loral (SS/L) spacecraft in a geosynchronous orbit. The LCRD flight hardware is a communications experiment/instrument that will fly on a commercial communications satellite. This will allow LCRD to demonstrate the use of optical links from a geosynchronous orbit with two ground stations; there is also a potential that LCRD will be used to demonstrate optical communications with a LEO spacecraft, though no such LEO opportunity has been identified yet. The mission goal is to demonstrate high-bandwidth laser communications over long time periods under varying conditions.

The Base Period Study will be performed by Space Systems/Loral (SS/L) starting with the award of this contract and ending 30 days after Mission PDR (see schedule, figure 1.0.) The objective of this Base Period Study is to define the architecture, interfaces, initial design, spacecraft hosting opportunities, development plan, risk mitigation plans, as well as cost and schedule. This Base Period Study will also identify and evaluate programmatic issues for accommodating the LCRD package on a host spacecraft to be built by SS/L for a targeted launch in 2016. This SOW describes the scope, task requirements, deliverables, and associated program management needed to complete this effort. The Base Period Study contract will include a priced option to complete Option 1 that will end 30 days after Mission CDR.

The SS/L effort shall be managed and closely coordinated with the LCRD project team at NASA Goddard Space Flight Center (GSFC) under the direction of the Hosted Interface Manager, the COTR of this SS/L Contract.

### 2 APPLICABLE DOCUMENTS

NID-7120-97(NASA Interim Directive for NPR 7120.5D), Space Flight Program and Project Management Requirements

NPR7120.8, NASA Research and Technology Program and Project Management Requirements

NPR 7123.1A, NASA Systems Engineering Processes and Requirements

NPR 7120.1, Technical Standards for NASA Programs and Projects

NPR 8705.4, Risk Classification for NASA Payloads

NPR 8000.4A, Agency Risk Management Procedural Requirements

NPR 8700.1E, NASA Policy for Safety and Mission Success

NPD 8730.2C,NASA Parts Policy

NPR 8735.1B, Procedures For Exchanging Parts, Materials, and Safety  
 Problem Data Utilizing the Government-Industry Data  
 Exchange Program and NASA Advisories

NPD 8610.24C, Launch Services Program Pre-Launch Readiness Reviews

NPD 8720.1C, NASA Reliability and Maintainability (R&M) Program  
 Policy

NPD 8900.4D, NASA Use of Global Positioning System Precise  
 Positioning Service (Revalidated 6/15/09)

GPR 7123.1A, Systems Engineering

GPR 7120.7, Schedule Margins and Budget Reserves to be Used In Planning Flight  
 Projects and In Tracking Their Performance

GPD 7120.1A , Space Asset Protection

GPR 7120.4C ,Risk Management

### 3 SCHEDULE AND MEETINGS

The duration of this study shall be 18 months. The option period will extend an additional 9 months. The following major milestones and meetings will be completed during the basic contract:

Weekly Status Meetings	Starting at ATP
Technical Interchange Meeting	Monthly Minimum starting one month after hosted Experiment kickoff meeting
Hosted Experiment Kickoff Meeting	3 weeks after contract award
Experiment Accommodation Mission Concept Review	No later than June 14, 2012
Experiment Accommodation Requirements & Concept Review(Combined SRR and MDR)	No later than December 7, 2012
Experiment Accommodation Preliminary Design Review	No later than May 27, 2013
Final Base Period Deliverables	No later than 11/1/12
Experiment Accommodation CDR	No later than March

	1, 2014
Final Option 1 Deliverables	May 1, 2014
Base Phase End	18 months after contract award
Option 1 End	27 months after contract award
<b>Mission Concept Review</b>	<b>June 28, 2012</b>
<b>Mission Systems Requirements Review</b>	<b>January 7, 2013</b>
<b>Mission PDR</b>	<b>June 27 2013</b>
<b>Mission CDR</b>	<b>April 1, 2014</b>
<b>Launch Date for Planning Purposes</b>	<b>12 December 2016</b>

**Mission Milestones highlighted in bold print.**

SS/L shall organize and present a Kickoff Meeting at SS/L facilities to a LCRD Project Team no later than 30 business days after contract award. The purpose of the Kickoff Meeting is to confirm and approve the study plan, the content of the deliverables, and the flow, timing and location of planned meetings and reviews. A Experiment Accommodation Requirements & Concept Review shall be held. A Experiment Accommodation Preliminary Design Review shall be held and will include detailed review of plans for the Option 1. The reviews shall use NPR and GPR, NID 7120.97 and 7123.1A as tailored by proven SS/L low risk commercial practices and approved by the LCRD Hosted Experiment COTR.

