SBIR 24.4 R5 Q&A Telecon Transcript
01 April 2024

- SOCOM244-006: Digital Projection Close Quarters Sight (DP-CQS)

SBIR Process Timeline
March 26, 2024: Topic issued for pre-release
April 10, 2024: USSOCOM begins accepting proposals via DSIP
April 30, 2024: DSIP Topic Q&A closes to new questions at 12:00 p.m. ET
May 14, 2024: Deadline for receipt of proposals no later than 12:00 p.m. ET

1. Could you describe the different phases and timelines please?
   This is a Phase I. The timeline for this is seven months. We have a new process for Phase I to Phase II. So ideally, we will be able to request Phase II proposals at about the six-month point. It will be one of the Contract Deliverables (CDRLS) and then the TPOC will determine if the Phase II will be anywhere from 12 to 24 months.

2. What are the smallest feature sub tension sizes for the ballistic hold reticle features?
   For a close-quarters weapon sight like this, we would suspect that 0.5 MRAD is going to be the smallest increments that anyone's going to want. Obviously, this will be driven by the projection technology you're using, but if you can hit 0.5 MRAD, or potentially maybe a little bit bigger than that, we suspect that would be fine. This should be included in your trade study

3. Which certifications are required (CSfC? Others?)
   We don't think that CSFC or network certifications are applicable for this effort. The intent is not to be interfacing with any sort of classified networks in any way. So that's not required here.

4. Is the intent to only provide a reticle / aim point?
   The intent is to be able to provide a reticle or an aim point/user configurable ballistic features such as drops or holds or wind dots. Depending on what the user wants and depending on the caliber and weapon that they're using. And to be able to import data from a weapon mounted laser range finder. There could be some alphanumeric text there as well to give range to target and potentially alphanumeric text to identify which reticle that user has selected currently.

5. What brightness is expected for the displayed features?
   Anything that is displayed needs to be bright enough that a user can see it in broad daylight. We don't have a specific nit or lumen level for that, but it does need to be viewable in broad daylight.

6. Minimum acceptable FOV through optic?
   With this being a 1x optic, we don't think we've got a minimum per se. It's based upon the window size. We're not looking for anything that's super soda-strawy, if that makes any sense. Ideally the shroud/housing around the optics should be as small as possible.
   The users do want to be able to have a decent sized field of view, but depending on the weapon platform, there could be uses to or applications where something that's a little bit smaller might make some sense. If you're looking on the commercial market, something similar to the

Aimpoint T2 or the EoTech sights, somewhere in that size. So, nothing giant, but something certainly bigger than like what you'd see on a handgun as well (such as an RMR).

7. Total windage and elevation travel desired for aiming point?
   We are looking for roughly 60 Minutes of Angle (MOA) of total travel. If you're centered in your adjustment, looking for around plus/minus 30 MOA. As long as you're close to that, we'll be good.

8. "DP-CQS shall communicate with external devices to receive range/ballistic data." Can this be a wired or wireless communication? Or both?
   Potentially could be both. There definitely needs to be the provision for a wired connection, but if it has the ability to be wired, it could also have the ability to be wireless in addition. The user is always going to want that wired fallback just in case they're operating in an environment that requires that. But if you feel like it adds value to provide a wireless solution in addition, that's fine.

9. Digital reticle color preferences - Red? Green? Etc.?
   We don't have a strong preference on this one. Some colors are better than others in certain environments, but there's always tradeoffs. Whatever you feel like you can make bright enough to be seen in broad daylight in all conditions.

10. Is there a list of these already approved external devices?
    I'm assuming this is going back to the interfacing with external devices and receiving information from. This is primarily going to be based upon the document titled INTERFACE CONTROL DOCUMENT (ICD) FOR WEAPON MOUNTED BALLISTIC CALCULATORS AND MICRO-DISPLAYS, REV-D', (usually referred to as the 'MSD-ICD). So MSD-ICD REV D is a document that we have in SOCOM. It's a pretty simple serial communications path that lays out the bits and the bytes. That's what all our weapon mounted laser rangefinders are compatible with. It's a distribution D document. Once we establish a Phase I SBIR effort, that's something that we would be able to provide.

11. Which weapon platforms are we designing for?
    Primarily, a site like this is going to go on weapons chambered in 5.56mm and 7.62mm. So, the MK18, the URG-I, or the MK17 (SCAR-H)

12. Add on to the FOV question: At what distance between eye and rear end of sight?
    Usually that's going to be around four or five inches. It's kind of user preference, but it's usually in that realm.

