System Assessment and Validation for Emergency Responders (SAVER)

Mobile X-ray Systems for Search and Inspection Market Survey Report

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FOREWORD

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 response 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 mission includes:

- Conducting impartial, practitioner-relevant, operationally oriented assessments and validations of emergency responder equipment; and
- Providing information that enables decision-makers and responders to better select, procure, use, and maintain emergency responder equipment.

Information provided by the SAVER Program will be shared nationally with the responder community, providing a life- and cost-saving asset to DHS, as well as to Federal, state, and local responders.

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?"

As a SAVER Program Technical Agent, the National Urban Security Technology Laboratory (NUSTL) has been tasked to provide expertise in hazard detection, response, and remediation instruments and techniques. In support of this tasking, NUSTL conducted a market survey of commercially available mobile X-ray systems for search and inspection. These mobile X-ray systems fall under the AEL title "System, Mobile Search & Inspection; X-ray," reference number 15IN-00-XRAY.

Visit the SAVER library at www.dhs.gov/science-and-technology/SAVER for more information on the SAVER Program or to view additional reports on mobile X-ray systems or other technologies.

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1. INTRODUCTION

Mobile X-ray systems for search and inspection are available in many vehicular configurations such as vans, trucks, and trailers. They are used by professionally trained public safety and law enforcement personnel in various applications. Some systems are designed for inspecting packages, parcels, and luggage at locations such as concerts, sporting events, or transportation hubs. Other systems are designed to inspect vehicles and cargo. Mobile X-ray systems can detect explosives, weapons, narcotics, and other threats and contraband.

This market survey report is based on information gathered between September 2010 and June 2011 from a government-issued Request for Information (RFI) posted on the Federal Business Opportunities (FedBizOpps) website (https://www.fbo.gov) as well as a search of vendor websites. The equipment addressed in this market survey are X-ray systems mounted on or in wheeled vehicles such as trailers or vans. Hand-carried (i.e., portable) systems are discussed in other SAVER publications. [1]

For inclusion in this report, the mobile X-ray systems had to meet the following criteria:

- The entire system including X-ray generator, detector, display, and power source must be mounted in and contained in a wheeled vehicle capable of being driven or towed on public or private roads;
- The system must generate X-rays from a non-radioactive source (gamma-ray systems were excluded); and
- The system must be a commercial off-the-shelf (COTS) product designed for search and inspection applications.

Due diligence was exercised to develop a report that is representative of the products in the marketplace.

2. MOBILE X-RAY SYSTEMS OVERVIEW

X-rays were discovered in 1895 by Wilhelm Roentgen, who received the first Nobel Prize for his work. X-rays are electromagnetic radiation emitted by electrons outside the nucleus of an atom[2], and have photon energies typically in the range of 120 electron volts (eV) to 120 kilo-electron volts (keV), giving them the ability to penetrate and pass through solid objects.

Their power to improve health care by imaging internal organs and bones on radiographic film was immediately recognized. This discovery drove the rapid development and deployment of X-ray imaging technology. Although radiographic film is still widely used today in medical and non-medical applications, X-ray images can now be captured and displayed using detector technologies such as scintillators, photodiodes, phosphors, and Geiger counters. These systems

[1] *Portable X-ray Systems for Suspicious Package Screening – Focus Group Recommendations*, June 2010; *Assessment Report*, December 2010; *Market Survey Report*, February 2011; prepared by the Space and Naval Warfare Systems Center Atlantic.
[2] Gamma rays, on the other hand, are emitted by the nucleus through radioactive decay or other nuclear reactions.

have the ability to rapidly and repeatedly scan large objects such as luggage, packages, and containers, while producing high-resolution images.

Driven by the need to intercept explosives, weapons, and other illicit materials before they can be smuggled aboard commercial airliners or into a restricted area, X-ray systems for search and inspection have advanced significantly. X-ray sources that minimize stray radiation are used with high-resolution detectors and image processing software to interrogate objects such as hand luggage and baggage. All the capabilities and advanced features of baggage scanning systems used at airports are now available in van and trailer-mounted systems. These mobile platforms can be used to set up a security checkpoint at locations such as train and bus stations, concerts, sporting events, or political gatherings.

Vehicle and cargo-screening X-ray systems have been developed with X-rays powerful enough to penetrate through several inches of steel and image the contents of trucks and containers. These systems usually employ a boom containing the detector to position it on the opposite side of the container from the X-ray source. They can be operated in stationary portal mode (scanned vehicles drive through) or in drive-by mode (mobile X-ray system drives alongside stationary vehicles and containers). As explained in Section 2.1.3.2, systems that employ backscatter X-rays can operate in drive-by mode with no need for an extended boom.