Technical Interchange Meetings (TIM) shall be held monthly to review accommodations assumptions and confirm plans for remaining work. In addition, regular coordination meetings in the form of weekly status telecons shall be held. The detailed program plan provided for NASA approval at the kickoff meeting will identify these events.

**4 TASKS**

**4.1 TASK 1 - DETAILED STUDY PLAN**

SS/L shall develop and maintain a detailed study plan for this effort, based on this Statement of Work and guidance provided at and prior to the Kickoff Meeting. This plan may be adjusted by mutual agreement between SS/L and NASA if study findings identify areas of particular interest and benefit that should receive additional attention while other aspects may be de-prioritized.

**4.2 TASK 2 - MISSION & EXPERIMENT REQUIREMENTS DEFINITION**

SS/L shall capture and document, through technical interchange with NASA GSFC the goals and success criteria of the LCRD mission. SS/L shall develop the resulting concept of operations (CONOPS), spacecraft resource requirements, and mission flight rules in the context of a LCRD as a hosted Experiment on a geosynchronous satellite mission. This shall be documented in a draft LCRD Experiment Accommodation Requirements Specification.

This task shall also define desirable options for mission functionality and risk mitigation to be evaluated in design trade studies.. The general set of options to be evaluated will be selected and approved by the COTR within 7 days after the Kickoff Meeting.

The results of this task shall be provided in the Experiment Accommodation Requirements & Concept Review. Level Zero and Level One Requirements will be defined by the COTR. Level Two requirements will be developed by SS/L and approved by the COTR. Level Three and Level Four requirements will be developed by SS/L and reported to COTR for concurrence or revision as required.

NASA will review and has the final authority for the approval all requirements for the accommodation and operation of the LCRD Experiment.

---

### **4.3 TASK 3 - LCRD EXPERIMENT ACCOMMODATION CONCEPT DEFINITION**

SS/L shall define the overall LCRD Experiment accommodation strategy that holds the highest potential for compatibility with a wide range of potential geosynchronous (GEO) spacecraft missions. The overall objective is to minimize the complexity of the physical architecture and interfaces to minimize technical risk factors, facilitate integration processes, enable effective Experiment testing both on and off the host spacecraft, and minimize LCRD mission cost.

This effort shall be based on a survey and design studies regarding how readily the conceptual LCRD Experiment could have been accommodated of 5 recent GEO spacecraft missions implemented by SS/L. The results shall be used to develop concepts, guidelines and constraints for the overall LCRD Experiment physical architecture and interfaces. These concept studies will evaluate key alternatives for integration and partitioning of functions between the LCRD Experiment and the host spacecraft, such as attitude knowledge and control, jitter control, telemetry and command, and thermal control.

The selected mission options shall be evaluated in this task and trade studies performed to determine the impacts and constraints on accommodation complexity, number of hosting opportunities, concept of operations, mission cost and schedule, and risk.

The results of this task shall be provided in the Experiment Accommodation Requirements & Concept Review for approval by the COTR.

### **4.4 TASK 4 - CANDIDATE HOST SPACECRAFT IDENTIFICATION**

SS/L shall identify, working with its commercial satellite operator customer base, planned future communications spacecraft that are viable candidate host vehicles for the LCRD. The candidate profile will be developed based on criteria coordinated with the LCRD project team, including operator nationality, orbital location, launch date and other Government desired characteristics. It is a goal of this task to establish memoranda of agreement with one or more satellite operators for primary and backup hosting opportunities on specific planned missions with launch dates in the 2016 timeframe. SS/L and the COTR shall work together to find a selection of flight options that will ensure a launch date compatible with the LCRD hardware readiness date with acceptable schedule reserve.

The initial results of this task shall be provided in the Experiment Accommodation Requirements & Concept Review.

