

N00014-17-S-B008 Electronic Warfare Technology Amendment 0003

The purpose of Amendment 0003 to BAA N00014-17-S-B008 to respond to questions submitted prior to 25 January 2017, and to amend the BAA.

1. The following provides questions and responses:

Research Area 1

Q1: The Government cited a large spectral band of interest from UV to LWIR. Is ONR looking for a single active source that covers the full spectral band, or can multiple sources be used?

A1: Preferred solution is a single source. However, multiple sources are permitted as long as they can be combined and exit through a single, common aperture.

Q2: Does the Government have specific performance metrics for active sources, e.g. fluence, etc.?

A2: No. Offerors are encouraged to submit white papers stating what they anticipate their idea may be able to provide if successful.

Q3: The BAA mentions conformal/aircraft skin integration for ideas, does this mean the Government is not interested in solutions that may be integrated within a pod?

A3: Integrating solutions in a pod configuration is not precluded. The intent is to minimize SWAP as much as possible along with satisfying environmental conditions such as thermal, shock & vibration, etc.

Q4: If multiple active sources are used, is the real requirement that the beams be combined/overlapping at the target, or within the SSD?

A4: The Government requires combining/overlapping multiple sources at the target.

Q5: For active sources, is the Government interested in only having a single line/wavelength within each spectral band (UV through LWIR), or is the desire to have a continuous capability within each spectral band of interest?

A5: The Government's preference is to have multiple lines/wavelengths within each spectral band that can be tuned as necessary, and are able to be transmitted through the atmosphere.

Q6: To what extent is the Government expecting Offerors to develop windows?

A6: The Government does not expect offerors to develop windows. The focus of the SSD is on multi-wavelength sources and non-mechanical beam steering, not in developing windows.

Q7: Will the Government consider proposed solutions that utilize a phased-array of emitters, or just a single source/emitter?

A7: Offerors are encouraged to submit their particular solution as a white paper for evaluation by the Government.

Q8: Is the 120 degree requirement for azimuth, elevation, or both?

A8: The threshold requirement is 120 degrees in azimuth & elevation (conical), and the objective value is 180 degrees in azimuth & elevation (hemispherical).

Q9: For scanning within the desired field-of-regard, does the Government prefer a continuous capability, a stepped solution, or a combination of both?

A9: The Government encourages an Offeror to submit a white paper of their proposed idea for evaluation.

Q10: For an EO/IR beam steering approach that is extensible to multiple bands, would demonstration at a single band be compliant?

A10: No. The Government requires that the demonstration will provide the Government the ability to witness the subsystem's full end-to-end EW capability including operation in multiple bands.

Q11: What guidance can you give us about the extent of the system demonstration necessary for the EO/IR beam steering SSD?

A11: It is required that the subsystem demonstration will show the developed capabilities of the EW subsystem in either a relevant or simulated environment. For Area 1, a simulated environment can be interpreted as one that will demonstrate the subsystem's characteristic capabilities (e.g., power levels, divergence, pointing accuracy, pointing speed, pointing stability, etc.).

Q12: Regarding Research Area 1, does the reference to "future tactical implementation on SWAP constrained platforms refer to tactical (high speed) jet aircraft, or helicopters or both? Does this reference exclude ship applications?

A12: The intent of the reference was to describe the Government's desire that the developed EW capability could eventually be used on SWAP constrained platforms with stressful environments (i.e., vibration, temperature, etc.). These environments could include jet aircraft, helicopters, and ships.

Q13: Regarding Research Area 1, should the beam steering subsystem be designed as a laser only "pointer" or be sized to function as a combined laser and sensor "transceiver" architecture?

A13: The requested BAA capability is for only a laser beam steering transmitter. However, dual-use technology applications provide benefit to the Government and could be evaluated as part of Technical Factor 2.

Q14: Regarding Research Area 1, should it be assumed that the laser subsystem will be external to the beam steering subsystem and will be fiber optically coupled to the beam steering subsystem?

A14: No. The design of the complete subsystem should be determined by the offeror's capabilities.

Q15: I would like to ask you about the Topic 1, EO/IR on Multiband laser system. Are you intent that all the co-linear beam should come out from single aperture Fiber? Can we partner with University and small company?

A15: Please review the answers to Q1, Q4, & Q29 in this amendment.