2.1 Current Technologies

Mobile X-ray systems consist of an X-ray generator, an X-ray detector with image capturing capability, and a display. Software is often included to help interpret the images and identify threats.

2.1.1 X-ray Generators

X-ray generators are devices designed to emit X-radiation in a collimated beam at a specific energy or energies. Mobile X-ray systems typically employ an X-ray tube, which is a vacuum tube applied with a high voltage to produce a beam of electrons which then emit X-rays after striking a dense metal target. The energy of the X-ray photons produced corresponds with the voltage on the X-ray tube. For instance, a tube with 100 kilovolts (kV) applied to it will produce a beam of electrons with maximum energy of 100 keV, which in turn will produce X-rays with maximum energy of 100 keV. Shielding materials and collimators produce a targeted beam that minimizes stray radiation.

X-ray generators employed by vehicle and cargo inspection systems typically use an X-ray tube containing a linear accelerator (LINAC) which greatly increases the velocity of electrons by subjecting them to a series of oscillating electric potentials. This method produces X-rays on the order of 1 to 10 mega-electron volts (MeV). These high-energy X-rays can penetrate through several inches of steel and provide high-quality images of the contents of trucks and containers.

2.1.2 X-ray Detectors/Imaging Systems

Virtually all mobile X-ray systems using film as the detection medium have changed to either digital radiography or computed radiography imaging systems. Digital radiography captures X-ray images using digital sensors. Computed radiography captures X-ray images using an image plate of photostimulable phosphors.

2.1.2.1 Digital Radiography

Digital radiography (DR) uses a variety of sensor technologies to produce digitized images indirectly but rapidly from X-ray signals. One approach uses electronics constructed on amorphous (non-crystalline, or disordered) silicon deposited on a flat glass panel. The panel is then coated with a scintillator (for example, gadolinium oxysulfide) that generates light when illuminated with X-rays. The light is detected with an array of photodiodes. Amorphous thin-film transistors couple each photodiode to the readout electronics. Spatial resolution (the smallest detail that can be seen in the image) for these systems is on the order of 0.005 inches (0.127 mm), determined by the diameter of the photodiode. The data can be read and an image generated in less than 3 seconds. Amorphous silicon sensor arrays on glass panels can be as large as 16 inches by 20 inches, which is more than adequate to image most suspicious objects. This type of system is commonly known as an "amorphous silicon panel" or a "photodiode array."

Other scintillators (e.g., sodium iodide) and detectors (e.g., charge coupled devices) may be used in DR systems, with trade-offs in such factors as cost, resolution, sensitivity, plate size, and mobility. DR systems have the advantage of fast imaging and instant reusability. In addition, it is possible to illuminate the target with multiple X-ray energies per image. This tool is useful for differentiating organic and inorganic substances. Disadvantages of DR systems include the high cost and limited durability of the fragile flat-panel detector.

2.1.2.2 Computed Radiography

Computed radiography (CR) captures X-ray images on an image plate, which is a flexible plastic sheet coated with a photostimulable phosphor (PSP) crystal, typically barium fluorobromide doped with europium. X-rays incident on the PSP excite electrons which are trapped in "color centers" in the crystal lattice, creating a latent image that is stable for several days. The image is obtained by using an image plate reader which scans the image plate with a tightly focused visible-wavelength laser beam; this causes the trapped electrons to emit blue-violet light that is detected by a photomultiplier tube.

Computed radiography systems generally have superior image quality and higher resolution compared with digital radiography. However, image processing time is much higher. A 14 inch by 17 inch image plate can be read in approximately 90 seconds using the best available technology. The image must then be erased by exposure to intense white light before the image plate may be reused. The image plate must be deployed (preferably using robotic equipment) and returned to the reader for analysis, and this sequence repeated for any additional images.

2.1.3 Threat Detection Features

2.1.3.1 Multi-energy X-rays

Different materials absorb high and low-energy X-rays at differing rates. By comparing high-energy and low-energy signals obtained from transmission X-rays, it is possible to determine the atomic composition of a substance and differentiate organic and inorganic materials. One way to do this is to illuminate the target with different X-ray energies. The alternative is to use a multi-layered detector in which the layers are designed to read X-rays in different energy ranges. The

algorithms needed to make these calculations are complex, but easily handled by today's rapid imaging systems and high-speed computers. Most multi-energy X-ray systems display certain material types in different colors. For instance, organic items may display in orange, inorganic items in blue, mixed items in green, and high density items in red. By distinguishing organic items from inorganic, substances such as explosives and narcotics are more easily identified.

