

Request for Information for Team Networking Device

1. Introduction and Purpose

The United States Special Operations Command (USSOCOM), Program Executive Office for Tactical Information Systems (PEO-TIS), Special Operations Forces (SOF) Tactical Communications (STC) Program Management Office (PMO) is issuing this Request for Information (RFI) to identify sources capable of providing a Team Networking Device (TND). The purpose of this RFI is to gain a better understanding of the current market and the technological capabilities of available solutions. This is for informational and planning purposes only and does not constitute a Request for Proposal (RFP). As part of this RFI, an in-person Industry Day may be held, in which vendors will be allowed to brief/demo the capabilities directly to the government.

2. Background

USSOCOM has a critical need for reliable and secure data communications for dismounted warfighters operating in a variety of challenging environments. The TND is a key component of USSOCOM's tactical communications strategy, providing a resilient, self-healing, and autonomous networking solution for encrypted data transmission at the tactical edge.

3. Scope

This RFI is seeking information on TND solutions that are currently available or could be readily adapted to meet USSOCOM's operational requirements.

The TND shall be a small form factor device that provides a self-healing network, extending the range of the SOF operator's communication, and relaying encrypted data via a transport relay such as a high-altitude balloon. The TND waveform shall be capable of transmitting both data and voice based on prioritized Quality of Service (QoS).

The TND must be capable of mounting in various SOF platforms. They must be jerk and run capable (or hot-swap/quick-disconnect). The jerk and run communication capability must allow the TND to be instantly removed from a vehicular mount or amplifier without breaking the connection, allowing the SOF user to move from a vehicle to dismounted operations without losing power or communication.

PMO-STC is interested in solutions that are lightweight, rugged, and offer advanced features to enhance communications in contested environments. Key performance requirements for the TND are:

Ease of Use: The radios must be intuitive to operate, alleviating the need for formal training.

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Resilient Waveforms: The radio must support and provide resilient waveforms with Anti-Jam (AJ) and Low Probability of Intercept/Low Probability of Detection (LPI/LPD) capabilities.

Multiple Use Cases: The TND must support at least three use cases: Attended (operator present), Unattended (autonomous operation), and Integrated (installed in Uncrewed and Crewed platforms).

Interoperability: The TND must support and provide a means for intercommunicating voice and data with other TND type devices. This feature is sometimes called Radio Over Internet Protocol (ROIP) or cross-banding, but the feature should allow for full integration and cross-communication between varying TND Mobile Ad-Hoc Networks (MANET).

Position Location Information (PLI) Segregation: The TND should support the segregation of PLI within the MANET to support Partner or Indigenous Forces operations. This feature supports use cases where SOF interoperates with Partner forces and provides TNDs to the Partner. The SOF operator may desire to limit the Partner force to only see PLI amongst themselves while allowing the SOF element to see the entirety of PLI in the MANET.

Beyond Line of Sight (BLOS) Capability: The TND should support and provide waveforms that allow voice and data communications to reach beyond traditional LOS. This can include Satellite Communications (SATCOM), both government and commercially owned, Cellular, or other innovative or novel waveforms and techniques.

Cognitive Networking: The TND should operate flexibly throughout the spectrum, sensing the spectrum and nodes in the MANET to select the best frequency, waveform, and power to best communicate with other TND nodes.

Open Architecture: The device must be built on an open architecture, easily allowing the integration of new waveforms and software from 3rd parties without requiring help from the Original Equipment Manufacturer (OEM).

Modular Design: As an objective, the radios should be modular in design, allowing the SOF user the ability to swap out modules to provide different waveform, spectrum, or encryption functionality.

4. Requested Information

Interested parties are requested to provide the following information in less than 5 pages and should include pictures, drawings, or operational concept graphics as necessary to describe the capability.

