

THUNDERSTORM TECHNOLOGY DEMONSTRATION PROGRAM

Request for Information Pursuant to FAR Part 15.201(e)



RAPID REACTION TECHNOLOGY OFFICE (RRTO)

**THUNDERSTORM TECHNOLOGY LIMITED DEMONSTRATION and
EXPERIMENTATION 19-4:
Sense-Through-The-Wall**

DISTRIBUTION A. Approved for public release: distribution unlimited

SYNOPSIS: Limited Technology Demonstration and Experimentation Collaboration

A. INTRODUCTION:

The purpose of this request for information (RFI) is to solicit technologies from private industry, government research and development (R&D) organizations, and academia for inclusion in a future capability demonstration and experimentation event is focused on sense-through-the-wall (STTW) technologies. This effort is sponsored by the Office of the Secretary of Defense (OSD), Deputy, Prototyping and Concept Experimentation (P&CE), Rapid Reaction Technology Office (RRTO). The intent is to accelerate the delivery of innovative capabilities to the warfighter by demonstrating and experimenting with the capability in an operationally relevant environment. The results of this effort will be used to inform decision makers of emerging and available technology solutions that enhance or improve operational capabilities.

Interested parties are welcome to submit their applications to participate in the demonstration and experimentation event. Technology demonstrations are planned to take place at the unclassified level; as such, proposals must be submitted at the unclassified level. For technologies that have features or applications at higher classification levels, please respond with an unclassified proposal. If this technology is chosen for the Thunderstorm 19-4 demonstration/experimentation, appropriate arrangements can then be made for subsequent discussions at the appropriate level. This RFI is for Thunderstorm 19-4, with demonstrations and experiments planned for late summer or autumn 2019 in the eastern United States.

The application deadline is 5:00 PM EDT on 15 March 2019.

This RFI is NOT a solicitation for procurement or other acquisition proposals, proposal abstracts, or quotations. The government does not intend to award a contract on the basis of this RFI or to otherwise pay for the information solicited.

B. BACKGROUND:

Thunderstorm provides an opportunity for technology developers to demonstrate and experiment with new and evolving technological capabilities in an operationally relevant environment, as well as to obtain insight into federal technology gaps and emerging needs. The demonstration and experimentation environment enables a collaborative working relationship between government organizations, academia, and industry. This promotes the identification of emerging needs and an assessment of maturing technologies with the primary goal of accelerating the delivery of technology discoveries to the Department of Defense and interagency partners. Thunderstorm provides a realistic demonstration environment for technology developers to interact with operational personnel. Technologies brought to the event should be at a technology readiness level (TRL) of 4 or greater (<http://www.acqnotes.com/acqnote/tasks/technology-readiness-level>).

The Thunderstorm technology demonstration and experimentation event(s) involves individual or multiple technologies and is conducted with interagency partners. The technology developer provides the capability for demonstration and experimentation and personnel for installation and integration into the overall event. The technology developer operates the system during the event and uninstalls the system upon completion. The Thunderstorm staff plans, coordinates, and assists with the associated logistics of the technology demonstration and experimentation, and provides limited assistance for the installation and integration efforts. The Thunderstorm staff will not assist with engineering changes to the demonstrated technology or system.

Industry, academia, and other government organizations are invited to submit demonstration and experimentation applications addressing innovative technologies, potentially leading to follow-on government/industry collaboration and further development of emerging capabilities or

fielding of mature capabilities.

C. DESCRIPTION:

The Thunderstorm 19-4 demonstration and experimentation event will focus on challenges encountered during operations that involve structures and tunnel or subterranean environments. The event will primarily focus on developmental and mature technologies (TRL 4-9) and is planned to be conducted over a multiday timeframe in the late summer/early autumn 2019 timeframe. Participation may not necessarily require the demonstrator to be present the entire period. Under the direction of RRTO, the Applied Research Laboratory at The Pennsylvania State University (ARL/PSU) will lead the 19-4 demonstration and experimentation event, with support and participation from Georgia Tech Research Institute (GTRI) along with other DoD and government partners.

The top-level objective of the demonstrated technologies is to provide the operator with improved situational awareness of the area behind a door, wall, roof, floor, or buried or in an underground void. STTW applications include village/urban operations, law enforcement, and fire, search and rescue. Capabilities should emphasize individual mobility and automated operations with a goal of reducing or eliminating operator workload requirements, limiting/reducing size, weight, power, and reducing cost. This is a follow-on to a previous STTW Thunderstorm event. Thunderstorm 19-4 seeks to include additional technology providers while allowing those who took part in previous Thunderstorm events to demonstrate system improvements/enhancements.