2.1.3.2 Backscatter X-rays

Conventional X-ray images are generated from transmission X-rays, those that pass through an object. It is now possible to create images from X-rays that are reflected, or backscattered, from objects. Less dense materials more efficiently backscatter low-energy X-rays and thus are differentiated from high-density materials. In addition, backscatter technology preferentially highlights organic materials such as explosives, narcotics, and stowaways. Another advantage of this technology is that an object can be scanned without access to both sides, as is needed with transmission X-rays.

2.1.3.3 Software Features

Mobile X-ray system software may include features that facilitate threat detection. Operators can archive and annotate images, zoom in on a region, sharpen edges, and correct for image distortion. Some systems will display the atomic number of items scanned, alarm on items whose density is above a set threshold, and automatically highlight objects such as weapons deemed to be a threat. Operator training and performance measurement features such as threat image projection (TIP) are often included in software packages. TIP digitally inserts threatening images randomly into scanned objects.

2.2 Applications

Applications for mobile X-ray systems fall into two broad categories:

- Package and parcel screening; and
- Vehicle and cargo screening.

Package and parcel screening systems have all the capabilities of stationary cabinet X-ray systems that are found at airports, government buildings, and post offices. Mounted into vans or trailers they can quickly be deployed to areas or events in which a stationary screening system is not present. Such locations may include train stations, bus depots, airport and military base perimeters, concerts and sporting events, political gatherings, mail processing facilities, ports, and border crossings. Items screened can be luggage, handbags, backpacks, envelopes, boxes, and other packages. See Table 3-1 for limits on size and weight.

Vehicle and cargo screening systems have the capability to image the contents of cars, trucks, containers, and large boxes and packages. These systems, mounted in trucks with a deployable boom, can be set up as portal monitors to screen passing vehicles at roadways, ports, border crossings, military bases, and other traffic locations. They can also be used to screen parked vehicles, containers, or other large items by moving alongside them with the boom positioned on the opposite side of the object. Other systems, using backscatter X-rays, can scan vehicles and cargo in drive-by mode. See Table 3-2 for limits on the size of vehicles and cargo.

Mobile X-ray systems can be used to detect threats and contraband including but not limited to the following items:

- Explosives and explosive devices;
- Weapons;
- Narcotics;
- Stowaways;
- Currency;
- Alcohol;
- Tobacco; and
- Agricultural products.

2.3 Standards/Regulations

No standards have been mandated specifically for X-ray systems contained in vehicles. However, there are standards and regulations that apply to both cabinet X-ray systems and to vehicle and cargo X-ray inspection systems.

American National Standards Institute (ANSI) Standard N42.44-2008 establishes technical performance requirements for cabinet X-ray systems used at checkpoints. Title 21 of the Code of Federal Regulations, Section 1020.40, specifies radiation emission limits and other safety and performance standards. All mobile X-ray package and parcel screening systems should comply with these standards and regulations and be operated in accordance with Federal and state radiation protection standards.

ANSI N42.46-2008 is the imaging performance standard for cargo and vehicle X-ray screening systems. ANSI N43.3-2008 gives guidance for the design and use of installations that use devices that generate X-rays up to 10 MeV in energy. All mobile X-ray systems that screen vehicles and cargo should comply with these standards.

Some vendors reported compliance with ASTM International (formerly known as American Society for Testing and Materials) F792-08, which prescribes the standard practice to measure imaging performance of X-ray systems used to screen for prohibited items such as weapons, explosives, and explosive devices in baggage, packages, cargo, or mail. This practice is intended to establish whether an X-ray system meets the manufacturer's specification or if the system's performance has deteriorated over time. It is based on the use of standard test objects to determine the performance level of the systems. Minimum performance levels, either quantitative or qualitative, are not established by the practice.

Emergency responders could use commercially available test kits to evaluate mobile X-ray systems. These kits employ test objects to assess nine parameters of the image quality of an X-ray screening image system: wire display, useful penetration, spatial resolution, simple penetration, thin organic imaging, sensitivity, organic/inorganic differentiation, organic differentiation, and useful organic differentiation.

Finally, it should be noted that the National Institute of Justice (NIJ) Standard 0603.01 establishes performance requirements and testing methods for portable (i.e., handheld) X-ray systems for use in bomb disarming operations. This standard does not apply to cabinet X-ray systems or mobile X-ray systems for search and inspection.

3. PRODUCT DATA

The mobile X-ray systems identified in this market survey report are categorized here according to whether they are designed to screen packages and parcels or to screen vehicles and cargo.