- Company Information

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- Company Name, Address, and Point of Contact
- Company Size and relevant experience in providing tactical communication solutions to military or government customers
- CAGE Code and DUNS Number
- Describe your company's supply chain risk management (SCRM) practices for ensuring the security and integrity of hardware and software components

Technical Specifications

Please provide detailed specifications for your proposed TND, including but not limited to:

Use Case Support: Please specify how the proposed solution's hardware and software support the Attended, Unattended, and Integrated use cases.

Networking Capabilities: Describe the self-healing MANET capabilities of the network. Detail protocols used, scalability (number of nodes), and data throughput.

Cognitive Radio Capabilities: Describe the device's ability to sense the Radio Frequency (RF) spectrum and automatically select the optimal waveform, frequency, and power for communication with other nodes in a contested environment.

Data Throughput: Describe the maximum and average data throughputs that the device can provide. Describe operating conditions in which these numbers are derived or tested.

Data Relay: Describe the device's ability to relay data via various transport backhauls and the number of data relay "hops" the network can support.

SATCOM: Describe the device's ability to connect to commercial or government SATCOM services.

Frequency Range: Describe the operating frequency range of the radio.

Output Power: Describe the power output in watts and how power control is managed.

Size and Weight: Describe the dimensions and weight of the radio with and without the battery.

Battery Life: Describe the expected battery life under typical operational conditions (e.g., 80% standby, 10% transmit, 10% receive).

Environmental Specifications: Describe any compliance with military standards or commercial standards for temperature, humidity, shock, and vibration (e.g., MIL-STD-810G, Ingress Protection (IP) Rating).

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Technology Readiness Level (TRL): Describe the current TRL of the product and what is needed to get to the TRL 7/8 level, and the estimated cost associated with maturing the technology to that level.

Waveform and Data Capabilities

Open Architecture: Describe the device's architecture and the process for integrating third-party waveforms and software. Detail the Software Development Kit (SDK) or Interface Control Documents (ICDs) available to third-party developers. Describe the business and licensing model for integrating third-party software. Are there non-recurring engineering (NRE) costs, per-unit royalties, or annual licensing fees for the government or third-party developers?

Interoperability: Describe interoperability with other military and coalition systems. Detail how the PLI Segregation and cross-banding features ensure secure data transmission with Indigenous/Partner Forces and interoperability between MANETs.

Quality of Service (QoS): Describe the device's QoS capabilities. How does the radio prioritize different traffic types, such as voice, PLI, and sensor data? Can these priorities be configured by the user or a network administrator?

Security Features

Encryption: Provide details of the encryption capabilities, including support for Advanced Encryption Standard (AES) 256 and other government-standard encryption algorithms. Describe how data is secured during transmission with partner forces. State Cryptographic High Value Product (CHVP) certification status and plans or roadmaps to obtain certification in the future. Additionally, describe the product's suitability for a Commercial Solutions for Classified (CSfC) architecture and its status on the CSfC Components List, if applicable.

Data-at-Rest Protection: Describe how data stored on the device (Data-at-Rest), such as configuration files, mission data, and stored communications, is protected.

Anti-Tamper: Describe to what extent, if any, the device incorporates Anti-Tamper (AT) features.

Anti-Jamming/Anti-Spoofing: Describe features to mitigate the effects of electronic warfare, such as frequency hopping and other Electronic Countermeasures (ECCM) techniques.

Low Probability of Intercept/Low Probability of Detection: At an unclassified level, describe any specialized LPI/LPD waveforms, modulation, or power control techniques utilized by the device.

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Production and Availability

Production Capacity: Provide your company's ability to produce and deliver the proposed devices in quantity.

Lead Time: Provide estimated lead time for initial and subsequent deliveries.

Rough Order of Magnitude (ROM) Cost

Please provide a ROM cost per unit for the TND and any associated accessories. This is for budgetary planning purposes only. The estimated total quantity buy is 20,000 units.

5. Disclaimer

This RFI is for informational and planning purposes only and is not to be construed as a commitment by the Government to procure any items or services, nor does the Government intend to award a contract based on this RFI. The Government will not pay for the information solicited, nor will it compensate any respondent for any costs incurred in developing the information for the Government.