Respondents are invited to submit technology demonstration and experimentation applications for STTW operations:

- **USE CASE 1** - The sensor(s) provide users with a stand-off capability to detect and track personnel who are hidden behind walls, doors and other obstructions. Soldiers and law enforcement personnel are confronted with situations where an unknown number of adversaries hold unknown positions inside buildings. Gaining real time situational awareness on the location of personnel occupying adjacent buildings or rooms ensures the safety and effectiveness of an assaulting force.
- **USE CASE 2** - The sensor(s) is/are used to search and help locate personnel buried in debris or underground in a tunnel or other subterranean location for a search and rescue or humanitarian operation.

NOTE: In both use cases, easy to use and understandable displays that are suitable for field use are strongly desired. The speed at which the operator can ascertain the results is important in all use cases. In addition, all sensors and displays that are usable in all weather and lighting conditions are desirable. Successful responses will discuss their graphical user interface (GUI) to include how it presents information to an operator.

After a review of the vendor applications, the government may invite candidates to brief their capability to support the selection process and/or invite candidates to demonstrate and experiment with their capability during the Thunderstorm 19-4 demonstration and experimentation event with the intent to accelerate the delivery of innovative capabilities. In addition, vendors may be selected for follow-on events at facility specific locations in support of future acquisition activities. Industry participation in the demonstration and experimentation activities does not suggest or imply that the government will endorse, procure or purchase equipment.

D. SUBMISSION INSTRUCTIONS:

Submit demonstration applications to the Thunderstorm demonstration and experimentation

program electronically. Please use the application provided in Appendix 1 or email Thunderstorm-STTW@arl.psu.edu to request an application or if you have any questions.

The application submitted under this RFI shall be limited to three pages. Applications shall be clearly marked with RFI number: RRTO-19-4-RFI-01.

The application shall be formatted to print as typewritten on single-sided paper with one-inch margins on all sides and 1.5-spaced text. 10-point font or larger with normal (uncondensed) spacing shall be used. All applications shall be submitted in the portable document format (PDF) file format and shall be less than two MB in size. All applications will be submitted via email to Thunderstorm-STTW@arl.psu.edu and will include the following information:

Subject: Thunderstorm 19-4 Application
Company name/business division/address:
Capability name:
Primary POC info for the application: name, email & phone number

You will receive an email within two business days verifying your application was received.

Multiple applications addressing multiple systems may be submitted. Each application must address only one technology solution. Thunderstorm will provide venues, supporting infrastructure and personnel for assessment (operational and technical), based on availability of resources. Costs specific to running the technology developer's equipment, as well as the technology developer's travel costs will be at the technology developer's expense. Invited technology developers must be prepared to be self-sufficient during the execution of their demonstration and not dependent on venue resources. If you have questions regarding the submittal, please contact: Thunderstorm-STTW@arl.psu.edu.

DO NOT SUBMIT CLASSIFIED INFORMATION in the application. Thunderstorm 19-4 is planned to be held at the unclassified level. Capabilities may be For Official Use Only (FOUO) and may be subject to International Traffic in Arms Regulations (ITAR) restrictions. It is incumbent on the demonstrators to ensure that these restrictions are outlined in their application.

DO NOT SUBMIT ACQUISITION PROPOSALS. Submit demonstration applications and white papers only. Thunderstorm technology demonstration and experimentation applications must be submitted **no later than 5:00 PM EDT on 15 March 2019**. No contracts will be awarded based solely on this announcement. Submission of an application does not guarantee an invitation to participate in the demonstration and experimentation event.

E. BASIS FOR SELECTION TO PARTICIPATE:

Submissions will be reviewed by the RRTO and appropriate supporting government organizations and support contractors. The RRTO will determine whether a submission will be accepted for invitation.

Selection of respondents to participate shall be based on the extent to which the technology represents a particular class or level of capability that can be provided to interested commands or interagency partners. Other considerations include:

- Relevance to event focus area
- Completeness of application and supporting information
- Technical maturity

- Relevance of or adaptability to Department of Defense or interagency partner operations/missions
- Relevance to current operational needs

F. ADDITIONAL INFORMATION:

Technology developers shall assure that all proprietary information, documentation and equipment are appropriately and clearly marked. Be advised that lessons learned from these demonstrations may be broadly disseminated within the Federal government and partner agencies associated with the Thunderstorm program. If selected for participation, technology developers may be requested to provide additional information that will be used in preparation for the event.