#### **4.5 TASK 5 - PRELIMINARY LCRD EXPERIMENT ACCOMMODATION DESIGN**

SS/L shall conduct a detailed systems analysis of the LCRD Experiment integration on potential host satellites, and define the preliminary design of the accommodation. This shall include the development of an Interface Control Document (ICD) and a Preliminary Design package. SS/L shall define the analysis and testing including mission insurance underwriter requirements to be performed on the LCRD Experiment prior to delivery to SS/L.

This task includes several specific subtasks:

##### **4.5.1 Task 5.1 - Experiment Implementation Design Studies**

SS/L shall perform design studies and analyses to define the LCRD Experiment accommodation including structural, thermal, electrical, EMC/EMI, telemetry and command, attitude control, and field of regard, covering design, resource, interface, and operational aspects, which will be documented in the ICD for COTR approval.

##### **4.5.2 Task 5.2 - ICD Development**

SS/L shall develop the preliminary LCRD Experiment to Spacecraft ICD to define design and interface requirements and the concept for LCRD Experiment integration on the target spacecraft platform based on existing commercial ICDs from SS/L and developmental ICDs from the LCRD Project.

The ICD shall:

- Define and illustrate physical and functional characteristics of the equipment in sufficient detail to ensure compatibility of all LCRD Experiment interfaces
- Identify and quantify the resources provided and required by the host vehicle and the LCRD Experiment, including power, thermal control, attitude control information, platform stability and command and telemetry
- Identify missing interface data and control the generation and submittal of such data
- Identify the sources of interface components
- Require approval of the COTR

##### **4.5.3 Task 5.3 - Preliminary Design Definition**

SS/L shall select for COTR approval a preliminary design for the LCRD Experiment accommodation based on the above design studies and trades and the ICD development activity. This design shall be documented in an updated LCRD Experiment Accommodation Requirements Specification and a Preliminary Design Briefing Package. The latter shall be presented at the LCRD Experiment Accommodation Preliminary Design Review at SS/L's facilities.

#### **4.6 TASK 6 - INTEGRATION AND TEST PLANNING**

SS/L shall create a spacecraft integration and test plan for the LCRD Experiment, based on a standard target spacecraft platform as a point of departure. This shall consider unique

requirements associated with the LCRD Experiment, which may include alignments, contamination control, special test processes, intersegment compatibility, and security. Alternate strategies for potential late availability or unavailability of the flight Experiment shall be included to help bound the risk to the commercial spacecraft delivery timeline. Two delivery schedules (nominal and last possible) for the LCRD Experiment will be developed to include delivery of analysis, test data, MGSE, EGSE, software and flight hardware will be developed.

The results of this task shall be presented at the LCRD Experiment Accommodation Preliminary Design Review.

#### **4.7 TASK 7 - RISK ASSESSMENT AND MITIGATION**

SS/L shall conduct a risk identification and mitigation planning effort to participate in the LCRD risk management process. This will identify key technical and schedule risks in the development and implementation of the flight LCRD Experiment and the spacecraft accommodations, and define initial risk mitigation plans.

The results of this task shall be presented monthly at the LCRD risk management meeting and at the LCRD Experiment Accommodation Preliminary Design Review, the PDR and the CDR.

#### **4.8 TASK 8 - DEVELOPMENT AND IMPLEMENTATION PLANNING**

SS/L shall develop a programmatic architecture based on its established commercial approach, while taking into account the requirements of NASA's NID 7120.97 and 7123.1A and NASA reporting, insite and risk posture. This programmatic architecture will include integration and test of the LCRD Experiment on the host satellite, launch base processing, post-launch commissioning (in orbit testing) and sustained support during the in-orbit operations.

Based on SS/L templates from past hosted Experiments, SS/L shall create a draft pathway (organizational roles and responsibilities, SOW and Terms & Conditions, Mission Assurance Plan, Test Plan, Environmental Requirements) for the process of hosting the LCRD Experiment with a target host spacecraft, while providing opportunities for flexibility, which may include switching hosts based on certain dependencies such as schedule. This shall also include draft contractual terms for hosting the LCRD flight.

SS/L shall develop specific plans for its activities in support of the LCRD project for all mission phases including milestone schedules and estimates for the cost budgets.

