**SMALL BUSINESS INNOVATION RESEARCH**

**phase ii statement of objectives**

**for**

**DEPLOYABLE AT-SEA MID-WAVE INFRARED EMITTER**

**TOPIC: SOCOM203-D008**

**23 August 2020**

I. **INTERNATIONAL TRAFFIC IN ARMS REGULATION:**

Description of technology to respond to this topic and the technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), which controls the export and import of defense-related material and services. Offerors must disclose any proposed use of foreign nationals, their country of origin, and what tasks each would accomplish in the statement of work in accordance with section 5.4.c.(8) of the solicitation. Additionally Offerors will describe compliance mechanisms offerors have in place or will put in place to address any ITAR issues that arise during the course of agreement administration.

II. **BACKGROUND**:

USSOCOM has a requirement for Deployable At-Sea Mid-Wave Infrared Emitter strobes that provide visual position location of combat swimmer / diver personnel during rendezvous / extraction while in the ocean. The strobe emissions shall be limited in the direction and distance that it emits, such as to not be detectable by enemy forces in the air.

III. **OVERALL OBJECTIVE**:

The objective of this Statement of Objectives is to develop a Deployable At-Sea Mid-Wave Infrared Emitter unit that will allow combat swimmer / diver personnel to provide visual position location via a strobe, primarily employed in a maritime environment (i.e., in the ocean) for the purpose of rendezvous / extraction. This strobe capability will be limited in the direction that it emits a signal such as to not be detectable by enemy forces in the air.

IV. **Requirements**

A. **General:** The Contractor shall deliver ten (10) Deployable At-Sea Mid-Wave Infrared Emitter prototypes for Government follow-on testing and demonstration.

1. **Detailed Requirements**: The Contractor shall design, develop, fabricate, test, demonstrate, and deliver ten (10) Deployable At-Sea Mid-Wave Infrared Emitter prototypes that are designed to meet or exceed the following performance requirements:

