



S²MARTS Project 21-03: Inertial Measurement Unit

Request For Solutions (RFS) Questions & Answers | Posted November 25, 2020

Technical / Performance

1. **Question:** What is the ideal, but realistic size, power and weight envelope for the IMU? Also, is the expected performance to be tactical or navigational grade?

Response: Proposers shall offer threshold and objective targets for SWaP, while maintaining navigation-grade IMU performance. Note the focus is reduced SWaP, not substantially improved performance over state of the art

2. **Question:** There are no performance requirements (e.g. Gyro bias) in the RFS documentation other than rate-range / G-range. Does an IMU performance table exist and can it be provided?

Response: IMU performance values will be utilized to evaluate proposals However, further project specifications will be provided upon agreement award.

3. **Question:** There are no environmental requirements in the RFS documentation. Are environmental requirements defined and can they be shared?

Response: Environmental qualification specifications will be provided upon agreement award.

4. **Question:** Have any requirements been defined for form factor, mounting, connectors, or interface messages?

Response: Information will be provided at agreement award for each of these parameters.

5. **Question:** Will NSWC define requirements for the IMU or look to the vendor to develop them?

Response: Both. NSWC Crane will provide interface and relevant performance requirements upon agreement award, and the performer shall further define requirements relevant to the project and performance to meet during development.

6. **Question:** Can you please elaborate on the term "geo-referencing position determination"?

Response: Disregard the sentence in Section 5 regarding geo-referencing position determination.

7. **Question:** How might this [inertial measurement unit] differ from tradition schemes like dead reckoning and inertial navigation?

Response: The IMU will act as a sensor package for the inertial navigation system.

8. **Question*:** What are the threshold/objective position accuracies?

Response: Information will be provided after agreement award.

9. **Question:** The RFS provides IMU range specifics, but only says that reducing size below the current 8 cu. in. volume might reduce current accuracy and quality of data. Also, it states that the solution must withstand harsh hypersonic conditions. Can you provide additional specificity around current or desired IMU accuracy and also provide any details about thermal and mechanical shock requirements?

Response: Proposers shall offer a threshold and objective targets for SWaP, while maintaining navigation-grade IMU performance. Note the focus is reduced SWaP, not substantially improved performance.

10. **Question:** Can you provide the target specifications for the IMU, including size, power, performance (accuracy, drift), and operating conditions (temperature, shock & vibration)? Is there a particular IMU interface desired for the prototype unit?

Response: See questions 1 and 3 for answers.

11. **Question:** Does the government have a more complete set of performance goals for the IMU? Listed requirements of 1080 deg/sec for the gyro 40g for the accelerometers are fairly low and incomplete for a tactical application.

Response: Further performance information will be provided after agreement award.

12. **Question:** Can you provide weighted criteria for the proposal such as: Technical Approach (Performance, Size, Weight, Experience, Risk); Management and Cost?

Response: See question 1 for answer.

13. **Question:** We would like information as to the IMU requirements on performance (Near Nav Grade, or Nav Grade), and radiation environment. Can you provide additional guidance along these lines?

Response: See questions 1 and 3 for answers.

14. **Question:** Can you provide a range in regards to high g requirements?

Response: Further performance information will be provided after agreement award.

15. **Question:** Are their bias and VRW/ARW specifications to meet for the requirement?

Response: Proposed technologies will be evaluated by their threshold/objective proposals. Further performance information will be provided after agreement award.

16. **Question:** What IMU hardware has NsWC tested that they consider satisfactory performance wise?

Response: Further performance information will be provided after agreement award.

17. **Question:** You seek to improve SWaP of current IMU technology - what is the baseline current technology you are referencing?

Response: Proposed technologies will be evaluated by their threshold/objective proposals. Further performance information will be provided after agreement award.

18. **Question:** Ball park on power consumption?

Response: Proposed technologies will be evaluated by their threshold/objective proposals. Further performance information will be provided after agreement award.

Legal / Contractual

19. **Question:** The RFS Section 8.c specifies Subcontractors may not include foreign entities. We have a component supplier with unique capabilities in Canada that we would like to include. The capability was established through investment by US Navy and the supplier has experience with executing ITAR work for US DoD programs. Can an exception be requested in the proposal and would this be considered?

Response: NSTXL has encouraged the Performer to provide their solution and test data as an addendum in order to allow the Government time and info to consider waiving or rescinding the NOFORN restriction – post submission.