The results of this task shall be presented at the time of the LCRD Experiment Accommodation Preliminary Design Review.

### **5 DOCUMENTATION**

A CDRL table of all documentation to be generated in the course of this study and/or delivered at the end of this study agreed to by the contractor and the NASA COTR shall be finalized before the study start date shown above.

### **6 SPECIAL STUDIES**

SS/L shall develop special studies at the direction of GSFC. These studies will be priced when the definition becomes better defined based on Time and Materials costs for the study. The price will be agreed to prior to incurring expenses.

## **7 DELIVERY INTEGRATION TESTING AND OPERATION**

SS/L shall develop the required configuration items per SDLRA010 to integrate the GFE Experiment onto a Commercial spacecraft and operate through the life of the program.

## **8 DELIVERABLES**

The deliverables of this study will include the following:

- SDRL A001: A kickoff briefing defining the study program plan.
- SDRL A002: Summary reports documenting key meetings and reviews shall be submitted via email to participants within 5 working days after the event and shall include meeting notice, agenda, attendance, review meeting minutes, action items, action item accomplishment responsibility and agreements.
- SDRL A003: Draft LCRD Experiment Accommodation Requirements Specification.
- SDRL A004: Experiment Accommodation Requirements & Concept Review Package.
- SDRL A005: Interface Control Documents.
- SDRL A006: Updated LCRD Experiment Accommodation Requirements Specification.
- SDRL A007: Preliminary Design Briefing Package.
- SDRL A008: Integration & Test Plan.
- SDRL A009: Risk Assessment & Mitigation Plan.
- SDRL A010: LCRD Experiment Accommodation Development and Implementation Plan
- SDRL A011 SS/L will submit RFA (Request for Action) responses to the LCRD project for all RFAs assign to SS/L at all reviews defined in this SOW
- SDRL A012 SS/L will submit responses to the LCRD project for all requests for comments and clarifications assigned to SS/L at all reviews defined in this SOW
- SDRL A013 Threat and Vulnerability Assessment
- SDRL A014 Mission Concept Review Briefing package
- SDRL A015 Combined SRR and MDR Briefing Package
- SDRL A016 Critical Design Briefing Package



**ATTACHMENT**

**Information Technology (IT) Security Applicable Documents List  
JANUARY 2012**

<b>NASA Policy Directives (NPD) and NASA Procedural Requirements (NPR)</b>		
<b>Document</b>	<b>Subject</b>	<b>Effective Date</b>
NPR 1382.1	NASA Privacy Procedural Requirements	August 10, 2007
NPD 1382.17H	NASA Privacy Policy	June 24, 2009
NPD 1440.6H	NASA Records Management	March 24, 2008
NPR 1441.1D	NASA Records Retention Schedules (w/Change 5, 6/29/09)	February 24, 2003
NPD 2540.1G	Personal Use of Government Office Equipment Including Information Technology	June 08, 2010
NPD 2800.1B	Managing Information Technology	March 21, 2008
NPR 2800.1B	Managing Information Technology	March 20, 2009
NPD 2810.1D	NASA Information Security Policy	May 9, 2009
NPR 2810.1A	Security of Information Technology w/ Change 1, May 19, 2011)	May 16, 2006
NPD 2830.1	NASA Enterprise Architecture	December 16, 2005
NPR 2830.1	NASA Enterprise Architecture Procedures	February 9, 2006
NPR 7120.7	NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements	November 3, 2008
NPR 2841.1	Identity, Credential, and Access Management	January 6, 2011

<b>NASA Interim Directive</b>		
<b>Document</b>	<b>Subject</b>	<b>Effective Date</b>
NM2810-64	NASA Interim Directive: Information Technology Security and Efficiency Requirements	May 22, 2008

<b>NASA Interim Technical Requirements (NITR)</b>		
<b>Document</b>	<b>Subject</b>	<b>Effective Date</b>
NITR 2800_2	Email Services and Email Forwarding	September 18, 2009
NITR 2800_1	NASA Information Technology Waiver Requirements and Procedures	August 13, 2009
NITR 2830-1B	Networks in NASA Internet Protocol (IP) Space or NASA Physical Space	February 12, 2009
NITR 1382_2	NASA Rules and Consequences to Safeguarding PII, with Change 1, dated 02/04/2008	January 28, 2008