Q16: The text in the first paragraph of 'Area 1' indicates SSD's in RF, mmW and EO/IR are desired. But the details of the 2nd / 3rd paragraphs indicated UV to LWIR are the true targets. The system that I would propose is an RF application for non-mechanical steering and potentially very wideband performance. And although I welcome any opportunity for potential funding, I don't want to prepare and submit a white paper if it's completely off the mark from where your target area is. Could you please confirm that either (a) applications from UV to LWIR are preferred or (b) all SSDs for advancement of beam steering at multiple wavelengths across the spectrum are being sought?

A16: Research Opportunity Area (ROA) 1 is addressing the EO/IR from UV to LWIR. The focus is not on RF. The first paragraph in all SSDs is common to all SSDs and mentions a variety of EM bands because ONR does not want to preclude any technology that might help with satisfying the requirements from the ROAs. Innovative ideas for an RF application for non-mechanical steering fall under ROA 5.

Research Area 2

Q17: There are no metrics provided in the BAA, does the Government have a preference on the type of system-level impacts it is looking for, or a prioritization on ES, EA, or EP capabilities?

A17: The Government is in search of ideas that move beyond solutions that utilize static libraries, and pre-programmed EA responses. Solutions that cover ES, EA, and EP are ideal, but ideas that are innovative in a single capability area are also encouraged.

Q18: For the surface domain, can solutions include off-board, or must it remain on ship?

A18: Solutions can be both off-board and on-board.

Q19: Is the Navy seeking similar Army "CREW" type of technologies such as "Communications while Jamming" and "Cosite Mitigation"?

A19: The Government is in search of ideas that move beyond solutions that utilize static libraries, and pre-programmed EA responses. Solutions that cover ES, EA, and EP are ideal, but ideas that are innovative in a single capability area are also encouraged.

Research Area 3

Q20: Could you please clarify ONR's desire on "EW networking," i.e. the Government is not interested in developing a new network?

A20: ONR is not interested in performers developing/building a network for EW purposes. Rather, the objective of this area is to explore, identify, and define the parameters and techniques required to provide a fundamental networked EW capability. This objective area seeks innovation that advances the capability, reaction, and coordination of networked EW assets rather than management of existing assets or creation of a new communications system. Innovation is expected in which specific capabilities of networked EW substantially exceed that of the individual assets acting alone (see the Research Opportunity Area 3 description in the BAA). The Government is interested in knowing what kind of innovative EW capability/-ies can be delivered using a network. As an example, in comparing what EW innovations can be obtained with legacy vice "new" networks, Offerors may determine that using an existing network architecture with quantifiable metrics (e.g. latency, throughput, etc.) along with their innovative idea may provide the Navy with "EW Capability A." However, if the Navy had a network architecture with metrics/parameters x, y, and z, then along with their innovative idea, an Offeror could provide the Navy with "EW Capability B and/or C." The intent is to help ONR determine what innovative EW capabilities are possible when a network is present.

Q21: Area 1 limits operations to UV ↔ LWIR, but Area 2 discusses RF-EO/IR. Do other Areas 3 & 5 include RF or are they limited to UV ↔ LWIR?

A21: Areas 3 and 5 include RF and EO/IR.

Q22: The BAA uses “instantaneous” with respect to response times, can the Government elaborate or provide a desired performance value?

A22: The definition of “instantaneous” depends on the application. The Government recommends that an Offeror state what their expected solution will be able to accomplish/provide if successful.

Research Area 4

Q23: Is the Government precluding approaches that utilize the “brute force” method described in the BAA?

A23: “Brute force” techniques are already known, and the intent of this research area is to develop new innovative ideas that haven’t been considered before. However, if an Offeror believes that their approach innovates traditional “brute force” methods/techniques, then the Government encourages an organization to submit a white paper for evaluation.

Q24: Is the Government interested in developing technologies under this research area that conceal, camouflage, etc.?

A24: The Government encourages an organization to submit a white paper of their idea for evaluation.

Q25: Can ONR provide definition of or specifications for the term “brute force techniques” for denying imaging sensors?

A25: For the purpose of this BAA, “brute force techniques” could include countermeasures that saturate or damage the imaging sensor to be traditional techniques and not innovative or cutting-edge. If Offerors have a technique that falls outside what is considered “traditional”, they should consider submitting a whitepaper.

Research Area 5

Q26: Is there interest in exploring the unique temporal behavior of optical (EO/IR) sources? Temporal behaviors are not known a priori, but distinct enough to classify, and to differ from clutter.

A26: Yes. Area 5 is specifically included to solicit truly innovative ideas that can provide game-changing EW capability.