G. USE OF INFORMATION:

The purpose of this notice is to gain information for potential future use and/or collaboration for development of technology capabilities. All proprietary information contained in the response shall be clearly marked. Any proprietary information contained in response to this request will be properly protected from any unauthorized disclosure. The government will not use proprietary information submitted from any one firm to establish future capability requirements.

H. SPECIAL NOTICE:

University affiliated research centers (UARCs), federally funded research and development centers (FFRDCs), and/or contractor consultant/advisors to the government will review and provide support during evaluation of submittals. When appropriate, non-government advisors may be used to objectively review a particular functional area and provide comments and recommendations to the government. All advisors shall comply with procurement integrity laws and shall sign non-disclosure and rules of conduct/conflict of interest statements. The government shall take into consideration requirements for avoiding conflicts of interest and ensure advisors comply with safeguarding proprietary data. Submission in response to this RFI constitutes approval to release the submittal to government support contractors.

I. FEDERAL ACQUISITION REGULATION (FAR) 52.215-3:

Per FAR 52.215-3 Request for Information or Solicitation for Planning Purposes (Oct 1997):

1. The government does not intend to award a contract on the basis of this RFI notice or to otherwise pay for the information.
2. Although "proposal" and "technology developer" are used in this RFI, your responses will be treated as information only. It shall not be used as a proposal.
3. In accordance with FAR Clause 52.209(c), the purpose of this RFI is to solicit technology demonstration candidates from R&D organizations, private industry and academia for inclusion in future Thunderstorm technology demonstration and experimentation events sponsored by RRTO.

Appendix 1

Application to Demonstrate and Experiment at Thunderstorm 19-4

Company / Organization: *Provide full name of company / organization*

POC: *Provide name of person submitting application, office and mobile telephone numbers, and email address(es).*

Note: This application should be limited to three pages maximum, counting a cover page if included.

Technology and/or Capability Name: *Commonly referred to name*

INSERT PICTURE OF
PROPOSED SYSTEM HERE

Company / Organization:

- *Provide full name, address, and other contact information for your organization. Include specific division if applicable.*
- *Provide brief company description, discussion of company capabilities with respect to the purpose and objective described in this RFI.*
- *Note if your company is designated as a “Small Business” and/or is “Foreign Owned”.*

Objective: *Briefly describe demonstration/experimentation objectives and goals.*

Capability Description:

- *Describe the capability that you plan to demonstrate and how it works.*
- *Describe the graphical user interface (GUI) to include both how results are displayed to the operator and how the operator implements in-situ adjustments to the system.*
- *Describe past, present, and future uses – and predicted performance.*
- *Describe the design outcome of the capability and its intended value to the user.*
- *Describe the problem that you are solving (current / future) with your capability.*
- *Describe the capability application for the Department of Defense and interagency partners (to include law enforcement, or Department of Homeland Security).*
- *Describe installation, integration, and operating requirements to include time to install*

/uninstall.

- *Describe the level of product maturity. Is it in the commercial marketplace or still under development? If under development, please describe status. Also indicate its technology readiness level (TRL).*

Capability Classification: *Provide the classification level of the capability proposed for demonstration. (Unclassified, Confidential, Secret, Top Secret). Note: Thunderstorm 19-4 is planned to be conducted with systems operating at the unclassified level.*

Export Administration Regulations (EAR) and International Traffic in Arms Regulations (ITAR): *Identify what (if any) parts of your capability have EAR and/or ITAR restrictions.*

Set-up Requirements: *Briefly describe the details of the proposed capability set-up for the demonstration.*

- Major System Dimensions:
- Estimated Total Weight:
- Power Requirement:
- Operational Frequency(ies): *(if required, see below additional information needed)*
- Network Connections: *(if needed)*
- Data Requirement: *(internet connectivity, GPS, etc.)*
- Special Handling: *(crane, forklift, etc.)*
- Restrictions: *(cable length, conditioned space, environmental constraints, etc.)*
- Anticipated Number of Personnel for Demonstration:
- Set up time to install/uninstall:
- Hazardous Materials:
- On-site Storage:

If applicable, please provide all pertinent information about any transmitter or receiver that you intend to operate as part of this demonstration. Frequency, transmit power, antenna information, required separation from other emitters, etc. Please include a basic system diagram.

Government Contracts (if applicable): *Identify any government contracts and the supporting agencies that have or are expected to support the system and/or system components.*

Demonstration Team: *Include name, email, phone number, and complete address of key stakeholders / focal point and identify if any are foreign nationals, including:*

- a. Demonstration Lead:
- b. Technical Lead:
- c. Team Members: