DARPA-PS-26-126

Radiofrequency Architectures Applying Photonic Timing and Routing (RAAPTR)

Question and Answer (Q&A)

Version 1

7/1/2026

Q1. [Eligibility] Can Government labs, university affiliated research centers (UARCs) and federally-funded research and development centers (FFRDCs) participate as performers?

A1a. Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and Government Entities to include National Laboratories are not eligible to function as performers in the RAAPTR program, either as a prime awardee or as a subcontractor.

Q2. [Eligibility] Can an entity propose to RAAPTR without having received the CUI Addendum?

A2a. Entities who have not requested and been provided the RAAPTR CUI Addendum by DARPA are not eligible to lead a proposal effort as the prime proposer. However, such entities are not prohibited from functioning as sub-contractors for an eligible prime proposer.

Q3. [Eligibility] Can an entity without CUI-compliant computer systems receive the CUI Addendum?

A3a. The CUI Addendum will not be provided to entities without computer systems rated for CUI materials. If necessary, DARPA may be able to provide the CUI addendum via classified communication channels on a case-by-case basis. To request the CUI Addendum in this manner, please email the RAAPTR inbox (RAAPTR@darpa.mil).

Q4. [Eligibility] Can separate divisions within a company submit their own separate proposals to the RAAPTR program?

A4a. Yes, separate divisions within a company may submit separate proposals. However, if the divisions utilize separate CAGE Codes, ensure they each independently abide by the Eligibility requirements found in section V of the RAAPTR Program Solicitation.

Q5. [Eligibility] Can an entity participate in more than one proposal as a subcontractor or prime?

A5a. There are no limits to the number of abstracts or proposals on which one entity may participate. However, in order to lead a proposal as the prime proposer, the entity must have requested and been provided the RAAPTR CUI Addendum by DARPA.

Q6. [Eligibility] Must the proposal include a prior participant in the GRYPHON program as a RAAPTR team member?

A6a. No.

Q7. [Eligibility] Can a faculty member who is affiliated with an FFRDC be allowed to partner with a proposing team?

A7a. Yes, provided that the faculty is not performing the research through the FFRDC. Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and Government Entities to include National Laboratories are not eligible to function as performers in the RAAPTR program. Individuals with multiple affiliations may choose to propose under an eligible CAGE Code with which they are affiliated.

Q8. [Scope] What restrictions are intended for the oscillator? Does it have to be photonics-based or is the program agnostic to the underlying oscillator technology? Does it have to be optical at all?

A8a. The oscillator may be, but is not required to be, composed of integrated photonics. Other optical methods, such as optical fiber-based oscillators, may also be considered. In either case, oscillators developed must meet all program metrics. Specifically excluded is research that advances non-optical methods of microwave generation.

Q9. [Scope] Does oscillator frequency need to be tunable?

A9a. The oscillator frequency is not required to be tunable. Proposers must select an output frequency within the specified band, and this output frequency may be fixed if the proposed use case does not require tuning. Proposals for use cases that require dynamic frequency tuning from the oscillator should include a rationale for how this functionality could be addressed by the program. Whatever frequency is chosen for the oscillator, whether fixed or tunable, the oscillator must meet all program metrics, including frequency-scaled phase noise (see footnotes to the metrics table in the Program Solicitation for more information).

Q10. [Scope] What are the opportunities for expansion of scope in phase 2?

A10a. DARPA intends to use the transition from Phase 1 to Phase 2 to finalize the application space of RAAPTR technology, with the potential for added work towards system-level demonstrations (e.g., an optically enabled radar) based on the architectural designs developed in Phase 1.

Q11. [Scope] Can the proposal identify potential applications or technology transition paths?

A11a. Systems proposed will be evaluated based in part on their ability to utilize optical devices to overcome known capability gaps inherited from legacy electronic devices, and

in a manner to achieve performance levels otherwise not possible with conventional electronic means. Hence, proposals must indicate one or more intended use cases for the proposed technology. Technology transition paths into Government or commercial use cases are not required in the proposal, but may contribute favorably to DARPA's evaluation of the proposal.

Q12. [Scope] Must the team working on oscillators make use of oscillators that came from the GRYPHON program?

A12a. No.

Q13. [Scope] May proposers pursue stretch goals over and beyond the metrics of the solicitation?

A13a. Proposers are welcome, but not required, to define their own additional metrics beyond the RAAPTR program metrics, so long as a rationale is provided to justify such additional metrics.

Q14. [Scope] Can we introduce radically new concepts to suppress vibration effects?

A14a. DARPA welcomes innovative concepts, provided they represent a plausible path to meeting program metrics within the time constraints of the program.

Q15. [Scope, Classification] Is fundamental research required within the project?

A15a. No. If relevant for the proposed work, proposers should identify the scope of fundamental research based on the guidelines provided by the RAAPTR CUI Guide.

Q16. [Scope, Classification] Is non-fundamental research required within the project?

A16a. Yes, non-fundamental research is required within the project per the RAAPTR CUI Guide. For example, rugged oscillator designs targeted in the program will be protected information.

Q17. [Classification] Are non-hardened variants of RAAPTR oscillators CUI?

A17a. No, the CUI Guide does not designate RAAPTR oscillators as CUI unless they meet environmental metrics.

Q18. [Classification] Are non-integrated demonstrations of RAAPTR oscillators, i.e., tabletop testing of photonic elements connected by fiber, designated as CUI?

A18a. No, the CUI Guide does not designate RAAPTR oscillators as CUI unless they meet environmental metrics.

Q19. [Metrics] Is the vibration metric intended to apply during operation of the system, or does it merely indicate the device must survive this level of vibration?

A19a. The device must be operational and meet program performance metrics while exposed to the environmental conditions listed within the metrics.

Q20. [Metrics] Must oscillator timing performance be traceable to a primary US timing standard?

A20a. No.

Q21. [Metrics] Are there any metrics or requirements for time transfer in a proposed system?

A21a. As specified in the program metrics table, the oscillator must maintain at most 1 picosecond timing deviation over intervals from 1 to 100 seconds. Also stated in the metrics table is that at any point in the analog RF system architecture, measured time deviation must be no more than 3 dB worse than the oscillator itself. This would allow for no more than 1 picosecond timing deviation relative to the oscillator's direct output over the intervals from 1 to 100 seconds. If an architecture is proposed involving multiple platforms physically remote from one another, this requirement would apply to timing deviation measured at any point in the analog RF system on any of the platforms.

Q22. [Metrics] Is humidity a metric?

A22a. Humidity is not a metric for the program. However, proposers are welcome, but not required, to define their own additional metrics such as humidity, provided a rationale is given to justify such additional metrics.

Q23. [Final Testing] Must the proposal describe the final demo?

A23a. The Government team will coordinate and execute the final test event. Performers will be provided with the information necessary to prepare for the test event. All test data will be collected and post processed by the Government team. Proposals should include the necessary tasks and costs to deliver the hardware prototypes and support the Government team in integrating the prototype into the final demo. Particular technical steps and challenges that the proposed approach presents to the final demo may be helpful to the proposal reviewers.

Q24. [Final Testing] What will constitute the airborne flight testing? Can performers provide their own platforms for such tests?

A24a. The airborne flight testing will be defined during Phase 1. Proposers may include their own platform for complementary testing to the Government furnished platform.

Q25. [Government Team] Will there be a separate call which will come out related to the Government team?

A25a. No. Entities interested in participating on the Government team are welcome to reach out to DARPA via RAAPTR@darpa.mil.