

DARPA-PS-25-11 Robust Quantum Sensors (RoQS) Program Solicitation
Frequently Asked Questions (FAQ) Document
Version 5, 3/14/2025

RoQS PS Participation:

Q1: Are personnel with a joint university-FFRDC appointment eligible to propose to the RoQS PS?

A1: Individuals holding a joint appointment with a university and an FFRDC or government entity are eligible to submit proposals to RoQS through their university, contingent upon the terms of their appointment. All proposed work must comply with university policy and clearly demonstrate that the individual is undertaking the work in their capacity as a university-affiliated individual, rather than in their role at the FFRDC or government entity.

Contracting / OT:

Q2: Can you please confirm that offerors that include significant participation from a nonprofit research institution are exempt from cost share?

A2: **For TA1 proposers**, in accordance with 10 U.S.C. 4022(d), 1/3 cost share is not required if there is at least one nontraditional defense contractor or nonprofit research institution participating to a significant extent.

For TA2 proposers, in accordance with 10 U.S.C. 4021, the Government will seek a cost share to the maximum extent practicable. Please see Section II of the PS for more details.

Metrics:

Q3: Will DARPA consider sensors that do not meet Table 1 “exemplar performance” but potentially still address critical needs of some DoD applications and platform integration?

A3: These metrics are meant to represent state-of-the-art performance. Proposers may propose their own metrics which deviate from these numbers; however, a strong and compelling justification must be provided for this deviation. This justification may be based on the Proposer’s belief that a particular exemplar sensitivity is either not representative of the state of the art for that sensor category, or, more powerfully, that a critical DoD application has a different unmet Requirement that is not consistent with the Table 1 metrics. Significant support for these deviations is expected to be provided in both the abstract and proposal.

Flight Test Details:

Q4: Can you provide more details about the Phase 1 flight test?

A4: Proposers should budget for two days of testing for each iteration. The specific flight durations and maneuvers will be provided during Phase 1. Specific maneuvers for the sensor to learn platform responses will not be permitted.

TA2 Platform Access

Q5: Does TA2 need access to the platform integration they propose? Does the company need to be the owner of that platform or systems on the platform?

A5: TA2 proposers should have the necessary level of access to the proposed platform to be able to provide all the requirements at sufficient detail for successful integration during Phase 2.

Quantum:

Q6: What does the DARPA RoQS program define as a quantum sensor?

A6: The DARPA RoQS program takes a broad, inclusive point of view with regards to the definition of a quantum sensor. Proposers should make the case in the abstract phase as to whether the technology proposed is quantum.

Power:

Q7: What are the power requirements/limitations?

A7: Proposers should assume power to run the quantum sensor will be provided by the platform and/or external batteries. Extreme power requirements may impact the applicability of the proposed quantum sensor to the DARPA Mission.

Interfaces:

Q8: What interfaces should I assume between the walk on/walk off sensor and the outside world?

A8: Assume a standard power cord/cable coming into the 10 L box and a data cable coming out of the 10 L box. The data cable may be connected to a hard drive/external interface for purposes of storing or viewing the data. The outgoing data should include a series of time stamps/samples and a series of measurements with the units of the sensor (magnetic field, electric field, gravitation, acceleration, rotation, etc.).

International Participation:

Q9: Given the CUI nature of the program, what are the limitations and extents of international participation for primes, subcontractors, or suppliers?

A9: Per January 31, 2024, memorandum "Change to Policy on Sharing Controlled Unclassified Information with Foreign Entities" issued by OUSD for Intelligence & Security, the requirement of a positive foreign disclosure decision must be made before CUI is released to a foreign entity is removed. As such, CUI may be disclosed to a foreign person employed by the U.S. organizations if:

1. They are operating under a formally issued solicitation or awarded DARPA S&T project that:
 - a. Clearly defines the U.S. organization's responsibilities to comply with DoD CUI policies and procedures as detailed in either DoD 5200.48, DFARS 252.204-7012, 7019, and 7020, or similarly acceptable guidance and direction.
 - b. The CUI is not Export Controlled or NOFORN.
2. Access to such information is within the scope of their assigned duties.
3. Access to such information would help accomplish a lawful and authorized DoD mission or purpose and would not be detrimental to the interests of the DoD or the U.S. Government.

