**SMALL BUSINESS INNOVATION RESEARCH**

**phase ii statement of objectives**

**for**

**Intregated Cyber and Electronic Warfare Infrastructure**

**SOCOM21.1-D004**

**28 October 2020**

I. **INTERNATIONAL TRAFFIC AND ARMS REGULATION:** The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the Export Administration Regulation (EAR), 15 CFR Parts 730-774, which controls dual use items. Offerors must disclose any proposed use of foreign nationals (FNs), their country(ies) of origin, the type of visa or work permit possessed, and the statement of work (SOW) tasks intended for accomplishment by the FN(s) in accordance with section 3.5 of the Announcement. Offerors are advised foreign nationals proposed to perform on this topic may be restricted due to the technical data under US Export Control Laws.

II. **BACKGROUND**: The objective of this topic is to develop an innovative extremely low Low Probability of Detection (LPD)/Low Probability of Intercept (LPI) communications network operating in a “zero trust” environment that can be integrated with Electronic Warfare, Information Warfare, and/or Cyber Reconnaissance and Surveillance (R&S) tools utilized by Special Operations Forces (SOF) units while forward deployed on Declared Theaters of Active Armed Conflict (DTAAC) or Outside Declared Theaters of Active Armed Conflict (ODTAAC) missions. In a networked world using AI tools, an individual’s movements could be tracked over time, databased, and accessed from anywhere. Potential solutions should provide a novel design concept for improving capabilities to mitigate virtual effects and gain access to challenged regions/domains, SOF must have the ability to avoid drawing attention by better obscuring and concealing their physical and virtual presence to blend in and appear innocuous.

III. **OVERALL OBJECTIVE**:

The objective of this Statement of Objectives is to develop an innovative extremely Low Probability of Detection (LPD)/ Low Probability of Intercept (LPI) communications network prototype operating in a “zero trust” environment that can be integrated with Electronic Warfare (EW), Information Warfare (IW), and/or Cyber Reconnaissance and Surveillance (R&S) tools utilized by SOF units while forward deployed on DTAAC or ODTACC missions, using commercial off the shelf (COTS) technologies in order to blend into the local environment.

IV. **Requirements**

A. **General:** The Contractor shall deliver a prototype system of no less than 20 Cyber/EW/IW sensors in a ruggedized transport container (capable of integration into commercial and/or military form factors), a laptop or tablet to provide visualization of data, software defined radio (SDR) for passive RF detect, survey and characterization, along with a secure, LPI/LPD certificate based platform to support attributable/non-attributable rapid global communications via no less than 12 but no more than 24 randomized and rapid “build and/or burn” exit and entry nodes, and a prototype Operator/Maintenance manual (See CDRL A010) to provide follow-on training, testing, and evaluation.

1. **Detailed Tasks**: The Contractor shall design, develop, fabricate, test, demonstrate, and deliver one (1) multi-form factor EW/IW/Cyber integrated sensor prototype kit, capable of protecting ATAK-derived communications inside an unique network creditials or measures providing secure communications platform that meet or exceed the requirements in the following Table 1 titled “Attribute Table”:

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| --- |
| **CRITICAL SYSTEM ATTRIBUTES** |
| **Attribute** | **Description** | **Threshold Value** | **Objective Value** | **Notes** |
| Sensor | Passive, non-alerting RF/wireless sensor | Cellular (3G,4G, 5G), WiFi, Bluetooth, Advanced Low Energy Blue tooth, other 802.xx protocols, Tire Pressure Monitoring System (TPMS), Narrow Band LTE IoT, IoT, Tactical communications | Threshold Value = Objective Value (T=O) |  |
| Data Resolution | Acceptable File Formats | .csv, .kml, .JSON | T=O |  |
| Data Path and Security | Probability of Detection / Probability of Intercept / Vulnerability to Denial of Service or Exploit | Solutions shall be secure, rapidly configurable, ATAK compatible (secure ATAK traffic), unique network measures, disposable communications network and cyber weapons platform | T=O |  |
| Size | Multiple Form Factors | Body worn, hand held, vehicle mounted, tethered drone, or unattended package | T=O |  |
| Mounting | Method of mounting to operator or equipment | Body worn, hand held, helmet mounted, vehicle mounted | T=O |  |
| Communication Duration | Time Up / Time Down | Less than 15 min to establish secure global communications;Less than 15 min to break down comm links; sensors to operate up to 8 hours on battery; indefinite while tied to commercial power | Less than 5 min to establish secure global communications;Less than 5 min to break down comm links; sensors to operate up to 12 hours on battery; indefinite while tied to commercial power |  |
| Technology Readiness Level (TRL)\* | Technical maturity of delivered prototype | TRL 6 | TRL 7 |  |
| **DESIRED SYSTEM ATTRIBUTES** |
| **Attribute** | **Description** | **Threshold Value** | **Objective Value** | **Notes** |
| Display of Data | Graphic User Interface andDisplay | Display output shall port to current SOF common operating picture systems and commercial standards alternate viewing device | T=O |  |
| Database Compatibility | Compatibility | Solutions shall be interoperable with current government cross domain databases.  | T=O |  |
| Network Operations | System interoperability  | Solution shall shall be Joint Interface Control Document (JICD) 4.2 compliant | T=O |  |
| Environmental Standards | Environmental and Electromagnetic Interference | Designed for compliance with Military Standards 810G, “Department of Defense Test Method Standard: Environmental Engineering Considerations and Laboratory Tests”and MIL-STD-461F, “Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment” (both above standards are publically accessible on the internet) | Tested for Military Standard 810G and 461F Compliance |  |