13. What Business Size can submit a proposal. Small, Medium, Large/. Is there a preferred NAICS code (North American Industrial Classification).
    Before any SBIR contract can be awarded, the small business concern must complete an online representation and certification application in SAM. Use the code noted in the solicitation 541715 when registering in SAM.

14. Resolution of reticle adjustment in terms of MILS/ MOA
    We'd be looking for around that one-half (0.5) MOA adjustments. That's typically been our standard in the past. As long as we can hit 0.5 MOA or finer, we'd be okay with that.

15. 72hr power supply at full "daylight bright" power levels?
    Yes. You need to be able to provide 72 hours of continuous runtime at maximum power.

16. Does the device need to be compatible with a rear mounted magnifier (3x, 5x)?
    Yes. The device should be compatible with a magnifier that would flip to the side behind it. That magnifier is not necessarily part of this effort, but it should be compatible with existing fielded devices.

17. Can you elaborate on ITAR requirements?
    That's not anything unique to us. ITAR restrictions do apply for this effort. I would recommend going to SBIR.gov. They have a lot of information on ITAR. It is something that can definitely be googled.

18. What are the desired operating temperatures and storage temperatures?
    Desired operating temperatures would be -20 Celsius to +60 Celsius and then storage temperatures, you'd be looking at -40 Celsius up to +71 Celsius.

19. When was the last time the ICD was updated?
    2019-02-05 is when it was last released. The current revision is revision D.

20. What is the height above rail for the center of the viewing area?
    1.535 inches is the standard height that we utilize for above the flat of the Picatinny (MIL-STD-1913 CHG 1) rail.

21. Budget for Phase-I?
    $175,000.00

22. How many 5.56mm or 7.62mm rounds should the sight be able to be fired with before any degradation in performance is allowed?
    10,000 rounds would be the target for this effort on the MK17/SCAR-H, which is a 7.62mm gun and in particularly a very severe 7.62mm gun.

23. QD clamp or screw/bolt clamping method preferred?
    We don't have a preference for this effort, so either would be appropriate.

24. Reticle(s) are expected to be fixed rendering or changeable on the go, meaning you can change it with programming?

The intent would be that the user would be able to connect a device, preferably an Android phone, and change the reticle. Not necessarily on the fly, but if he's sitting back at base, he would have the ability to customize for what he's doing. Ideally, there could be some pre-configured reticles – eg, if you're running a MK17, here's your reticle. If you're running a 300 Blackout PDW weapon, here's your reticle. But the user should be able to additionally configure those if desired. But that would be on a device separate from the DP-CQS, and they would get loaded to the DP-CQS via a wired/wireless connection.

25. Can you describe what progress you expect at the end of phase 1? Do we have a theoretical concept at that stage or HW mockups?
    In Phase I, you are producing a trade study. You should have investigated all your major technical challenges at that point, at least the concepts, to be able to present that trade study to the government. You can't propose to build prototypes with Phase I funding. It is all trade study research.

26. Anticipated budget for Phase II?
    That will depend. $1,363,000 is the estimated unless an IGCE is completed and the TPOC feels that more funds would be needed to complete what they need to do for the phase two.

27. You mentioned ATAK phone as a source of reticle upload. What is expected for ATAK integration? A widget within ATAK or?
    Allow me to correct myself – it doesn't necessarily have to be an ATAK plugin. A standalone Android application would also be okay.

28. How many awards do you plan to make for Phase I?
    At least one, maybe two. It depends on available funding and overall merit of the technical proposals we receive.

29. Who owns the design after Phase 2?
    This is probably another really good opportunity to utilize the SBIR.gov website. I believe there is SBIR-specific data rights.

30. Does the optic need to have the ability to adjust to different heights such as 2.26 centerline?
    We're not going to say it's required, but if the propose design can utilize different risers to reach different heights depending on the user's preference, that is likely not a bad thing.

31. How are patents protected?
    Check SBIR.gov. For SA, if you do have any programmatic questions, if you want to send an email to sbir@socom.mil, we can answer any of those programmatic questions. This Q&A should be for technical questions only.

32. How intelligent should the sight be in terms of ballistic compensation? for example: should the sight compensate for the shooter tilting/rolling the gun?