|  |  |  |
| --- | --- | --- |
| Requirement | Threshold | Objective |
| Range | The Emitter shall have a detection range equal to or greater than 3 nautical miles (5.6 Kilometers) in clear visibility. | The Emitter shall detection range equal to or greater than 4 nautical miles (7.4 Kilometers) in clear visibility. |
| Spectrum | The Emitter shall emit in the Mid-Wave Infrared (MWIR) spectrum 3 – 5 µm. (excluding the CO2 absorption wavelength at ~4.25 µm) with all 10 prototypes having the same wavelengths within a 25 nanometer spread. | Threshold = Objective |
| Pulse Repetition Rate | The Emitter shall have a pulse repetition rate between 2Hz – 5 Hz. | Threshold = Objective |
| Beam Spread | The Emitter shall have the ability to be seen 360 degrees horizontally and between -5 to +25 degrees vertically. | Threshold = Objective |
| Power | The Emitter shall have a battery life of equal to or greater than 2 hours.The Emitter shall emit a dim light to indicate that power is on.The Emitter shall have the ability to swap batteries on the surface of the water while wet and with gloves on. | The Emitter shall have a battery life of equal to or greater than 24 hours. |
| Ancillaries | The Emitter shall contain a threaded hole on the bottom of the unit to attach an extension pole (5 – 8ft).The Emitter shall have a small ring, loop, or hole on the device housing in order to attach a lanyard (550 parachute cord). | Threshold = Objective |
| Weight | The Emitter shall weigh equal to or less than 1.5 pounds, including batteries. | Threshold = Objective |
| Size | The Emitter shall be 8 to 10 inches in length and between 1 to 2 inches in diameter. | Threshold = Objective |
| Form Factor | The Emitter shall be a single, fully contained unit, including power supply. | Threshold = Objective |
| Laser | The Emitter shall be certified as a Class 1 (Eye Safe) Laser. | Threshold = Objective |
| Immersion | The Emitter shall be waterproof to 200 feet for 8 hours, without the aid of a dive bag, and be capable of operating without malfunction, damage, moisture intrusion, or degradation of performance. The device switches shall not be inadvertently activated or damaged during immersion per MIL-STD-810H Method 512.6 Procedure I. | The Emitter shall be waterproof to 200 feet for 24 hours, without the aid of a dive bag, and be capable of operating without malfunction, damage, moisture intrusion, or degradation of performance. The device switches shall not be inadvertently activated or damaged during immersion per MIL-STD-810H Method 512.6 Procedure I. |
| Submarine Compliance | The Emitter shall meet off-gas and implosion requirements per NAVSEA SS800-AG-MAN-010/P9290. | Threshold = Objective |
| Drop Test | The Emitter shall not be damaged or degraded in performance after experiencing mechanical shocks commonly induced during operations. The device shall undergo a drop test on all axis from a height of one (1) meter on a ¼ inch polyethylene foam covered ¾ inch plywood sheet backed by concrete per MIL-STD-810H Method 516.8 Procedure IV. | Threshold = Objective |
| Low Pressure | The Emitter shall operate without malfunction, damage, or degradation of performance after exposure up to 14,000 feet above sea level per MIL-STD-810H Method 500.6. | Threshold = Objective |
| Operating Temperature (Temperature Shock) | The Emitter operate without malfunction, damage, or degradation of performance following 3 cycles of temperature shock of -10$℃$ to +40$℃$. The stabilization time at either cold or hot shall be 1 hour and 15 minutes, and the transition time shall be no more than 5 minutes per MIL-STD-810H Method 503.7 Procedure I-D. | Threshold = Objective |
| Vibration | The Emitter shall be able to withstand the vibration effects during transport in military aircraft (to include helicopter), cross-country vehicular movement, and maritime transport per MIL-STD-810H Method 514.8:* Category 4. Secured Cargo – procedure I.
* Category 5. Loose Cargo –procedure II.
* Category 7. Jet –procedure I.
* Category 8 Propeller –procedure I.
* Category 9 Helicopter –procedure I.
* Category 10 Marine Vehicles –procedure I.
 | Threshold = Objective |
| Salt Fog | The Emitter shall operate without leakage, malfunction, damage, or degradation of performance after exposure to a salt fog environment. The device shall be exposed for two 24-hour periods of salt fog exposure with a 24-hour drying time between each exposure. Exit-port covers and connector covers shall be used during the test. Equipment shall be non-operating during exposure. MIL-STD-810H Method 509.7. | Threshold = Objective |
| Storage Temperature | The Emitter shall operate without malfunction, damage, or degradation of performance following 3 cycles of temperature shock of -20$℃$ to +60$℃$. The stabilization time at either cold or hot shall be 1 hour and 15 minutes, and the transition time shall be no more than 5 minutes per MIL-STD-810H Method 503.7 Procedure I-D. | Threshold = Objective |
| Affordability | The emitter shall have a per unit cost equal to or less than $21,000.00 each for an order quantity of one (1). This will be the total end cost for a TRL-9 full rate production system. Total quantity of systems expected to be procured is approximately one hundred and twenty two (122). | The emitter shall have a per unit cost equal to or less than $18,000.00 each for an order quantity of one (1). This will be the total end cost for a TRL-9 full rate production system. Total quantity of systems expected to be procured is approximately one hundred and twenty two (122). |
| Technology Readiness Level (TRL) | TRL-6 | TRL-7 (Maximum) |

Notes:

1. TRL-6 is defined as: Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment.
2. TRL-7 is defined as: Prototype near or at planned operational system. Represents a major step up from TRL 6 by requiring demonstration of an actual system prototype in an operational environment (e.g., in an aircraft, in a vehicle, or in ocean).
3. MIL-STD-810H can be located and downloaded in the public domain via the following link: <http://everyspec.com/MIL-STD/MIL-STD-0800-0899/download.php?spec=MIL-STD-810H.055998.pdf>
4. NAVSEA SS800-AG-MAN-010/P-9290, Revision A, ACN, System Certification Procedures and Criteria Manual for Deep Submergence Systems, can be be located and downloaded in the public domain for a minimal charge via the following link: <https://www.amazon.com/SS800-AG-MAN-010-Certification-Procedures-Criteria-Submergence/dp/B00GF1UBP2> or a copy can be provided upon request.

2. **Unique Item Identification:** The Contractor shall include the DoD unique item identifications or a DoD recognized unique identification equivalent for the prototypes delivered. This includes a description and cost breakout as applicable. Information on unique item identifier types is at <http://www.acq.osd.mil/dpap/UID/uid_types.html>. The guide is at <http://www.acq.osd.mil/dpap/UID/guides.htm>. This is in accordance with DFARS 252.211-7003.

3. **Ship To Address:** The Contractor shall deliver all prototypes systems delivered under this contract to the following address:

Naval Surface Warfare Center Crane Div (DoDAAC: N00164)

Jason Baer/Keitha Healy

Bldg. 3291

300 Hwy 361

Crane IN, 47522-5001

(812) 854-8128

4. **SHIPPING COSTS:** The Contractor shall pay all costs to ship all product deliverables to and from the validation testing /demonstration sites and to the final delivery location.

B. **DOCUMENT DELIVERABLES:** The Contractor shall provide the following documents to the respective specified addresses during the Phase II Period of Performance:

1. Kick-Off/System Requirements Review: See CDRL A001.
2. Monthly Progress Reports: See CDRL A002.
3. Developmental Test Plan for Performance Validation: See CDRL A003.
4. Developmental Test Report for Performance Validation: See CDRL A004.
5. Business Plans: See CDRL A005.
6. Final Technical Report: See CDRL A006.
7. Preliminary Design Review: See CDRL A007.
8. Critical Design Review: See CDRL A008.

V. **TESTS AND DEMONSTRATIONS:** The Contractor shall conduct tests and demonstrations to validate that the delivered Deployable At-Sea Mid-Wave Infrared Emitter (DASMWIRE) prototypes meet or exceed all the requirements specified in this Statement of Objectives. (See CDRL A004 and CDRL A005).

VI. **ENVIRONMENTAL AND SAFETY:** The Contractor shall ensure the delivered Deployable At-Sea Mid-Wave Infrared Emitter (DASMWIRE) prototypes developed under this Statement of Objectives are designed to meet or exceed all the requirements in environmental and safety standards specified in the requirements (Section IV. A. 1.) of this Statement of Objectives.

VII. **GOVERNMENT FURNISHED PROPERTY (GFP) / GOVERNMENT FURNISHED PROPERTY (GFE) / GOVERNMENT FURNISHED INFORMATION (GFI):** The Government does not intend to provide the Contractor any GFP, GFE or GFI. However, the Contractor shall specify by stock number and nomenclature any GFP/GFE/GFI the Contractor believes is needed to successfully complete the requirements specified in this Statement of Objectives.

VIII. **Period of Performance:** The maximum Period of Performance for this Phase II effort is nine (9) months. The Contractor can propose a lessor Period of Performance if a lessor Period of Performance does not jeopardize the Contractor’s successful completion of the requirements specified in this Statement of Objectives.

IX. **MEETINGS AND REVIEWS**: The Contractor shall attend the following meetings and reviews.

A. Phase II Kick-Off meeting shall be conducted in Tampa, FL not later than thirty (30) calendar days after contract award. The Contractor shall provide the Government:

1. A Phase II Kick-Off Meeting Read-Ahead no less than seven (7) calendar days prior to the Phase II Kick-Off Meeting / System Requirements Review Meeting (See CDRL A001).

2. An initial Program Management Plan for accomplishing all objectives specified in this Statement of Objectives. (See CDRLs A002 and A003).

3. Conceptual Design Drawings no less than ten (10) calendar days prior to the Phase II Kick-Off/System Requirements Review Meeting (See CDRL A001).

B. Preliminary Design Review (PDR) - This meeting shall be conducted at the Contractor’s facility no more than sixty (60) calendar days after Phase II contract award. The Contractor shall provide teleconference capability for those participants unable to travel. The Contractor shall provide the Government:

1. A Preliminary Design Review and Materials Read-Ahead Briefing no less than ten (10) calendar days prior to the PDR (See CDRL A007).

2. A Detailed Design Report (See CDRL A007).

3. Trade off considerations for the design. (See CDRL A007).

4. Results of any testing to date. (See CDRL A004).

5. Resolution to any Contractor/Government issues or concerns.

C. Critical Design Review (CDR): This teleconference meeting shall be arranged by the Contractor two (2) weeks prior to the end of the contract completion date. The Contractor shall provide the Government:

1. A Critical Design Review and Materials Read-Ahead Briefing no less than ten (10) calendar days prior to the CDR (See CDRL A008).

2. A Detailed Design Report (See CDRL A008).

3. Trade off considerations for the design. (See CDRL A008).

4. Results of any testing to date. (See CDRL A004).

5. Resolution to any Contractor/Government issues or concerns.

D. Phase II Close-Out Meeting: The Phase II Close-Out Meeting shall be conducted in Tampa, FL no earlier than seven (7) calendar days prior to the conclusion of the Phase II Period of Performance. The Contractor shall provide the Government:

1. A briefing on the test verification (See CDRL A004).

2. An update of the progress to date. (See CDRL A002)

3. Resolution to any Contractor/Government issues or concerns.

X. **NOTIFICATION:** The Contractor shall notify USSOCOM no less than thirty (30) calendar days prior to tests, demonstrations and reviews at the Contractor’s facilities to ensure USSOCOM representatives can attend should they desire to do so.

XI. **TRAVEL REQUIREMENTS:** The Contractor shall comply with the Federal Acquisition Regulation 31.205-46 (<http://www.gsa.gov/perdiem>) on proposing all travel related costs. The Contractor shall include the costs associated with the following travel requirements in the proposal:

A. Phase II Kick-Off Meeting: Tampa, Florida; one (1) overnight, no more than three (3) Contractor representatives.

B. Phase II Close-Out Meeting: Tampa, Florida; one (1) overnight, no more than three (3) Contractor representatives.

XII. **MANDATORY REPORTING:**

A. The Contractor shall report ALL contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for the U.S. Special Operations Commands via a secure data collection site. The Contractor is required to completely fill in all required data fields using the following web address: <http://www.ecmra.mil/>.

B. Reporting inputs will be for the labor executed during the period of performance during each Government fiscal year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year, beginning with 2014. Contractors may direct questions to the help desk at help desk at: http://www.ecmra.mil.

XIII**. DISCLOSURE OF UNCLASSIFIED INFORMATION:**

A. On September 21, 2001, the Department of Defense designated Headquarters US Special Operations Command (USSOCOM) a sensitive unit, as defined by Title 10 United States Code (USC) Section 552 (10 USC 552). In keeping with this designation, unclassified information related to USSOCOM military technology acquisitions managed by USSOCOM or any of its component commands, will be designated Controlled Unclassified Information (CUI). As such, the contractor hereby unequivocally agrees that it shall not release to anyone outside the Contractor’s organization any unclassified information, regardless of medium (e.g., film, tape, document, Contractor’s external website, newspaper, magazine, journal, corporate annual report, etc.), pertaining to any part of this contract or any program related to this contract, unless the Contracting Officer has given prior written approval. Furthermore, any release of information which associates USSOCOM, Special Operation Forces (SOF), or any component command with an acquisition program, contractor, or this contract is prohibited unless specifically authorized by USSOCOM.

B. Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release for approval. No release of any restricted information shall be made without specific written authorization by the Contracting Officer.

C. The Contractor shall include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

D. The Contractor further understands that Title 18 USC Section 701 specifically prohibits the use of the USSOCOM emblem or logo in any medium (e.g., corporate website, marketing brochure, newspaper, magazine, etc.) unless authorized in writing by USSOCOM. Forward any requests to use the USSOCOM emblem or logo through the Contracting Officer.