

Task Order Statement of Work (SOW)

Date: 12 Feb 2019

Task Name: LOCNESS Project Mechanical Systems Support

Task No. / Mod: Task Monitor (TM): Stephen DePalo/Code 599

Contract number: NNG15CR65C

Contract SOW Reference:

Function 1: B. Preliminary Study Analysis Services

Function 2: C. Systems Engineering Services

I. Scope

- a. Background: The Laser Optical Near-Earth Satellite System (LOCNESS) Project at GSFC is to develop, procure and launch a space-based, operational laser optical communications relay satellite utilizing next generation optical communication technology for space-to-ground links, user links, and relay crosslinks. LOCNESS consists of the optical comm payload and the spacecraft (bus) (with a ka-band comm) to provide user relay services. The optical comm payload consists of four (4) optical relay terminals and payload electronics.
- b. Summary of work: Conduct spacecraft design accommodations for the LOCNESS Optical Comm Payload to include feasibility studies, trade studies, development of systems/subsystem requirements, and mission design analysis in support of Phase A and proto-type activities.
- c. Required skills/knowledge - [REDACTED] to perform spacecraft bus and mission systems designs and analyses.

II. Period of Performance

18 February 2019 to 30 June 2019

III. Subtask Description

The Contractor shall provide Chief Systems Engineering support to the LOCNESS Project for the following:

- a) Develop and evaluate proposed LOCNESS spacecraft bus designs in order to meet mission design and payload systems requirements.
- b) Perform requirements analysis of the systems interfaces and requirements between the optical comm payload and proposed spacecraft bus designs.
- c) Perform and support specified payload and spacecraft trade studies.
- d) Assist in the trade studies/assessments for payload layouts, spacecraft configuration, and candidate launch vehicle systems.
- e) Support the LOCNESS Project technical team meetings, design reviews, in-house and out-of-house proposals included but not limited to various systems designs, systems standard interface and requirements, and standard of assembly, integration, test and verification approach.
- f) Assist in planning, preparations and execution of the Project MDR/SRR.

g) Participate in Engineering Peer Reviews of payload/spacecraft designs and requirements

IV. Deliverables/Schedules/Milestones

<u>Ref#</u>	<u>Deliverables</u>	<u>Due Date</u>
1	Status Reports	Bi-weekly
2	Performance Reports	Monthly
3	End-of-task Report	End of task
4	Payload to Spacecraft IRD	
5	AI&T Plan	
6	Spacecraft Requirement Document	

Deliverable #4: Revise and update the draft Optical Comm Payload to Spacecraft Interface Requirements Document (IRD)

Deliverable Date: Draft 30 days after task start date, final draft 15 days after Project review.

Deliverable #5: Prepare a Spacecraft Requirements Document (SRD) to meet mission/payload requirements.

Deliverable Date: Draft 60 days after task start date, final draft 15 days after Project review

Deliverable #6: Prepare an Assembly, Integration & Test flow and plan for the most efficient and economic integration and test approach.

Deliverable Date: Draft 90 days after task start date, final draft 15 days after Project review

V. Management Approach

a. Staff Allocation, Expertise, and Skill Mix

The contractor shall staff this work item with the appropriate skill mix and staffing level of one-half (0.5) full-time equivalent for the work.

b. Configuration Management

Analysis and documents will not be required to be covered under the Project Configuration Management Plan.

c. Facilities

N/A

d. Risk Management and Best Practices

The contractor shall manage schedule, cost, and technical risk through monitoring and reporting of progress and performance metrics, identifying issues well in advance of negative consequences, recommending corrective action to the TM, and implementing corrective actions with the compliance of the TM.

e. Performance Metrics

The work performed for this task will be evaluated by the TM based on the technical merit. Technical evaluation of the task performance is a subjective combination of performance metrics, technical quality of deliverables, cost control, significant events, innovations and meeting requirements set forth in the SOW.

1. Actual Milestone Progress vs Planned/Scheduled
2. Quality of Technical Performance
3. Contractor Communication

f. Government Furnished Facilities, Equipment, Software and Other Resources

The Government will provide account and passwords to government-furnished workstations where existing versions of various relevant software packages shall be maintained. It shall be the contractor's responsibility to complete any GSFC required security-related training courses.

g. Quality Assurance Requirements

N/A

VI. ODC (Travel and Procurement): None planned

VII. Work Location

This work shall be performed primarily at the Goddard Space Flight Center (On-site) to attend meetings and interface with Project personnel. Remote (off-site) work permitted.

VIII. Reporting Requirements

a. Bi-weekly status report

The contractor shall generate Performance Reports bi-weekly. The report shall include, as a minimum, a summary of the weeks highlights/accomplishments, milestones/schedule/deliverables, risks and customer meetings.

b. Monthly performance report

The contractor shall provide monthly technical and schedule progress reporting to adequately describe the activities of the contractor team to the TM. The contractor shall provide monthly cost reporting in accordance with the WBS. The contractor, including subcontractors, shall be available to attend monthly status meetings.

IX. Security Requirements

The contractor shall comply with Information Technology Security procedures and requirements as defined by NPG 2810.1A in the performance of this task. In addition, the contractor shall comply with all applicable federal rules and regulations and agency directives. There will be any no handling of classified data.

X. Data Rights

This SOW shall adhere to all Data Rights Clauses as stated in the TIDES contract.

XI. Applicable Documents

In the performance of this task, the contractor shall comply with the following documents:

1. *GSFC-STD-7000A GEVS*
2. *GSFC-STD-1000G GOLD Rules*
3. *GPR-7123.1 Systems Engineering*

XII. References