## Homeland Security
### Science and Technology

# Newsletter

**U.S. Department of Homeland Security**

## SAVER
System Assessment and Validation for Emergency Responders

The U.S. Department of Homeland Security (DHS) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders making procurement decisions.

Located within the Science and Technology Directorate (S&T) of DHS, the SAVER Program conducts objective assessments and validations on commercial equipment and systems, and provides those results along with other relevant equipment information to the emergency responder community in an operationally useful form. SAVER provides information on equipment that falls within the categories listed in the DHS Authorized Equipment List (AEL).

The SAVER Program is supported by a network of technical agents who perform assessment and validation activities. Further, SAVER focuses primarily on two main questions for the emergency responder community: "What equipment is available?" and "How does it perform?"

For more information on the SAVER Program, contact the SAVER Program Support Office.

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## Handheld Underwater Metal Detectors

Handheld underwater metal detectors assist public safety divers with locating objects underwater by providing visual, audible, and/or tactile alerts when metallic objects are detected. The Space and Naval Warfare Systems Center (SPAWARSYSCEN) Atlantic conducted a comparative assessment of handheld underwater metal detectors in August 2013 to provide emergency responders with information that will assist with making operational and procurement decisions. The assessment was based on the recommendations of a focus group that met in January 2013.

The focus group recommended twenty evaluation criteria for the assessment grouped under four SAVER categories: usability, capability, deployability, and maintainability. The criteria and their definitions are listed in the *Handheld Underwater Metal Detectors Focus Group Report*. The focus group report also includes assessment scenario recommendations, product selection recommendations, and specific products recommended by the focus group for inclusion in the assessment.

SPAWARSYSCEN Atlantic assessed eight handheld underwater metal detectors in salt and fresh water. The assessment was conducted in two phases: the specification assessment and the operational assessment. During the specification assessment, the evaluators assessed the detectors using vendor-provided information and specifications. Hands-on experience using the detectors during three scenarios—pre-dive, object detection, and dive operation—served as the basis of the operational assessment.

The pre-dive scenario gave evaluators an opportunity to familiarize themselves with the detectors. In the object detection scenario, evaluators used the detectors to locate objects previously buried at various depths by assessment team members. During the

## In This Issue

dive operation scenario, evaluators conducted a shallow-water dive following a line course. At the end of this scenario, evaluators performed vendor-recommended, post-dive maintenance, including decontamination procedures.

As evaluators completed the assessment scenarios, they rated each detector based on its performance. Evaluators reviewed the ratings and comments for all of the detectors at the conclusion of the assessment. SPAWARSYSCEN Atlantic is in the process of reviewing and analyzing the criteria ratings for each product and evaluator feedback gathered during the assessment. Assessment results will be published in the *Handheld Underwater Metal Detectors Assessment Report*.

## HAZMAT/CBRNE Mobile Apps



*FiRST (First Responder Support Tools). Photo courtesy of FEMA.*

Hazardous material (HAZMAT) and chemical, biological, radiological, nuclear, and high yield explosives (CBRNE) incidents occur when substances such as toxic chemicals, biological agents, radiological or nuclear materials, or explosives pose a threat to life, property, and/or the environment.

During emergency incidents, the use of software applications (commonly called apps) on mobile devices, such as smartphones and tablets, has proved useful to emergency responders. The use of these mobile apps can improve situational awareness during a HAZMAT/CBRNE incident by quickly providing critical information such as emergency response procedures, identification and treatment of medical hazards, identification of protective zones, and exposure limits.

To provide emergency responders, public safety officials, and other decision-makers with information about HAZMAT/CBRNE mobile apps so that they can better appreciate and effectively use these tools for emergency management, SPAWARSYSCEN Atlantic produced the *HAZMAT/CBRNE Mobile Apps Application Note*, which provides information about the capabilities and operational

considerations related to HAZMAT/CBRNE mobile apps. Additionally, SPAWARSYSCEN Atlantic published the *HAZMAT/CBRNE Mobile Apps TechNote*.

## Ruggedized Tablets

Ruggedized tablets are mobile computing devices that are able to withstand various environmental and hazardous conditions and rough handling, making them suitable for use by law enforcement in field operations. Ruggedized tablets are used by law enforcement personnel to write reports, communicate with peers, take notes during interrogations, conduct surveillance operations, and search criminal record databases. SPAWARSYSCEN Atlantic conducted a comparative assessment of ruggedized tablets in August 2013 to provide emergency responders with information that will assist with making operational and procurement decisions. The assessment was based on the recommendations of a focus group that met in January 2013.

The focus group recommended twenty-two evaluation criteria for the assessment grouped under four SAVER categories: usability, capability, deployability, and maintainability. The criteria and their definitions are listed in the *Ruggedized Tablets Focus Group Report*. The focus group report also includes assessment scenario recommendations, product selection recommendations, and specific products recommended by the focus group for inclusion in the assessment.

The assessment was conducted in two phases: the specification assessment and the operational assessment. During the specification assessment, the evaluators assessed the tablets using vendor-provided information and specifications. Hands-on experience using the tablets



*Ruggedized Tablet.*

during three scenarios—setup, crash investigation, and playback—served as the basis of the operational assessment.

During the setup scenario, evaluators used the tablet in a low-lit room as well as in direct sunlight. In the crash investigation scenario, evaluators simulated the investigation of a two-vehicle crash by interviewing both drivers and recording the conversations using the tablet's rear-facing camera and internal microphone. During the playback scenario, evaluators reviewed the audio, video, and images captured by the tablet during the setup and crash investigation scenarios. Evaluators then transferred the audio, video, and images captured by all tablets to a laptop for review.

SPAWARSYSCEN Atlantic is in the process of reviewing and analyzing the criteria ratings for each product and evaluator feedback gathered during the assessment. Assessment results will be published in the *Ruggedized Tablets Assessment Report*.

## Recent SAVER TechNotes

The SAVER Program provides information to the responder community through several types of documents. One such document, the TechNote, provides responders with a high-level introduction to a technology area by answering basic questions about the technology such as "What is it?" "What is it used for?" "Who is using it?" "How does it work?" "Why is it important to the responder community?" and "Where can I find more information on this?"

As a Technical Agent, the National Urban Security Technology Laboratory (NUSTL) recently completed several TechNotes for the SAVER Program. These TechNotes cover a wide range of technologies, which are described in the following paragraphs.

### *Ion Mobility Spectrometry (IMS)-Based Chemical Agent Detectors*

IMS-based chemical agent detectors monitor atmospheric chemical agent levels and can operate while being worn or carried. They warn users that chemical agent concentrations are approaching hazardous levels, and identify the specific chemical agent present.

### *Explosives Detection Portals*

Explosives detection portals are used to screen people or vehicles entering secure areas. They can detect microscopic explosive particle residue using ion mobility spectrometry, or create images using backscatter X-ray, millimeter wave, or submillimeter wave technologies.

### *Environmental (Weather) Surveillance Equipment*

Environmental surveillance equipment, including both fixed and portable weather stations, provide information needed by first responders during CBRNE emergencies by measuring wind speed and direction, temperature, and other variables. Data from weather surveillance equipment can be input into a computer and coupled to atmospheric plume models.

### *Biological Agent Detection Equipment for First Responders' Field Use*

Biological agent detection equipment assists emergency responders in the initial risk assessment phase of a biological agent attack. At a minimum, field kits should discriminate between dangerous and harmless biological material present in the environment, be easy to use, and provide a fast positive or negative response.