CUI that is Export Controlled may be disclosed to foreign persons employed by U.S. organizations when (export license, technical assistance agreement (TAA), or exemption/exception) is granted from either the Department of State or the Department of Commerce. The U.S. entity, the company

or university on contract, who is granting access to the information is responsible for obtaining the appropriate authorization.

CUI that is NOFORN may be shared with U.S. persons, will not be authorized to non-U.S. persons without foreign disclosure approval.

Other parameters

Q10: For a sensor to operate a given mission there are important parameters other than sensitivity (scale, bias, offset, accuracy, drifts, frequency operation, bandwidth, etc.) How much attention/effort should be put in solving these issues in the Phase 1 system?

A10: The sole program metric is to maintain state-of-the-art sensitivity throughout a helicopter flight. All other parameters are considered part of maintaining system performance and may be critical for Phase 2. It is incumbent upon the proposer to detail the critical elements for the proposed sensor class.

Other modalities

Q11: The DARPA RoQS solicitation references a handful of sensor classes with exemplar sensitivities. Are sensor classes not listed able to propose?

A11: No, RoQS will only consider the sensor classes detailed in the PS.

Abstracts:

Q12: May a company/team submit multiple abstracts?

A12: Yes, an entity may submit multiple abstracts, however each abstract should address only a single sensor class in TA1. A single abstract for TA2 may address multiple Programs of Record/platforms.

Combined Sensors:

Q13: The solicitation states that an accelerometer triad and a gyroscope triad may be combined to form a 6 degree of freedom inertial sensor. Do the volume requirements for those two systems add when doing so? I.E. does the 6 DOF sensor have a 20L or 10L requirement?

A13: If the proposed 6 degree of freedom (DOF) sensor is 20 L (10 L for 3 DOF accelerometer and 10 L for 3 DOF gyroscope in this example), then separate abstracts would need to be submitted for the different sensor classes. If the proposed 6 DOF sensor is 10 L, then that can be included in a single abstract.

TA2 Role:

Q14: What role do you see for organizations that provide for current program of record systems that could be displaced by quantum sensors?

A14: Organizations that currently support programs of record are encouraged to participate in both technical areas of the RoQS program.

Clocks

Q15: Are clocks eligible as a quantum sensor class?

A15: No, clocks are not eligible as a quantum sensor class for the DARPA RoQS program.

Distributed Volume:

Q16: For distributed sensor arrays, can there be multiple sensors deployed at different parts of the helicopter, such that the total volume is 10L?

A16: A single sensor is defined as a monolithic box equal to or smaller than a volume 10 L.

Platform Definition:

Q17: For the purposes of the RoQS program, what is the definition of a platform? Is it only the specific vehicle (helicopter, plane, ship, etc.) or is it inclusive to specific systems or sub-systems on a vehicle (communications, navigation, etc.)?

A17: It is the intent of RoQS to unify the sub-system and platform owners together. It is the goal that a sub-system owner (communications, navigation, etc.) has a platform owner (helicopter, plane, ship, etc.) as a team member.

Access to Government Labs:

Q18: Are there restrictions on the schedule to access government testing labs?

A18: The only restriction for scheduling access to government testing labs is that sufficient warning (>30 days) needs to be provided to secure access to the government labs. The further out the warning for specific dates, the higher the probability of the labs being available.

Internal Research and Development (IRAD) Cost Share:

Q19: Will DARPA consider internal IRAD as cost share for TA2?

A19: No. Per the PS, the government will not consider pre-existing proprietary data or software as cost share under TA2. This includes Internal Research and Development (IRAD) conducted prior to award.

Quantum Information Science:

Q20: Are ideas in quantum information science (error correction/mitigation) encouraged?

A20: We are interested in any and all techniques that will enable the RoQS system.

