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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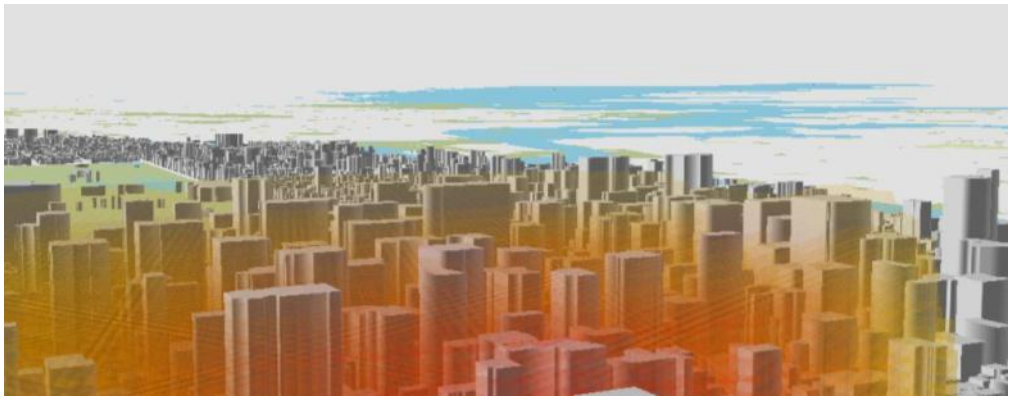

Atmospheric Plume Dispersion Models and Applications for Emergency Response and Recovery

Atmospheric plume dispersion models are computer-based tools used after the release of hazardous materials to predict the paths and concentrations of airborne contaminants. Dispersion models can be applied to both emergency preparedness and response and recovery operations. Emergency responders and public safety officials can use model predictions to develop protective action recommendations, protect emergency workers, plan evacuation routes, select shelter-in-place and relocation areas, and take other actions to assess and mitigate potential impacts from the hazardous material release.

The primary outputs from atmospheric plume dispersion models are the predicted spatial and temporal concentration distributions of the substances of interest. Derived outputs include information about risks to the exposed population (for example, the effects of a toxic release on the population or the dosage distribution of a radioactive substance). Modern plume modeling systems usually include a geographic information system module, which enables the user to quickly visualize and assess potential impacts and determine which areas are at risk.

In order to provide emergency responders, public safety officials, and other decision-makers with information about atmospheric plume dispersion models so that they can better appreciate and effectively use these models for emergency management, the National Urban Security Technology Laboratory (NUSTL) produced the *Atmospheric*

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Plume Dispersion Models and Applications for Emergency Response and Recovery Handbook.

The handbook contains introductory-level information primarily for emergency responders, public safety officials, and decision-makers with little or no knowledge about atmospheric plume dispersion modeling. It provides basic knowledge about what modeling tools are available and where to go for help in modeling the atmospheric dispersion of hazardous materials resulting from accidental or deliberate releases. The handbook also addresses the complexities of dealing with incidents in urban areas and how to manage those complexities.

Subsistence and Sanitation Systems

Subsistence and sanitation systems are used to support response and recovery operations in areas without basic infrastructure. These systems may include field kitchens, showers, restrooms, and laundry systems that allow continued operations in areas where these facilities have been compromised or are unavailable due to a remote location.

To assist emergency responders making procurement decisions, the U.S. Army Natick Soldier Research, Development, and Engineering Center (NSRDEC) produced the *Subsistence and Sanitation Systems Market Survey Report* and the *Subsistence and Sanitation Systems Technical Guide*.

The market survey report includes a system overview, including procurement options, system capacities, standard equipment, capabilities and considerations, and standards and regulations. A sample of the current commercial marketplace, representing kitchen, restroom, shower, laundry, and combination systems from eight manufacturers, is also included.

Mobile showers used in the aftermath of Hurricane Katrina. FEMA news photo.

The technical guide discusses selection considerations, among them system capacities, system costs, resource consumption and costs, waste disposal, standard and optional equipment, likely deployment locations, time and personnel requirements, and current and emerging technologies.

