

LR-ASM BAA 08-41
Questions and Answers
8 July 2008

(Additional questions received since 6 June 2008 posting.)

- Q: Section 4.2.1 on page 9 of the BAA states proposers should submit questions and requests to email address BAA-08-41@darpa.mil, but on page 14 of Section 4.3 refers to email address BAA08-41@darpa.mil. Would you please verify which email address is the one we should use?*
- A: The correct email address is BAA08-41@darpa.mil.
- Q: The specific target platforms specified in Annex A seems to omit some high performance threat systems that may be applicable to the LR-ASM challenge. Should we evaluate our approach against these unspecified, but applicable threats?*
- A: Yes. The intent of Annex A is to provide a representative baseline threat with flexibility for proposers to demonstrate robustness against more capable and integrated threats than the exemplary target alone. If there are other threat platforms or systems consistent with the operational context described in Annex A that would be more challenging or more applicable to a particular technical approach, proposers are encouraged to illustrate their expected performance against these threats.
- Q: The annex requires target "classification", but seems to have an inconsistent definition which indicates a much higher level of capability. Please elaborate on the definition of the ship classification. Do you want "classification" or is there a more appropriate description?*
- A: The target classification goal specified in the BAA Annex is intended to be a measure of correct classification by a seeker of a specific class of ship amongst a variety of non-target ships (combatant and non-combatant), not the identification of a specific hull. Using U.S. ships as an example, the goal includes the ability to distinguish between Arleigh Burke and Kidd class DDGs, but not necessarily DDG-51 from DDG-52.
- Q: The scenario in the BAA seems to state the requirement to identify a specific type of target. Other similar targets are to be ignored. While there is value in striking high value targets, tactics indicate that all are viable targets. If the specific target is not found but similar targets are, is aborting the mission a realistic alternative? Is our understanding that striking THE target or abort is an accurate understanding of the requirement?*
- A: It is critical to demonstrate that proposed approaches have the ability to recognize specific intended targets with high confidence. For the purposes of the solicitation this has been simplified to a single exemplary target, with the intent that developed and demonstrated performance can be extrapolated to a reasonable range of other relevant targets. The ability for the weapon to execute a prioritized target list with additional secondary targets would be valuable, but the weapon must demonstrate

the capability to safely divert if no designated target is identified. While proposers may show their seeker's capability against a prioritized list of multiple targets, they should still clearly document their expected capability against the specific exemplary target.

Q: Is the recognition requirement intended to be used as a means of target de-confliction? Are other means of solving de-confliction acceptable alternatives?

A: No, de-conflicting multiple missiles against multiple targets is not the intent of the recognition requirement. Proposers are encouraged to illustrate de-confliction methods applicable to their approach.

Q: Section 4.2.3 Section III item B requests "consideration of weapon procurement and lifecycle costs, weapon certification requirements". Can you expand on your requirements for "weapon certification costs"?

A: An objective of the program is to demonstrate an integrated prototype capability with the potential for rapid transition to acquisition and fielding. Proposers are encouraged to detail their understanding of the requirements to achieve that objective and the suitability of their proposed approach to satisfy those requirements. While explicit certification costs will not be funded in the scope of the S&T effort, design for certification and operational transition should be addressed at proposal, PDR, and CDR stages. Proposers are also encouraged to identify opportunities for coincident S&T testing and certification risk reduction.

Q: Section 8.4.2 specifies "system must be capable of operating with degraded or denied GPS during the terminal phase. See Annex A for additional details". Can further information be provided regarding the nature of GPS degradation or denial?

A: It is infeasible to explicitly define GPS denial parameters for all possible LR-ASM approaches. While robust anti-jam GPS performance is desired, this is not anticipated to be a primary driver of system performance relative to the desired operational characteristics. Proposers should make operationally plausible assumptions regarding GPS degradation and denial specific to their technical approach within the context of Annex A, section A.2.1. Additional relevant information is provided in various parts of Annex B; most specifically in Annex B.2.2.8.

Q: Section 4.2.3, Section II item C requests "measurable critical milestones should occur approximately every 6 (six) months after start of effort. These payable milestones should demonstrate readiness to continue into the next part of the effort." Can some payments be time based?

A: Payable milestones are only applicable to fixed price contracts. Any proposed payable milestone for a fixed price contract should be related to a specific technical accomplishment – i.e. performance-based. Measurable critical milestones are technical in nature. Should an offeror propose a cost-plus-fixed-fee contract, these milestones will not be used for payment purposes.

- Q: *According to paragraph 6.2.1, "Classified information at the confidential and secret level may only be mailed via U.S. Postal Service (USPS) registered mail or U.S. Postal Express Mail. (Ensure package will be delivered/received by DARPA during the work week and will not sit in post office over the weekend." For confidential and secret level classified material, please clarify if an offeror may only use the USPS, or if the offeror is allowed to hand carry and deliver the classified material.*
- A: Hand carrying of classified information by a qualified courier is an acceptable method of conveying classified material to DARPA.
- Q: *Can we provide a summary of agreements required for an offeror to execute the program? If you require copies of the formal agreement(s), since they can be lengthy; we recommend they be included as an attachment to Volume I, and excluded from the 50-page limit.*
- A: Yes, we require copies of teaming agreements and they are excluded from the page limit.
- Q: *In the event of a no bid with respect to BAA 08-41 what should be done with the classified materials?*
- A: The collateral classified documents provided under BAA 08-41 can be destroyed in accordance with NISPOM procedures when no longer needed, including any data transferred to other media. Unclassified documents provided under BAA 08-41 may be destroyed by any method that will prevent disclosure of their contents or reconstruction of data.
- Q: *What is the definition of "Single Round Probability of Mission Kill" or "Pk" as called out in Annex A to the BAA? Is this Measure Of Effectiveness (MOE) limited to the warhead's expected lethality at the weapon's terminal accuracy without consideration to weapon Reliability, Survivability, or Correct Target Classification and Engagement? Or does it also include the probabilities from all or some of these items - which ones?*
- A: "Single Round Probability of Mission Kill" is the probability that the warhead of an individual missile will have an impact resulting in a mission kill as defined elsewhere in Annex A. It is intended to be a measure of warhead effectiveness only, consistent with NSWCCD's definition, encompassing such factors as aimpoint selection and precision, but not encompassing warhead or missile reliability, survivability, classification, or engagement.
- Q: *Does the Probability of Kill (Pk) data supplied in document NSWCCD-66-TR-2008/03 include a built-in weapon reliability assumption or is this solely weapon lethality at the specified accuracy?*
- A: The Pk assumes the weapon has made it to the target and will detonate. The software only computes damage to the ship given a detonation.

Q: Lethality data in document NSWCCD-66-TR-2008/03 was specified for a number of potential LR-ASM warheads. Missing from these warheads were several important operational warheads including the WDU-36 (from Tomahawk), the Mk-125 (from SM-2) and WDU-44/45 combination (from JSOW-C). If available, request NSWCCD supply to the contractors warhead lethality data for these warheads against the targeted ship in order to avoid having offerers do their own (and different) extrapolations from the provided data.

A: NSWCCD is currently only starting to evaluate the WDU-36; but they think results will be similar to Harpoon Block 1C. As SM-2 is primarily a surface-to-air missile, NSWCCD has never had a request for SM-2 data. The SM-2 could be done if NSWCCD could acquire the needed information to model the warhead and hit accuracy. NSWCCD is currently working on modeling the warhead for the JSOW-C but does not expect it will be ready for effective analyses until FY09.

Q: In the ATR community Probability of Correct Classification $P(CC)$ is defined as the probability of determining the correct class of an object on a per-object basis. At the weapon system level, the probability that the weapon will commit to strike the correct target is often called Probability of Correct Engagement $P(CE)$. $P(CE)$ is directly dependent on $P(CC)$, but they aren't identical values. In an environment with a number of false targets, the weapon/seeker system can correctly classify the target, but incorrectly classify some false targets as targets and subsequent tie-breaking logic (or relative confidence) may cause the weapon to select one of the false targets to strike. In a high false target environment, $P(CE)$ can be considerably less than $P(CC)$. The BAA appendix defines a specification for Probability of Correct Target Classification, but it isn't clear if this is intended to be on a per-object basis (as per ATR community definitions) or intended to be a specification of Probability of Correct Engagement as defined above.

A: The "Probability of Correct Target Classification" specified in the BAA Annex is intended to be an engagement level measure of correct classification by a seeker of a target ship amongst a variety of non-target ships (combatant and non-combatant). By the definitions above, it is analogous to $P(CE)$.