Q27: Area 1 limits operations to UV ↔ LWIR, but Area 2 discusses RF-EO/IR. Do other Areas 3 & 5 include RF or are they limited to UV ↔ LWIR?

A27: Areas 3 and 5 include RF and EO/IR.

Q28: Is the Navy interested in innovative RF technologies that include "Continuous RF Spectrum Monitoring", "Digital Pre-distortion Technologies", "Interference Cancellation" (Digital/Analog) technologies?

A28: Yes. Area 5 is specifically included to solicit truly innovative ideas that can provide game-changing EW capability, especially if these subjects have not been thought of previously or developed previously.

General Questions

Q29: It appears that Industry & Government have two solicitations in order to respond with different submission dates, should Industry team with Government/Academic organizations instead of submitting stand-alone white papers? Is there a preference for being on a Government team, or stand-alone?

A29: There are two solicitations, one to Industry/Academia and one to Government/FFRDCs who are prohibited from responding to the BAA. Both solicitations have the exact same research areas, white paper content requirements and submission date and use the same technical evaluation factors. The goal is to receive as many white papers as possible from the entire S&T community, and then down-select through the Government's source selection process. No preference is given for white papers received from one organization over another; ONR is using the evaluation criteria in the BAA to select and fund projects. It is up to each organization to determine if a teaming arrangement is in the best interests of the project/white paper. Additionally, if a teaming arrangement is made, only the team lead (prime) organization should submit a white paper via the appropriate solicitation; each team member should not submit an individual white paper for the same idea.

Q30: For Research Areas 1 & 2, is the intent only to leverage technologies that have already been developed with no additional S&T development conducted by an Offeror?

A30: No, the intent is to leverage previously developed technology, but that does not preclude an Offeror from submitting an idea that requires additional development to deliver an innovative EW capability to the Navy/Marine Corps. For example, an Offeror may plan on using two components for their SSD that have already been developed and also propose new development of a third component in order for the SSD to succeed.

Q31: For SSDs, what is the Government's requirement in proving EW capability/functionality, e.g. is conducting an analysis of the amount of energy delivered on target sufficient, or is a demonstration required?

A31: As per the BAA, a government-witnessed demonstration in a tactically relevant real or simulated environment is the required method in proving capability/functionality.

Q32: If a company that has been primarily focused on commercial applications believes its products may support one or more research areas, does the Government have any advice on how to bring those products forward within the defense industry, academia, or Government organizations?

A32: If in doubt, submit a white paper for evaluation under this BAA. In general, the company is encouraged to reach out to various organizations it believes may benefit from their commercial technologies. Small Business are encouraged to contact the Agency Small Business Director. Note that ONR issues an annual Long Range BAA that also provides an avenue for submission of research proposals as well as information about program officers to contact to discuss areas of potential research. The Long Range BAA is available on the ONR website <https://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx> (solicitation number: N00014-17-S-B001).

Q33: For SSDs, is the Government interested in receiving the hardware that was developed as a deliverable?

A33: Yes.

Q34: Does the \$27M in funding that's listed in the BAA cover white papers submitted by Industry, Academia, and Government, or is there separate pots of \$27M each for the BAA and Government solicitation?

A34: The anticipated \$27M funding level is all-inclusive for Industry, Academia, and Government; there is a single pot of funding.

Q35: For research areas 1 & 2 (SSDs), can the Government specify the Technology Readiness Level (TRL) that it expects Offerors to satisfy?

A35: For SSDs, the Government expects solutions to be demonstrated at TRL 4/5 with a goal of TRL 6.

Q36: With cost as an evaluation criteria, would the Government consider receiving multiple white papers from the same performer within the same research area, or is it better to submit a single white paper with numerous options that the Government could select?

A36: The Government will not cherry pick/select specific solutions within a white paper for funding; either the entire white paper will be funded, or none of it. Additionally, each white paper/idea needs to stand on its own merits. The Government will not entertain white papers that provide a piece of the overall capability being delivered, but requires the Government to fund all/portion of the white papers submitted in order to realize that capability. There is no limit on the number of white papers that an Offeror can submit under the BAA, or within a research area.

Q37: Does the Government have an idea of how many awards it will make in each research area, or how much funding will be available for each research area?

A37: No. The Government is using the evaluation criteria stated in the BAA for its source selection process. The number of awards will depend on the quality and cost of those proposals submitted. With that said, it is anticipated that research areas 1 & 2 may require larger funding amounts, which may impact the number of projects/funding available in the other research areas. However, the overall funding level available for this BAA is dependent upon the approved FY18 budget.