20. **Question:** In your solicitation, it is stated “8. Security Classification, Respondent Restrictions, and other required compliances” in Section c “Respondents are limited to domestic companies based in the United States only; Subcontractors/teaming partners may not include foreign entities.” One of our partners, Teledyne in Thousand Oaks, CA has a subsidiary called Teledyne DALSA that is a global leader in high performance digital imaging and semiconductor technology, and are headquartered in Waterloo, ON, Canada, with its foundry located in Bromont, Quebec, Canada. Teledyne Dalsa does ITAR work, is US owned, and is a non-traditional defense contractor and fit the OTA profile. Would it be possible to get a waiver for Teledyne Dalsa to participate in this solicitation? Note: DALSA would be used as a component supplier, with the system level architecture and integration would be restricted to US entities.

Response: NSTXL has encouraged the Performer to provide their solution and test data as an addendum in order to allow the Government time and info to consider waiving or rescinding the NOFORN restriction – post submission.

21. **Question:** Does the website have a path to submit ITAR controlled and/or proprietary data?

Response: All NSTXL Consortium or Performer provided solutions and attachments received through the website Submission feature are saved directly to a secure, internal SharePoint site. Please be sure to appropriately mark this information. However, if there is a particular concern, arrangements could be made to facilitate a secure document file exchange with our CSO.

22. **Question:** As requirements have not been fully defined, can a ROM submission be submitted at this stage?

Response: Individual proposers can make own determination on submitting ROM proposals, but award decisions will be made with what is submitted by close of RFS.

23. **Question:** Will the Navy be using outside contractor(s) to evaluate the proposal? If so can you identify these reviewers.

Response: The Navy / Program will be evaluating the proposed solution.

24. **Question:** We would like to formally request an extension to the proposal deadline of 11/30/2020. We would like to request a deadline of 12/18/20 or 12/21/20. This extension request is driven by the time needed for us to receive supplier quotes to be incorporated into our proposal. The request also reflects the slowed processing time for us and our suppliers because of the Thanksgiving holiday.

Response: Deadline Extended to 7 December 2020

25. **Question:** Can the page limit on price response exceed 5 pages? This request is to accommodate providing more information to NSTXL.

Response: RFS has been amended to increase the limit to 8 pages maximum.

26. **Question:** Is there a preferred format for the written response or page count limit?

Response: See Section 10 of the RFS

27. **Question:** Can we do a teamed proposal with a traditional aerospace prime?

Response: This was answered during the Project TALX. Teaming is allowed, but a significant portion of the work needs to be performed by a non-traditional performer

Project and Execution Details

28. **Question:** Will NSWC run the flight test, provide the platform, and provide the range for the flight test?

Response: Yes, the government will manage the flight test, provide the platform, and range.

29. **Question:** As stated in the RFS, a live demonstration shall be conducted in “a relevant and actual flight environment”. Are performers expected to propose and arrange access to the test vehicle for the demonstration, or will access to such flight test vehicle be provided by NSWC.

Response: Same as question 28, the government will manage the flight test, provide the platform, and range.

30. **Question:** Who is responsible for integration of the prototypes with the test vehicle(s) during each test phase -- the contractor or the government?

Response: The government will run the SRR for test vehicle integration, but the performer will present their technologies and communicate requirements/requests for integration on the test vehicle

31. **Question:** Are there any forecasts for quantity / production schedule that can be provided?

Response: Forecast for quantity and production schedule to be communicated after agreement award.

32. **Question:** What is the assumed program start date?

Response: Assume 90 days after close of RFS

33. **Question:** What is the expected Period of Performance?

Response: This is highlighted in Section 5 of the RFS

34. **Question:** Is the current Project budget of \$12,000,000 for the IMU development alone or does it include aspects of the Alternative Navigation system development? How much is available to the IMU contractor (assuming a portion is allocated to the Navy for PM and testing tasks)?

Response: The budget on the RFS is for the IMU development.

35. **Question:** Is the intended hypersonic platform for use of the IMU a gun launched projectile or missile?

Response: The intention is for a navigation-grade IMU for hypersonic vehicle applications.

36. **Question:** Is there an estimate of the overall schedule requirements for the IMU development, an expected fielding date and/or an estimate of the production volume required per year?

Response: Forecast for quantity and production schedule to be communicated after agreement award.

37. **Question:** Are you planning on awarding a single award, or multiple awards?

Response: This depends on program budget and technologies proposed, but the current intention is a single award. Additionally, proposals are valid after the initial agreement award, so a proposed solution may be picked up later on.

38. **Question:** Is secret clearance required at time of proposal or only at time of Award?

Response: At the time of award.