3.1 Package and Parcel Screening Systems

The package and parcel screening systems range in price from $109,000 to $172,209. They are housed in vans, minivans, or trailers having weights ranging from 8,500 pounds to 16,000 pounds. Product data for these systems is presented in a product comparison matrix (Table 3-1) and in subsequent product descriptions.

Products are listed in alphabetical order by vendor. The product data was obtained directly from the vendor, product specification sheets, and the vendor's website. The information obtained from these sources has not been independently validated by the SAVER Program.

Features in Table 3-1 are defined as follows:

Cost indicates the price of the system as quoted by the vendor in U.S. dollars.

GSA Schedule indicates whether or not the system is listed on the U.S. General Services Administration schedule.

System Weight indicates the weight in pounds of the entire mobile X-ray system including the vehicle it is mounted in.

Tunnel Dimensions indicates the width and height of the tunnel opening through which packages and parcels to be X-rayed travel by means of the system's conveyor. Values are rounded to the nearest inch.

Maximum Package Weight indicates the maximum weight in pounds of packages and parcels that can be handled by the system's conveyor.

Operating Temperature indicates the temperature range under which the system can operate.

Operating Relative Humidity indicates the relative humidity range under which the system can operate.

Cable Length for Remote Operation indicates the length of cable in feet provided for operating the system and viewing images at a remote distance from the object being X-rayed.

X-ray Energy indicates the maximum X-ray photon energy in keV produced by the system.

X-ray Penetration indicates the typical penetration into steel of X-rays produced by the system. Values are specified in millimeters (mm).

Spatial Resolution indicates the typical size of the smallest possible feature that can be detected in images produced by the X-ray system. Values are given in American wire gauge (AWG), a system for specifying the diameter and other characteristics of wires. The gauge reported corresponds to the diameter of the wire, with higher AWG values corresponding to smaller diameters and, therefore, better spatial resolution. Diameters of commonly specified AWG values are given here.

AWG	Diameter
34	0.160
35	0.143
36	0.127
37	0.113
38	0.101
39	0.0897
40	0.0799

Multi-energy X-rays indicates whether or not the system produces a multi-energy X-ray response that can be used to differentiate organic and inorganic substances.

Backscatter X-rays indicates whether or not the system uses backscatter X-rays. Backscatter X-rays do not penetrate through the target object, but are deflected at an angle by a process called Compton scattering. Backscatter X-rays are useful in determining density of materials and highlighting organic materials.

Density Threshold Alert indicates whether or not the system can generate an alarm when a scanned object has a density that exceeds a user specified threshold.

Automatic Atomic Number Measurement indicates whether or not the system can measure and display the atomic number measurement of objects or regions in a scanned image.

Table 3-1 Product Comparison Matrix for Package and Parcel Screening Systems

Vendor	Product	Cost ($)	GSA Schedule	System Weight (pounds)	Tunnel Dimensions (Width x Height) (inches)	Maximum Package Weight (pounds)	Operating Temperature (°F)	Operating Relative Humidity (%RH)	Cable Length for Remote Operation (feet)	X ray energy (keV)	X ray Penetration (mm steel)	Spatial Resolution (AWG)	Multi energy X rays	Backscatter X rays	Density Threshhold Alert	Automatic Atomic Number Measurement
American Innovation, Inc.	MXIS-VAN	NA	NA	11,600	40 x 40	440	32 - 113	0 - 95	Opt *	160 †	29	38	Yes	No	Yes	Yes
Astrophysics, Inc.	XIS-Minivan	112,000	No	12,100 ‡	40 x 40	440	32 - 104	0 - 95	200	165	37	40	Yes	No	Yes	Yes
	XIS-Trailer	109,000	No	8,500	40 x 40	440	32 - 104	0 - 95	200	165	37	40	Yes	No	Yes	Yes
	XIS-Van	120,901	Yes	13,700 ‡	40 x 40	440	32 - 104	0 - 95	200	165	37	40	Yes	No	Yes	Yes
Control Screening, Inc.	AUTOCLEAR X-ray Inspection Trailer	125,000	NA	16,000	40 x 40	331 §	32 - 104	10 - 95	Opt *	140	29	40	Yes	Opt	Yes	Yes
Rapiscan Systems	MobilScan™ 636SV	140,616	Yes	8,560	40 x 40	363	32 - 104	5 - 95	10	160	29	40	Yes	No	Opt	Opt
Smiths Detection	ScanTrailer 130100	145,101	No	11,243	52 x 40	441	32 - 104	10 - 90	100	140	30	38	Yes	No	Opt	Opt
	ScanTrailer 8585 SA	129,910	No	8,708	34 x 34	441	32 - 104	10 - 90	100	140	30	38	Yes	No	Opt	Opt
	ScanTrailer 9075-OT	139,554	No	9,580	36 x 30	331	32 - 104	10 - 90	100	140	30	38	Yes	No	Opt	Opt
	ScanVan 8585	172,209	Yes	8,708	34 x 34	441	32 - 104	10 - 90	100	140	30	38	Yes	No	Opt	Opt

Notes:
* Remote operation is an optional feature - information on cable length is not available;
† 180 keV is optional;
‡ Weight may vary depending on chassis purchased;
§ 887 pounds optional.