Q38: Is the funding numbers requested in the white paper for a ROM cost estimate, or is it a not-to-exceed value if a final proposal is submitted?

A38: The funding level provided in the white paper is a ROM cost estimate used for planning purposes. If a paper is invited to participate in the oral proposals phase, then the Government understands that a revision/refinement to the ROM estimate may occur as an Offeror should have more information available on the true costs of execution. If the Government requests a final proposal from an Offeror for their idea, then it is understood that the cost estimate from the oral proposals phase may require a final adjustment. However, if there is a significant cost growth between the initial white paper ROM estimate and what is finally quoted in the final proposal, the Government does reserve the right not to fund that effort based on the cost increase.

Q39: For the research areas, does the Government have specific platforms in mind for where technologies will be integrated in the future, e.g. airborne, surface, ground, etc.?

A39: The research areas provide information in the BAA regarding anticipated platforms where technologies may be integrated in the future. For example, research area 2 is focused on surface platforms. Hypothetically, an Offeror may propose a technology that may have applications on a variety

of Naval and Marine Corps platforms. This should be addressed in the proposal as part of the Operational Naval Concept (where applicable).

Q40: How long do Offerors have to submit written questions?

A40: Please reference the BAA for instructions on submitting written questions and timeframes. The Government will respond to late questions where possible, but questions received within two weeks of proposal receipt date may not be addressed.

Q41: With respect to attachment 1 in the BAA, how should Offerors provide information on the technologies they plan on leveraging? Should the information reside solely in attachment 2, within the white paper, etc.?

A41: Complete Attachment 2, which is the required method for identifying what technologies you plan on leveraging with your solution. The Government expects a brief description in Attachment 2.

Q42: Is the funding level anticipated for Research Area 1 & 2 higher than Research Areas 3, 4 and 5 since they require subsystem demonstrations?

A42: See response to Q37 in this amendment.

Q43: If a company wants to submit three separate white papers with different team structures will that company have three separate accounts on the FTP site?

A43: No. This will be handled by establishing a folder structure to control which companies have access to which folders. The primary company will have access to all three folders along with those companies that are collaborating on that specific white paper. The primary company will tell us which companies should and should not have access to the folders established for their account.

Q44: If a company has multiple papers in the same technical area how do you manage that?

A44: This will be handled by the file name convention.

Q45: Will all users within the same company share the same Userid and Password?

A45: No. Each person will have their own Userid and Password but they will all have access to the same folder if that is what is requested by the company.

Q46: The BAA lists a page limit for the white paper. If you have multiple partners collaborating on a single paper will each partner have their own number of pages or is the entire white paper limited to six total pages?

A46: Each white paper shall be limited to six pages total irrespective of the number of companies or partners on the team.

Q47: If the way of demonstrating that a team is being formed is based on a letter of intent would that be counted against the six page limit for the White Paper?

A47: Letters of intent would be acceptable. They would not be counted against the page limit. See amendment 2(c) below.

Q48: Is it possible for contractors to team with government agencies or FFRDCs and if so, is it whoever the prime is that dictates which BAA you submit to?

A48: See question Q29 in this amendment regarding teaming. If the prime is a government agency, proposals shall be submitted under the parallel solicitation. If the prime is from industry or non-profit/educational institution, submit proposals under the BAA. Requirements related to funding shall be spelled out in the White Paper.

Q49: Are ITAR restrictions determined by the proposer or the area of the BAA?

A49: The proposer is responsible for conforming for all ITAR restrictions. See BAA Part III, Section F for additional information.

Q50: Please provide guidance on the font size used in graphics.

A50: There is no limit on font size on graphics. See amendments 2(b),2(e), & 2(f) below.

Q51: If test facilities of a Navy lab or government facility are required for your effort is that lab or government facility now considered part of the team under a prime agreement or is that a service for hire that's to be negotiated downstream once an award is made?

A51: The Offeror is responsible for determining the approach for use of test facilities. All services contemplated under the contract shall be included (and priced) in the proposal.

Q52: You are encouraging us to leverage previous work. Are the previous awardees mandated to provide us the status of their programs so we can determine the maturity of it so we can determine if it would fit within what we want to propose or is there a website?

A52: No, there is no requirement for them to participate. The Government coordinated with previous awardees to obtain project titles and POC info for potential offerors to discuss possible collaboration.

Q53: Would ONR be willing to assist in the securing of known government furnished equipment or test equipment/facilities to support our field demonstration?

