

Task Order Statement of Work (SOW)

Date: 10/06/2020

Task Name: Software Verification, Validation and Testing Support

Task No. / Mod: 9/13

Contract number: NNG14WA48C

1. Scope

- a. Background – This task is to provide software testing support for 589 led software projects for both new development and modification to existing software/systems. The support may include the full lifecycle of software testing from requirement verification, procedure writing, test conducting, and validation and analysis of the test results. The contractor is to provide the schedule and tracking of the testing lifecycle and update the 589 Branch with any deficiencies and issues regarding resource and test environment.

The testing method varies depending on the software and system. However, the test methods may include static testing, dynamic testing, along with black-box testing. It may also be necessary to develop test support software, such as unit testing code and simulation software.

All testing activities are to follow the NPR 7150.2 Software Engineering Requirements and NASA Standard for Software Assurance (NASA-STD 8739.8) and specified processes through the Code 589 software development and testing plans. (GPR 7150.4)

- b. Detailed Summary of work – The contractor is to support Code 589 Software testing in any or all phases of the testing cycle and all levels of testing. The level of testing includes Unit Testing, Integration Testing, Component Interface Testing, Build Testing, System Testing and Acceptance Testing. It will be the responsibility of the contractor to document and implement configuration management control of the all documentation developed in this effort including but not limited to requirements trace to test cases, test procedures, test plans, and test results analysis/reports.

Subtask 01 - STING - Complete

The contractor shall provide support for software code review for STING. This support will include the detailed documentation and reporting of any issues present in the line by line software code reviews. The contractor will work with the PDL to recommend modifications to the software code as part of the development process.

Additional resources for STING such as, test development, testing, data generation and analysis are required as new emphasis is being placed on the STING project. A fast-paced project schedule will be employed necessitating additional resources to meet a sooner than anticipated project certification completion date. These additional resources shall be responsible for the scope of this SOW and are to focus in the following areas:

- Testing and data generation
- Test procedure development and analysis

Subtask 02 - NAFTU (NASA Autonomous Flight Termination Unit)

Additional resources for NAFTU test development, testing, test data generation and results analysis are required. A fast-paced project schedule will be employed necessitating additional resources. These additional resources shall be responsible for the scope of this SOW and are to focus in the following areas:

- Testing and test data generation
- Test procedure development and test results analysis

Skill set and knowledge requirements/preferences:

- Demonstrated skills and knowledge of test scenario development and test procedure development is required.
- Demonstrated skills and knowledge of test result analysis and documentation/reports is required.
- Demonstrated skills and knowledge of software configuration management processes (version control and tracking) is required.
- Demonstrated skills and knowledge of software testing for safety-critical systems is preferred.
- Demonstrated skills and knowledge of flight software architecture, embedded systems, and/or scripting languages is preferred.

Description of work for NAFTU

- 1) The work will involve all phases of the test effort, including test scenario and procedure development, test implementation, test execution, test summary, test reports, and follow-up test support. This work will involve documentation of products.
- 2) The contractor will be responsible for developing and running tests for the NAFTU system. Testers will be required to develop test procedures and reports, and track modifications to any documents. Testers will report bugs and errors.

Testers will assist the software development team with bug tracking and testing bug fixes as requested.

- 3) As the test phases progress, the contractor is to submit any findings/discrepancies and assist in the closure process. The contractor is expected to submit a test summary report and detailed analysis at the end of each test or test phase as a configuration management artifact.
- 4) The contractor shall supply a weekly status report to the TM/Code 589 Test Team Lead of all work accomplished and milestones expected. Reports shall include informal presentation of interim results, status of testing activities, and action item status.

2. Sub-Task Requirement

- a. Accounting for this task shall be tracked at the sub-task level
- b. At the completion of this sub-task, the contractor will go back to charging to the original task number
- c. 08/20/18 – This Mod is to extend the Task until 11/30/2018.
- d. 10/16/2018 – This Mod is to cover the period from 12/01/2018-11/30/2019.
- e. 10/16/2019 - This Mod is to cover the period from 11/18/2019-11/17/2020.
- f. 10/31/2019- Added NetAcquire training/travel in Seattle from 12/09-12/13/2019.
- g. 01/24/2020 – Added Subtask for NAFTU from 02/01/2020-08/31/2020.
- h. 03/19/2020 – Added Technical Writer Support
- i. 10/06/2020 – Removed Technical Writer support, added additional NAFTU requirements/resources, and extended POP.

3. Security Requirements: None

4. Period of Performance

The period during which the work for this task shall be performed is from 11/18/2020 through 11/30/2021.

5. Deliverables/Schedules/Milestones

Monthly Progress Reports in accordance with clause B1 and C2, and weekly status report for active projects. The contractor is also required to submit preliminary findings, discrepancy report and project specific presentation and reports as specified in the specific testing schedule.

6. Place of Performance

This work shall be performed primarily on-site at the Wallops Flight Facility, but the contractor may be required to perform some work at other NASA sites. The contractors may also be requested to travel short term for integration and testing support at other government facilities.

7. Special Requirements/Other Comments

N/A