Award details

Q21: What is the total dollar award for TA1? How many awards will be made for TA1?

A21: It is incumbent on TA1 proposers to provide a detailed response to achieve the metrics. The cost should be commensurate/realistic for the statement of work proposed.

TA1 Specific Applications

Q22: For TA1, is there any merit for developing the sensors for specific applications?

A22: Adapting the system for a specific platform will be part of a TA2 proposal.

Size Progression

Q23: Does the sensor under test need to be 10 liters for all three tests, or only the final test?

A23: The sensor must be less than 10 liters only for the final test. The size for tests one and two should be compatible with helicopter flight and should show a clear path towards the final 10-liter size. If the device is larger than 10 L it may not be compatible with the optional IV&V testing.

Phase 2 Costs

Q24: The solicitation states that Phase 2 is “*not solicited under this PS*” (page 2 in bold), but the abstract template and instructions (page 2) states “*Estimate Total Cost (Base + Options).*”

A24: Please include the Estimated Total Cost of just Phase 1 in the abstract. Note that for TA2, this includes Phase 1a, Phase 1b, and Phase 1c, which will be set up as optional periods. There will be a separate proposal for Phase 2.

DoD Labs

Q25: Are DoD Labs included in the restriction on FFRDCs, UARCs, and National Labs?

A25: The restrictions also apply to DoD labs. They are not allowed to be prime or subcontractor research and development performers under TA1 or TA2.

Umbilical

Q26: Is the sensor allowed to have an umbilical to the 10 L box and be physically separated?

A26: A sensor head separated with an umbilical from the rest of the sensor unit is not within spirit of the RoQS program. The 10 L metric should be considered as a single box that encloses all of the sensor components.

Security

Q27: Does DARPA plan to issue a RoQS Security Class Guide (SCG) and subsequent DD-254?

A27: RoQS is an Unclassified program. If a performer proposes a classified application or platform for RoQS and is selected for award, DARPA may issue a DD-254. Any classified work done during the proposal period must be done under a DD-254 issued by the information owner and with their permission that work is being done to submit an addendum to the abstract or proposal.

Abstracts/Proposals

Q28: After submission of an abstract, is a proposer required to be invited to submit a full proposal? Or can all that submitted an abstract submit a full proposal?

A28: The DARPA team will provide feedback on the abstract. Independent of that feedback, teams that submitted an abstract may submit a full proposal.

Awards

Q29: Is the OTA-P contract for TA1 being treated as a CPFF contract or a FFP contract?

A29: Any resulting RoQS award should not be considered a FAR-based contract – CPFF or FFP. DARPA plans to establish fixed milestones based on the deliverables established in the Program Solicitation. Given the length of Phase 1 (30-months) DARPA will consider fixed milestones with prospective adjustments to the milestone amounts based on actuals. Prospective adjustments would not exceed the Phase 1 ceiling established at time of award but would not require changes to the Task Description Document (TDD). This approach would require the Performer to provide documentation to support actual expenditures. Notably, while documentation of actual expenditures is required, it need only comply with Generally Accepted Accounting Principles (GAAP) and not the more stringent requirements of Cost Accounting Standards (CAS) or Truth in Negotiations Act (TINA).

Exit Criteria

Q30: Are the exit criteria for successful contract performance a “best effort” requirement, or a specific capability from the hardware delivered?

A30: Final exit criteria will be clearly defined during award negotiations for selected proposals. These criteria will focus on verifying observable technical achievements that demonstrate substantial progress towards the project's overarching goals. While specific metrics may be used as indicators, the ultimate determination of successful completion will be determined through a comprehensive assessment of the deliverable content and the Performer's contributions to the project's critical path, as assessed by the DARPA Program Manager and/or Agreements Officer's Representative (AOR). This approach ensures a balance between rigor and flexibility, recognizing that groundbreaking research often necessitates an iterative and adaptive approach.

Certification of Flight Safety

Q31: Is certification of flight safety or readiness (beyond sensor performance in the presence of fields, gradients and vibration) on a specific platform, considered in or out of scope of the program?