A53: See page 39, Section VII, paragraph B.i. and page 21, paragraph b.ii. "Technical Approach and Justification".

Q54: I am requesting a DD254 be issued that allows us to work this proposal effort to include a collaborative subcontractor.

A54: Offerors should include information sufficient to prepare the DD254 in their proposal.

Q55: If one were to propose a "shield" like on Dr Craig's old slide, would a single year TRL2 "seedling" that, if successful, could be followed by a subsequent proposal be more appropriate than a multi-year proposal now? Put another way, are funds under this BAA going to be fully committed at the outset?

A55: No, the Government does not intend to fund a single year seedling effort with the intention of a subsequent proposal. Each idea or paper must stand on its own merit. Offers must layout an entire multiyear program in their white paper submission.

Q56: The BAA (N00014-17-S-B008) on your website ... said that Navy Laboratories were not eligible to receive awards. However, I recently received a copy from my division superintendent that indicated that Navy labs were eligible. Is NRL eligible?

A56: See response to Q29 of this amendment.

Q57: Question on BAA N00014-17-S-B008 Electronic Warfare Technology. Does the Page 13, Paragraph 2 statement "If a classified proposal is submitted and selected for award, the resultant contract will be unclassified." mean:

- (a) no classified work can be performed under an issued contract, or
- (b) any contract and SOW document must be unclassified (but classified work is permitted)?

A57: The latter, (b), is correct. Any resultant contract and SOW document must be unclassified, but classified work is permitted.

Q58: Do you release statistics on the amount of funding allocated in the D&I projects?

A58: This information is not relevant to the current initiative, as the research areas requirements differ from past efforts.

Q59: Can you please put me on your distribution list for announcements?

A59: There are no e-mail distribution lists for BAA announcements. Please monitor the ONR website, FedBizOpps, or Grants.gov for amendments to the solicitation. In regards to FBO, potential Offerors can set up a 'Watched' list on FBO which is list of solicitations that will allow them to receive e-mail notifications when they receive updates. Refer to the Vendor User Guide located on www.fbo.gov for instructions on setting up a 'Watched' list.

Q60: Are you able to provide feedback on a concept prior to us submitting a white paper?

A60: No. This is an active, competitive procurement.

Q61: You mention in the call that you will be selecting a government integrator. I would be interested in having my group support integration if there is a project that fits well with our RF Technology and Test capabilities.

A61: This question falls outside the scope of this BAA.

2. The BAA is hereby amended as follows:

(a) Page 4, Part I, Section F – Under “Area 1 – Subsystem Demonstrator for EO/IR Beam Steering at Multiple Wavelengths”, insert the following language to the end of the third paragraph: “The Government requires combining/overlapping multiple sources at the target. It is required that the subsystem demonstration will show the developed capabilities of the EW subsystem in either a relevant or simulated environment. For Area 1, a simulated environment can be interpreted as one that will demonstrate the subsystem's characteristic capabilities (e.g., power levels, divergence, pointing accuracy, pointing speed, pointing stability, etc.).”

(b) Page 15, Part IV, Subsection B.a – Under “White Paper Format”, insert the following after “Font: Times New Roman, 12 point”: “There is no font size limitation for graphics.”

(c) Page 15, Part IV, Subsection B.a – Under “White Paper Format”, revise the parenthetical comment to read as follows: “(excluding cover page, resumes, bibliographies, table of contents, Letters of Intent, and Attachment 2)”

(d) Page 16, Part IV, Subsection B.a – Under “Technical Concept”, insert the following after the first sentence:

“ White Papers must address the following:

1. Project Manager and/or Principal Investigator
2. Relevance to BAA Research Opportunity Description and specific sub-section(s) being addressed
3. The technical objective of the proposed effort
4. The technical approach that will be pursued to meet the objective
5. The anticipated deliverables at the successful completion of the effort
6. A summary of recent technical breakthroughs that will reduce risk; and
7. A clear and complete description of how the proposed approach compares to the current state of the art.

(e) Page 17, Part IV, Subsection B.b.i – Under “The format requirements for attachments are as follows:”, insert the following after “Font - Times New Roman, 12 point”: “There is no font size limitation for graphics.”

(f) Page 20, Part IV, Subsection B.b.ii – Under “Full Proposal Format – Volume 1 - Technical Proposal, and Volume 2 - Cost Proposal”, insert the following after “Font: Times New Roman, 12 point”: “There is no font size limitation for graphics.”

3. All other terms and conditions remain unchanged.