That's not necessary for this effort. Does not need to know the orientation of the gun. The shooter will make sure that he's oriented correctly before utilizing the ballistic drops or holds.

33. What is the operational or functional temp range should the device work in?
    As stated earlier, operational temperature is -20 Celsius to +60 Celsius.

34. Any specific weight or battery requirements?
    CR-123 or lithium AA (which is a L91) are the two batteries that we're interested in. We did not specify a weight for this phase one. That should be driven by the trade study and the technology that you're investigating.

35. Any requirements to work with an external power supply?
    No, that's not needed for this effort.

36. Which parameters will be evaluated during and at the end of Phase 1?
    It's just the technical merit of the proposed technology and your trade study at the end. Then as part of this phase one, you will develop a phase two proposal that will be evaluated.

37. Is there a specific brightness and dimness requirement for the displayed content?
    There's not a specific number like a lumen or nit level, but you do need to be able to see it in bright daylight and be able to dim it all the way down so it's not blooming out night vision goggles for use at night. So, a very wide range.

38. Any specific connector required to interface with other equipment?
    No, not at this time. No specific connector.

39. Is there a desire to display other information in the sight besides ballistics-related information?
    Not at this time. Just ballistic reticle hashes, tick marks, ballistic features, and then any additional alphanumeric text that the user may need such as range to target.

40. Does the device need to be compatible with LFU?
    We're not familiar with what you mean by LFU in this context. If you could add some clarifying information, hopefully we can answer your question then.

41. Regarding the description to "communicate with external devices to receive range/ballistic data", are you looking for an active disturbed reticle?
    Potentially. That's something that could have benefit to the USSOCOM operator. It's not called out in a requirement, but if that's something that you believe you're able to implement (if provided the range to target from an external device), then that's something that could be worthwhile.

42. Does the device need an ARD (Anti Reflective Device)? Does the device need to be compatible with LFU (Laser Filter Unit)?

No requirement to work with a laser filter unit at this time. As far as the anti-reflection, you should certainly have some sort of lens coating at the minimum to deal with reflections. There's no hard requirement for a honeycomb anti reflection device or anything on the front of it, assuming your lens coatings are appropriate.

43. Are there restrictions to which countries displays etc. may be manufactured in?
    There are not hard restrictions. However, if it is a foreign made component, we do need to get approval from the contracting officer in order to procure that. Obviously, key critical components coming from countries that may or may not be friendly to the United States are going to be looked on with a little bit more suspicion than a NATO country, for example.

44. For the reticle, should the user be able to manipulate each 'hash mark' manually? Or would it be desired for the reticle to be preset for each weapon system?
    The intent would be to have a pretty comprehensive preset list that the user can choose from and then allow a user, if he really wanted to, to have a custom reticle that allows him to manipulate each feature on that Android application or ATAK plugin.

45. What additional information would you want displayed other than reticle? Compass? Round Count? etc.
    That's going to depend on the proposed technology that you're using to display the information, what its capabilities are. Those are all good things to evaluate and explore in the phase one trade study, as our users evaluate and understand the technology that you're proposing and that you're performing the trade study on, if selected, that will help farther define the exact sort of information that the operators would want to see.

46. What communication standards are you looking for (Example: ISW, Bluetooth)? Does the unit need a manual switch to turn off wireless communications?
    We don't think that the unit needs a manual switch. It can be a software thing. It does need to be indicated in the user's field of view in the sight somewhere that wireless is enabled. Likely would be looking for Bluetooth communication for this, just due to the low data rate that's needed. We don't believe there's any other standard that makes sense.

47. Is it correct understood that Phase 1 should not exceed 7 months and that the possible financial award is 175 000 USD?
    Yes, that's correct. That is the current Phase I guidelines.

48. Is RMR size too small?
    Yes, in this case, that would be smaller than we're looking for this application.

49. To confirm, did you say manufacturer can develop their own app, as long as its compatible on Android?
    Yes, that'd be fine. It doesn't necessarily have to be an ATAK plugin. It can be a standalone Android application in order to develop or load the custom reticles.

50. Does the unit need to be compatible with Intra-Soldier Wireless?
    No, it does not.

51. Given the requirement for a 72-hour continuous battery runtime, what power management strategies are being explored?
    That's up to you to figure out. As part of the trade study, that's what we're looking for, details on how you plan to achieve (not only the digital projection part of the effort) but how you plan to achieve the runtime requirements as well.

