



CTTSO

Combating Terrorism Technical Support Office

Explosives Detection Subgroup



Advance Planning Briefing to Industry

17 February 2009



Mission

Identify, prioritize and execute research and development projects that satisfy interagency requirements for existing and emerging technology in the area of explosives detection and diagnostics. Emphasis is on long term, sustained approach to develop technologies for detection and subsequent characterization of concealed explosives.



Terminology

- Stand-off – Both System and Operator are at a distance from the Object being interrogated
- Remote – The Operator is at a distance from the system that is performing the interrogation.
- JIEDDO – Joint Improvised Explosive Device Defeat Organization
- VBIED – Vehicle Borne Improvised Explosive Device



Subgroup Membership

- **Department of Commerce:** NIST
- **Department of Defense:** DIA, JIEDDO, NSA, PFPA, USA (ECBC), USAF (AFESC, AFRL), USMC (EOD), USN (NAVEODTECHDIV, NRL, NSWC), DARPA
- **Department of Homeland Security:** S&T, TSA, USCG, USSS, TSL
- **Department of Justice:** ATF, FBI
- **Department of State:** DS



2008 Success Stories



- JIEDDO Sponsored Hardening R&D
- Commercial Spin-off of Military Project
- Contract award 400+ Units



FY 2010 Requirements

- R2458 Sampling Improvements and Sub-system Development
- R2459 Fixed Site VBIED Detection
- R2460 Short Range Stand-off Anomaly Detection
- R2461 Advanced Explosive Trace Detectors With Improved Sampling
- R2462 Standoff Personnel Screening for Explosives Detection



R2458 Sampling Improvements and Sub-system Development

- **Product:** A contact or non-contact sampling technology to allow for improved baggage screening.
- **Specifications:**
 - Collect nanogram levels of particles (both airborne and present on surfaces) and part per billion levels of explosive vapors.
 - Simultaneous collection of both particle and vapor samples are particularly desired.
 - Document performance by standard analytical instruments



R2458 Sampling Improvements and Sub-system Development

- **Specifications (cont.):**
 - Samples must be deliverable to an existing commercial explosive trace detector.
 - Contact sampling should take 5-10 seconds for standard luggage items.
 - Offer significant improvements over current contact sampling technologies.



R2458 Sampling Improvements and Sub-system Development

- **Specifications (cont.):**
 - Non-contact sampling should take no more than 10-20 seconds.
 - (Non-contact) The system must be man portable and user friendly
 - (Non-contact) Specify your methodology, match sampling time and flow rates to volume being processed.



R2459 Fixed Site VBIED Detection

- **Product:** Explosives detection system for vehicles
- **Specifications:**
 - Non-contact detectors are desired
 - Detection of specific explosives are preferable vice anomaly detectors.
 - Multiple sensor technologies are preferred.
 - Proprietary interface or data formats are not acceptable



R2459 Fixed Site VBIED Detection

- **Specifications (cont.):**
 - Power requirements are 110V-220V power at 50-60 Hz, with field deployable conditions of operability off a back-up generator.
 - State the range of explosives that are detectable.
 - Detection of military ordnance (e.g.. 105mm round) and improvised devices are desired.



R2459 Fixed Site VBIED Detection

- **Specifications (cont.):**
 - Compliance with US Military and Civilian Safety and Health Regulations (ANSI, OSHA, FDA Etc).
 - Detecting modifications to vehicles associated with IED installation are of interest.



R2460 Short Range Stand-off Anomaly Detection

- **Product:** An anomaly detection system that can effectively identify concealed objects under clothes or in a bag/carrying case at ranges of no less than 5 meters with 10 meters or greater as the objective.
- **Specifications:**
 - Detection through vehicle windshields and window glass are of interest.
 - Process and output data in real time
 - Provision for automatic alerts on detection of anomalies.



R2460 Short Range Stand-off Anomaly Detection

- **Specifications (cont.):**
 - Proprietary interface or data formats are not acceptable
 - Handheld systems that can be carried by a soldier/officer are desired; larger systems will be considered.
 - 15 pound maximum weight for handheld systems



R2460 Short Range Stand-off Anomaly Detection

- **Specifications (cont.):**
 - 6 hour battery life with hot swappable configuration is desired
 - Larger system power requirements are 110V-220V power at 50-60 Hz, with field deployable conditions of operability off a back-up generator.



R2461 Advanced Explosive Trace Detectors With Improved Sampling

- **Product:** Develop a handheld explosives trace detector with improved sampling capability to detect and identify trace levels of both vapor and particles of explosives.
- **Specifications:**
 - Based on proven detection technology, adaptations of an existing detector are acceptable.
 - Non-contact particle collection is preferred.
 - Collection of particles and vapor should be simultaneous or rapid sequence



R2461 Advanced Explosive Trace Detectors With Improved Sampling

- **Specifications (cont.):**
 - Non-destructive sampling
 - Multiphase approach to include (component design, feasibility test, prototype fabrication, and environmental hardening).
 - Environmentally Hardened
 - 7 pound maximum weight for handheld systems
 - 4 hour battery life with hot swappable configuration, option for AC power



R2462 Standoff Personnel Screening for Explosives Detection

- **Product:** A system to remotely screen moving or stationary people for explosives.
- **Specifications:**
 - Detection of either chemical effluence, vapors or trace particles is desired
 - Minimum detection of 1mg of the following: military, commercial and homemade; explosives (HME) is desired
 - Detection distances of 15 meters or greater is desired.



R2462 Standoff Personnel Screening for Explosives Detection

- **Specifications (cont.):**
 - Automated threat detection is desired
 - System response within 10 seconds
 - Multiphase approach to include (component design, feasibility test, prototype fabrication, and environmental hardening).

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R2462 Standoff Personnel Screening for Explosives Detection

- **Specifications (cont.):**
 - Ability to track and screen in individuals moving at walking speeds (less than 5 mph) is of interest.
 - Ability to screen and track individuals in a crowd is of interest.
 - Usable in an explosives contaminated environment.



Contact Information

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