Table 1 - Attribute Table

\*Note: TRL levels are defined as:

TRL 6 - 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.

TRL 7 - 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 air-craft, in a vehicle, or in space).

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:

US Army Special Operations Command (DoDAAC: W81RUC)

Attn: Scott L. Forman

2929 Desert Storm Dr.

Fort Bragg, NC 28310

(910) 396-4728

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. Financial Status Report: See CDRL A003.
4. Developmental Test Plan for Performance Validation: See CDRL A004.
5. Developmental Test Report for Performance Validation: See CDRL A005.
6. Business Plans: See CDRL A006.
7. Final Technical Report: See CDRL A007.
8. Preliminary Design Review: See CDRL A008.
9. Critical Design Review: See CDRL A009.

V. **TESTS AND DEMONSTRATIONS:** The Contractor shall conduct tests and demonstrations to validate that EW/Cyber/IW sensors and associated secure communications platform meet or exceed all the requirements specified in this Statement of Objectives. (See CDRL A004 and CDRL A005).

1. The Contractor shall demonstrate that the EW/Cyber/IW sensors and associated secure communications platform prototypes meet or exceed the threshold performance attributes specified in this Statement of Objectives. (See CDRL A004 and CDRL A005).

**VI.** **ENVIRONMENTAL AND SAFETY:** The EW/Cyber/IW sensors and associated secure communications platform prototype developed under this Statement of Objectives shall be of safe design and meet the environmental and safety standards as specified in Table 1 above.

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 may request 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 and identify risk reduction strategies if Government is unable to the provide requested items.

VIII. **PERIOD OF PERFORMANCE:** The maximum Period of Performance for this Phase II effort is eighteen (18) 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.

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

A. Phase II Kick-Off Meeting/System Requirements Review: This meeting shall be conducted at Fort Bragg, North Carolina 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 initial Program Management Plan / Financial Status Report for accomplishing all objectives specified in this Statement of Objectives. (See CDRLs A002 and A003).

3. Initial Conceptual Design Drawings no less than seven (7) 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 one hundred and eighty (180) 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 A008).

2. An updated version of Conceptual Design Drawings (See CDRL A008).

3. An initial version of Trade off Considerations for the Design. (See CDRL A008).

4. Results of any testing to date. (See CDRL A005).

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

6. An initial assessment of other potential benefits / impacts of the EW/Cyber/IW sensors and associated secure communications platform prototypes and a recommendation of any changes for consideration / incorporation into the subsequent design that will be provided to the Government at the follow-on Critical Design Review. (See CDRL A008).

C. Critical Design Review (CDR): This meeting shall be conducted by the Contractor in Fort Bragg, North Carolina no later than fourteen (14) calendar days 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 A009).

2. A draft of final version of Conceptual Design Drawings (See CDRL A009).

3. Final version of Trade off Considerations for the Design. (See CDRL A009).

4. Results of any testing to date. (See CDRL A005).

5. A Prototype System Specification for the EW/Cyber/IW sensors and associated secure communications platform prototype (See CDRL A009).

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

D. Phase II Close-Out Meeting: The Phase II Close-Out Meeting shall be conducted via teleconference 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 A005).

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

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

IX. **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.

X. **TRAVEL REQUIREMENTS:** The costs associated with the below travel requirements will be included in a separate Contract Line Item Number as a cost reimbursable expense. 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: Fort Bragg, North Carolina; one (1) overnight, no more than three (3) Contractor representatives.

B. Phase II Critical Design Review: Fort Bragg, North Carolina; one (1) overnight, no more than three (3) Contractor representatives.

C. As part of the Phase II proposal the Contractor shall propose when to conduct Form, Fit, and Function Evaluations that will be conducted at Fort Bragg, North Carolina; four (4) overnights, no more than three (3) Contractor representatives.

**XI. 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.