52. Are there any specific requirements regarding EMC? Both radiated and susceptibility.
    Yes, there would be some specific MIL standards that would get communicated after the Phase I award, especially looking into the Phase II. However, it would not be expected that you would meet those requirements when operating in a Bluetooth mode, for example. If you have Bluetooth enabled and you're linked wirelessly to a weapon-mounted laser rangefinder, obviously you're going to be radiating emissions, but that's fine. In that case, when Bluetooth or whatever wireless communication is shut off, then that's when you need to meet those requirements.

53. 72 Hours continuous run time. At what power level? Does the device need a failover mode (Out of Power)?
    72 hours continuous runtime needs to be at maximum brightness. As far as a failover mode, if it's out of power, then it should just shut off. But keep in mind, this needs to be (as it states in the topic) a direct view optic. You still need to be able to see through it when the device is powered off. It should be essentially just clear glass that you're looking through when powered off.

54. What benchmarks are being set for improvement with the DP-CQS
    We haven't had a sight utilizing this sort of technology in the past. In that regard, we don't have any specific benchmarks that we're trying to improve upon. But certainly, both mechanical and thermal stability are two areas that we see this technology potentially having major impact in an improvement on over traditional red dot or holographic sights. Also, potential weight savings as well.

55. Do you need a reference or aiming point in a no power or out of power mode?
    No, that's not required for this effort. The operators will have backup iron sights on their weapon for that purpose.

56. Should the sight have any type of back up aiming feature for if the power runs out? Or is it planned to use weapon iron sights with co-witness?
    See answer to above question.

57. Should different type of information be able to be presented in different colors or is it enough with different intensities (if that is wanted)?

Different intensities is fine. If you think you can do different colors, even better, but that's not a requirement for this effort.

58. At what maximum target distance will the sight be used?
    You can expect somewhere between 600 and 700 meters at the maximum.

59. Is there any telemetry required for the future auto triggers?
    No.

60. Any concerns with IR Signature?
    No more than usual. Even just from a power perspective, the site shouldn't be heating up because if it's heating up a whole bunch, that means you're just wasting heat, which means you're wasting power. But there doesn't need to be any sort of active signature management.

61. Should the ballistic reticles be of well-known designs, or do you expect novel designs?
    There's no requirement to reinvent the wheel here. The standard hashes or tick marks, dots, chevrons are all appropriate.

62. Are you expecting Tremor3 type details, or basic drops with minimal pixel use?
    Basic drops would be more than likely fine for this sort of application, being a primarily close quarter site with the ability to reach out at longer ranges if needed. We don't need anything crazy here. Basic drops are appropriate.

63. What are the expected engagement ranges for this sight?
    Primarily, you should expect 300 meters and closer as the primary application. However, the ability to reach out to 600 or 700 meters would not be outside of the realm of possibility here.

64. For the BDC reticle, what is the desired zero distance?
    25 or 50 meters. We've utilized either in the past.

65. What calibers are expected to be used?
    5.56mm or 7.62mm are the primary rounds. And then in addition, 6.5 Creedmore and 300 Blackout would be additional calibers.

66. What kind of onboard compute does it need to be able to handle?
    At the most, it would be pretty simple ballistics calculations based upon incoming data from a laser rangefinder and selected weapon profile.

67. What ballistics calculator is currently used by SOCOM?
    We utilize the Applied Ballistics algorithm that we license for most of our current rangefinders with ballistic computers in them.

68. If we have already accomplished the equivalent of the phase I, would you consider a Phase II proposal submission?
    I don't believe so. At this point, we're really interested in validating out the basics of the technology and seeing the potential different approaches that can be taken. The Phase I trade studies are a key part.

69. Is there a maximum weight expectation?
    That's not in the topic paper right now. And that's mostly because as you guys explore the technology and explore different ways, there could be some pros and cons in some trade space. It wouldn't be desired to exceed the twelve ounce mark though. That's what traditional sights of this size and form factor are coming in at. So 12oz or preferably lighter is always better as well.

70. Can you elaborate on what specific information needs to be pushed from the external laser range finder into optic's display?
    The Laser Range Finder would provide range to target, and ballistic hold/drop information. The DP-CQS should be able to take this data and display it to the user as alpha numeric text at a minimum. It could also actively 'disturb' the reticle and highlight where the user needs to aim.