Magnifying Patrol Rifle Scopes

Magnifying patrol rifle scopes aid in aiming patrol rifles by providing a magnified view of distant threats, such as armed gunmen. The Space and Naval Warfare Systems Center (SPAWARSYSCEN) Atlantic is planning to conduct a comparative assessment of magnifying patrol rifle scopes to provide emergency responders with information that will assist with making operational and procurement decisions. This assessment will be based on the recommendations of a focus group that met in December 2012.

The focus group recommended twelve evaluation criteria for the assessment: durability, ease of use, eye relief, field of view, magnification range, ability to maintain settings, optical quality, reticle, setup, size and weight, technical support, and user manual. Definitions of these criteria are listed in the *Magnifying Patrol Rifle Scopes 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.

Once the assessment is completed, results will be published in the *Magnifying Patrol Rifle Scopes Assessment Report*. A market survey report will also be produced to provide emergency responders with a snapshot of the current marketplace for magnifying patrol rifle sights.

Covert Wearable Camera Systems

Covert wearable camera systems typically include a camera, microphone, battery pack, and video storage capability, and are designed to be concealed on various locations on the body, depending on the model. These camera systems are used by law enforcement personnel to gather intelligence and to record undercover transactions.

In September 2012, SPAWARSYSCEN Atlantic conducted a comparative assessment of three covert wearable camera systems for the SAVER Program. Prior to the assessment, a focus group was conducted to identify and define evaluation criteria. The focus group also recommended assessment scenarios, product selection criteria, and specific products for assessment.

The evaluation criteria used for this assessment included: audio quality, comfort, covertness, data security, data storage, data transfer, day/night capability, durability, initial setup, operating/storage temperatures, operational ease of use, playback, power, product support, video quality, and warranty. Detailed explanations of these criteria can be found in the *Covert Wearable Camera Systems Focus Group Report*.

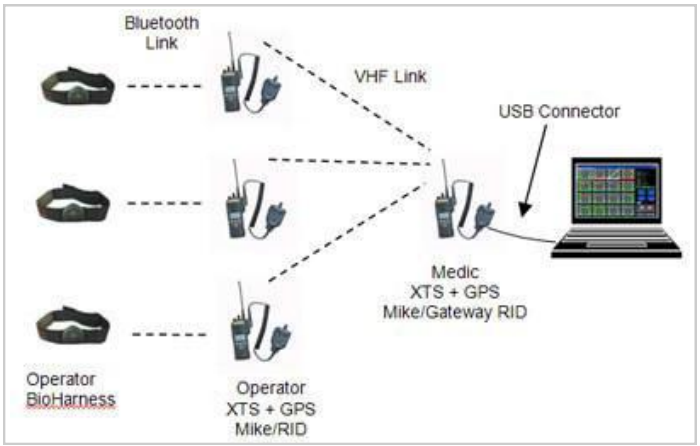
During the assessment, these criteria were assessed in two phases: specification and operational. Systems were assessed using criteria associated with design, product support, and warranty during the specification phase. The operational phase consisted of two scenarios: (1) setup and (2) transaction, transfer, and review. As evaluators completed the assessment phases, they were given the opportunity to rate each camera system based on its performance. At the end of the assessment, evaluators reviewed their ratings and comments for each system. The results of the assessment are published in the *Covert Wearable Camera Systems Assessment Report*.

In addition to the assessment, SPAWARSYSCEN Atlantic conducted market research to provide law enforcement personnel with information on covert wearable camera systems, and produced the *Covert Wearable Camera Systems Market Survey Report*.

Physiological Status Monitoring

Physiological status monitoring, also known as personnel physiological status monitoring, is a relatively non-intrusive method of collecting, recording, and reporting a user's vital signs in real time for extended periods of time. Sensors are typically attached with a strap to the user's chest. Information collected by the sensors is transmitted, via wireless transmitter, to a remote monitoring station, or it is recorded and later downloaded for analysis and interpretation. This information can be used to determine whether personnel are fatigued, dehydrated, injured, or healthy. This technology is being developed for use in military and emergency responder applications.

In order to provide emergency responders with information, NSRDEC produced the *Physiological Status Monitoring TechNote*. The technote provides an overview of physiological status monitoring and discusses applications as well as ongoing research and development and the limitations of the technology.



Depiction of a physiological status monitoring system.

The reports listed in the Summer 2013 Newsletter are published in the SAVER section of the Responder Knowledge Base (RKB) website. These reports are available to the responder community.