**ATTACHMENT**

<b>SOPs (ITS-SOP) and Handbooks (ITS-HBK)</b>		
<b>Document</b>	<b>Subject</b>	<b>Effective Date</b>
ITS-HBK-0002	Roles and Responsibilities Crosswalk	January 3, 2012
ITS-HBK-0201	Security Assessment and Authorization	May 6, 2011
ITS-HBK-0301	Planning	May 6, 2011
ITS-HBK-0401	Risk Assessment	May 6, 2011
ITS-HBK-2810.05-01	Systems and Service Acquisition	November 21, 2011
ITS-HBK-0601	Awareness and Training	May 6, 2011
ITS-HBK-0701	Configuration Management	May 6, 2011
ITS-HBK-0801	Contingency Planning	May 6, 2011
ITS-HBK-0901	Incident Response and Management	May 6, 2011
ITS-HBK-1001	Maintenance	May 6, 2011
ITS-HBK-1101	Media Protection	May 6, 2011
ITS-HBK-1201	Physical and Environmental Protection	May 6, 2011
ITS-HBK-1301	Personnel Security	May 6, 2011
ITS-HBK-1401	System and Information Integrity	May 6, 2011
ITS-HBK-1501	Access Control	December 21, 2011
ITS-HBK-1502	Access Control: Elevated Privileges (EP)	January 3, 2012
ITS-HBK-1601	Audit and Accountability	May 6, 2011
ITS-HBK-1701	Identification and Authentication	May 6, 2011
ITS-HBK-1801	System and Communications Protection	May 6, 2011
ITS-HBK 0205	Security Assessment and Authorization: External Information Systems	November 8, 2010
ITS-HBK 0206	Security Assessment and Authorization: Extending and Information Systems Authorization to Operate Process and Templates	November 10, 2010
ITS-HB 0001A	Format and Procedures for an IT Security Handbook	March 29, 2011
ITS-HBK-1502	Access Control: Elevated Privileges (EP)	November 8, 2010
ITS-HBK 0207	Security Assessment and Authorization: Information System Security Plan Numbering Schema	November 10, 2010
ITS-HBK 0204	Security Assessment and Authorization: Continuous Monitoring—Annual Security Control Assessments	November 8, 2010
ITS-HBK 0302	Planning: Information System Security Plan Template, Requirements, Guidance and Examples	February 9, 2011
ITS-HBK 0402	Risk Assessment: Procedures for Information System Security Penetration Testing and Rules of Engagement	February 11, 2011
ITS-HBK 0202	Security Assessment and Authorization: FIPS 199 Moderate & High Systems	November 10, 2010
ITS-HBK 0203	Security Assessment and Authorization: FIPS 199 Low Systems	November 10, 2010
ITS-HB 0035	Digital Media Sanitization	September 15, 2008

**ATTACHMENT**

<b>SOPs (ITS-SOP) and Handbooks (ITS-HBK)</b>		
<b>Document</b>	<b>Subject</b>	<b>Effective Date</b>
ITS-HBK 0802	Contingency Planning: Guidance and Templates for Plan Development, Maintenance and Test	February 11, 2011
ITS-HBK 0902	NASA Information Security Incident Management	August 24, 2011
ITS-HBK 0903	Targeted Collection of Electronic Data	August 24, 2011

<b>Standards</b>		
<b>Document</b>	<b>Subject</b>	<b>Effective Date</b>
EA-STD 0001.0	Standard for Integrating Applications into the NASA Access Management, Authentication, and Authorization Infrastructure	August 1, 2008
EA-SOP 0003.0	Procedures for Submitting a NASA Agency Forest (NAF) Deviation Request and Transition Plan	August 1, 2008
EA-SOP 0004.0	Procedures for Submitting an Application Integration Deviation Request and Transition Plan	August 1, 2008
NASA-STD-2804-O	Minimum Interoperability Software Suite	August 9, 2011
NASA-STD-2805-O	Minimum Hardware Configurations	August 9, 2011

**Within 30 days after contract award, the Contractor shall develop and deliver an IT Security Management Plan to the Contracting Officer for approval.**