A31: Certification of flight safety is outside the scope of Phase 1.

TA1 and TA2 Teaming

Q32: What is the nature of the interactions between TA1 and TA2? Will teams be paired automatically?

A32: TA2 performers will be required to execute an ACA with all TA1 performers. Selected TA2 performers will interact with and follow all TA1 teams.

Changes between Abstract and Proposal

Q33: If a team submitted an abstract as a prime/sub pair, can that team switch roles for the full proposal?

A33: No. Given that an abstract is required for submission of a full proposal, the prime organization cannot change between abstract and full proposal. The prime may re-organize their team (to include the addition or reduction of subcontractors) to best address any government feedback and the RoQS goals and objections.

Q34: Can a single abstract be split into multiple proposals or change approach based on feedback?

A34: Teams are welcome to refine their approach based on feedback received during the abstract phase. However, while submitting multiple proposals from a single abstract isn't strictly prohibited, we strongly encourage teams to focus their efforts on their single strongest idea.

TA2 Pricing

Q35: Should the full project costs be provided for TA2?

A35: Yes. As outlined in Attachment G, the full project costs – to include both the Government share (\$500,000) and any Performer share - should be provided with the full proposal.

TA2 Scope

Q36: For TA2, is the performer expected to address platform integration trades for all 6 sensor modalities in Phase 1? Or should the TA2 performer assume DARPA will select a single modality of interest in TA1 and a singular integration trade required for TA2?

A36: Signing ACAs with all TA1 performers does not obligate TA2 to perform studies on all sensing modalities. Signing the ACAs with all performers enables the establishment of a pipeline for sharing of information to better inform the program. It is important to track insights and developments from other modalities which could inform integration and development for Phase 2.

Testing Duration

Q37: Can you provide clarity on how proposers should allocate time for the different levels of testing?

A37: There are two kinds of testing throughout the program: the IV&V testing at government facilities and the rounds of helicopter testing. The IV&V testing is optional. However, if you are interested in taking advantage of this resource, then you should assume the sensor will be away for testing for a period of one month. The performer team will not be required to be at the government facilities for this month.

The helicopter testing is mandatory. Performers should budget for at least three weeks total (one week each test) for the helicopter testing of Gen 1 and Gen 2 and the final demonstration of the Gen 3 sensor. Performers should plan for one week of travel on site per generation of helicopter test. The performers are required to be onsite for the duration of these tests.

Generation 1 and 2 Test Clarification

Q38: Are the generation 1 and 2 tests able to be conducted with component level systems rather than an integrated system and can the milestones be fulfilled with a local testing location?

A38: Generation 1 and 2 tests (as related to the milestones) will be conducted with integrated systems at government-controlled locations using the government-provided platforms. Performers are free to conduct their own local tests with various levels of developments.

Oral Presentation Attendance

Q39: Is there a max number of attendees for the oral presentations? Are subcontractors allowed to attend?

A39: Proposers should bring as many attendees as necessary to provide a comprehensive presentation and response to the Q&A session.

As stated in the solicitation Attachment D: “Oral presentations will be held in person with a Microsoft Teams option for sub-contractors.” Primes are responsible for making sure their systems, as well as any subcontractor systems, are in compliance with NIST 800 standards for handling CUI for the presentation.

Sub-contractors may attend in person if the proposer team deems it necessary for a comprehensive presentation.

Proposers should inform the RoQS team of the proposed number of attendees and names as soon as that is identified. It is requested this information be provided no later than March 24th, 2025, at 4 PM ET.

Page Limitations

Q: In Attachment D: Volume I Template (Technical and Management), the table of “Written Content Page Limits” does not specify whether Section 7. Capabilities is included in the 10-page limit or not. Can you please provide guidance?

A: Section 7. Capabilities is not included in the Written Content 10-page limit.

Certified Cost and Pricing

Q. Is a Certificate of Current Cost and Pricing Data required to be submitted?

A. No.