SBIR 24.4 R6 Q&A Telecon Transcript
14 May 2024

- SOCOM244-007: Thermal Barrier Minimal Deflection Handguard
- SOCOM244-008: Ruggedized Additive Mobile Manufacturing Unit (RAMMU)

SBIR Process Timeline

~~May 07, 2024: Topic issued for pre-release~~
May 21, 2024: USSOCOM begins accepting proposals via DSIP
June 11, 2024: DSIP Topic Q&A closes to new questions at 12:00 p.m. ET
June 25, 2024: Deadline for receipt of proposals no later than 12:00 p.m. ET

SOCOM244-007: Thermal Barrier Minimal Deflection Handguard

1. If there any preference from the Warfighter on metal vs. Polymer type handguard? And are they looking for standard grip or more ergonomic style?
   There's not really a preference for material, whether that be metal, polymer, carbon fiber, other type of resin stuff, but the requirement for this is to maintain and hold a zero when a laser is mounted to the handguard. We want to maintain a POA/POI with this setup. No specifics for material, but it needs to be rigid. We're looking for thermal analysis on the standoff in the size, but, yes, absolutely, ergonomics is going to be a large consideration.

2. Will there be a suppressor mounted under the handguard, if so which suppressor?
   The intent is to mitigate the heat from a suppressor being under the handguard. And which one? Not a specific model. But I would go off a general suppressor OD.

3. I am ready for phase 2 (COTS when patent issued) can a phase 2 SBIR be filed?
   This is phase one. So, we are looking to do a feasibility study with this. We will not accept phase two proposals on this topic.

4. M-Loc/ picatinny rail requirements?
   So, the standard picatinny rail all the way, full length on the top of the handguard, and then MLOC seven position around the circumference of the handguard.

5. Platforms? Mk.17, MRGG, M7, SR25, HK417?
   The baseline platform for this is on the Sig MCX, the rattler, just a general MCX design. And part of this requirement is also adding stability to the handguard with that receiver set. It's not a standard AR 15 platform. It is the Sig MCX style.

6. Are different designs acceptable, not handguards, but novel designs that would provide what you're looking for in a different manner?
   Yes, absolutely.

7. Testing protocols are yet to be determined in lieu of manufacturing techniques. What if there are no baselines to model after? How would you address this?
   There are a few different requirements that I've seen in the past, but yes, you're right. There are not solid baselines to model after as far as handguard shift, handguard return to zero and any sort of heat modeling or rate of fire, rounds of fire to mitigate that. And there hasn't been a largely fielded military weapon system with a handguard over the suppressor where the thermal signature has been mitigated. So, it is somewhat of a new requirement. And that's why we're looking on analysis and thermal analysis on this to help address these things.

8. 30lb and < .5 mil shift … at what temp?
   So currently the testing protocol that we've been looking at for handguard shift into flexion and return to zero was just imparting a screw with a set torque force and then measuring the deviation of the handguard and the barrel point of aim and then looking at return to zero. So currently there's a few different baseline weapon systems that we would use to get an overall average of this. And then we'd be comparing this handguard shift to those currently fielded weapon systems. And then as far as temperature, we tried to do some thermal testing and just didn't have the fidelity on the equipment to get a good read on what a standard baseline would be. But we were looking at three mag at one round a second and still being able for the handguard to maintain a surface temperature below 120 degrees Fahrenheit shooting. 556 green tip.

9. Is the Thermal requirement to protect the shooter? Or reduce possible thermal signature of shooter from detection?
   The thermal requirement is to protect the shooter to be able to maintain grasp on the actual handguard without burning their hand. Yes, to try and reduce some of the thermal signature is also a positive, but not the main part of the requirement.

10. You are starting the thermal signature from ambient temps?
    Yes, that's correct.

11. Any preference to affordability of production or is this just focused on performance? And are there 1 or multiple awards anticipated?
    It's focused more on performance, but price within reason. There is generally an average between one to three awards, but it will all come down to what the TPOC sees as potential.

12. Any color preference/ requirements?
    We would go with black, but it's not a hard-set requirement. And we would also look at some sort of signature reduction coding or low emissivity type of construction.

13. Any overall length requirements?
    It's nine to eleven inches for the top picatinny length and overall length of the handguard.

14. Number of anticipated handguards to be fielded post-research?
    600-800 are the numbers right now for a single weapon system. But currently we have three different MCX style platform weapon systems.

15. What is the timeframe to determine awards in phase one?
    This is a seven-month period of performance and generally the timeframe we give our technical evaluators two to three weeks to evaluate. And then it can take, depending on the contracting vehicle, anywhere from generally 30 to 60 days to award.

16. Any requirements for build in QD sling attachments or nice to have?
    That'd be nice to have a category.

17. 810-g environmental testing requirements?
    It's going to be tested in accordance with Test and Operating Procedure (TOP) 3-2-045. Mainly what we're looking at there, we're going to be doing the standard drop testing. It's going to go through hot and cold weather testing, making sure it doesn't fracture or something like that. It's going to go through salt fog, sand, mud, on all that sort of general military spec testing.

18. What are the weight and ID/OD limitations?
    The baseline weapon system for this is the Sig MCX rattler with a five-and-a-half-inch barrel, and the suppressors, the SiG SLXH. So that's the baseline weapon system that I'm looking for submissions on. However, the handguard design, the heat mitigation factor, and the lack of poi shift can be incorporated into other MCX weapon platforms and potentially like the m7 rifle. So that's what we're looking at as a baseline. Now, to answer your question more directly, the ID will depend on whatever thermal analysis you do with that setup to find out how much spacing we need off the barrel gas block suppressor and any other considerations there. And then the OD, there's not really a requirement there, but ergonomics are going to play a large consideration and then still being able to have usable MLOC on the handguard.

19. SLH is a direct thread suppressor or QD/QA?
    The SLH is the QDH sigs clutch lock design. It is not direct thread.

20. As a toolless design for mounting the rail, do you require an absolute return to zero?
    So, back to your previous question. Yes, it is a quick detach kind of clutch lock design suppressor. We do want a toolless design for removing and reinstalling the handguard. That way the end user can access the piston for maintenance of the weapon system and remove the suppressor. So that's where the tool list design comes into play. Also, without modifying the current receiver. And then to answer your question directly, do you require an absolute return to zero? That's preferred, but we would say within like two MOA would be more than acceptable.

21. Will you provide any assistance getting this weapon system/ silencer to prototype with?
    Yes, we can work GFE, government furnished equipment, paperwork within phase two, there is no government furnished equipment for phase one, just a feasibility study in case there's any questions.

22. Are CAD models and material data of the current weapons platform available to begin FEA?
    Reach out to Sig, the manufacturer, for any of the CAD models that you need to work with.