Abbreviations:
AWG = American wire guage; °F = degrees Fahrenheit; GSA = General Services Administration;
keV = kilo-electron volts; mm = millimeters; NA = information not available;
Opt = optional feature; %RH = percent relative humidity.

3.1.1 American Innovation, Inc., MXIS-VAN

PRICE:	Information not available	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	160 keV		

The MXIS-VAN is a mobile X-ray screening system contained in a Ford E-450 heavy-duty commercial van. This system features the CXIS-4040 computerized X-ray inspection system, a climate controlled operator's console, and a diesel generator which powers all systems on the vehicle. Packages are screened by placing them on a conveyor which has a tunnel opening 40 inches (1,016 mm) wide by 40 inches (1,016 mm) high. There are openings on both sides of the van to accommodate package entry and exit. The CXIS-4040 X-ray system uses a 160-keV X-ray generator which produces X-rays that will penetrate 29 mm of steel. The detector is a multi-energy photodiode array.

Images are displayed on two 17-inch liquid crystal display (LCD) flat-panel monitors. Standard software features include dual-energy imaging with organic/inorganic discrimination, automatic atomic number (Z-number) measurement, density threshold alert with programmable levels, edge sharpening, automatic image archiving (up to 25,000 images), programmable zoom (2X to 32X), geometrical distortion correction, and image review of the last 50 images. Optional features of the MXIS-VAN include TIP, a screener training program, entry/exit rollers, and a 180-keV X-ray generator.

A portable explosives detector (American Innovations, Inc., model XD-2i), not described in this report, is also provided as part of the system.

The preceding information was compiled from the vendor's website.

3.1.2 Astrophysics, Inc., XIS-Minivan

PRICE:	$112,000	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	165 keV		

The XIS-Minivan is a mobile X-ray screening system for use in dense urban areas. It is built into a custom Ford Econoline cargo van that is 88.6 inches long by 49.3 inches wide by 72.9 inches high. An operator's console is provided in the rear of the vehicle. Items are screened by use of a conveyor with a tunnel opening of 39.8 inches by 39.8 inches (1,010 mm by 1,010 mm).

XIS-Minivan
Courtesy of Astrophysics, Inc.

The XIS-Minivan incorporates the XIS-100X/M imaging system. This system uses a 165-keV X-ray generator to produce X-rays that will penetrate 37 mm of steel. The detector consists of pairs of high- and low-energy photodiodes, each mounting a scintillator crystal. Filtered high- and low-energy X-ray signals are read simultaneously producing dual-energy imaging. A computer running a Windows XP Professional-based operating system provides command and control and allows for networking with other screening systems through the TCP/IP network

protocol. Images can be sent through the network to a central server where they can be viewed, stored, or printed. Standard imaging features of the XIS-100X/M include automatic archiving (up to 50,000 images), automatic Z-number measurement, density alert, edge enhancement imaging, geometric image distortion correction, image review of the last 100 images, material discrimination, organic and inorganic imaging, programmable penetration levels, six-color imaging, and user-selectable zoom-in (2X to 32X). Images are displayed on two 24-inch LCD flat-panel color monitors.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.1.3 Astrophysics, Inc., XIS-Trailer

PRICE:	$109,000	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	165 keV		

The XIS-Trailer is a mobile X-ray screening system built into a custom steel-frame trailer with aluminum walls and roofing. Packages are screened by means of a conveyor with a tunnel opening of 39.8 inches by 39.8 inches (1,010 mm by 1,010 mm). The trailer comes with a power generator, air conditioning, exterior lighting, and heavy-duty wheels. It can be towed on public and private roads. An operator's console is provided in the rear of the vehicle.

XIS-Trailer
Courtesy of Astrophysics, Inc.

The XIS-Trailer uses the same X-ray imaging system (XIS-100X/M) as the XIS-Minivan. See Section 3.1.2 for details.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.1.4 Astrophysics, Inc., XIS-Van

PRICE:	$120,901	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	165 keV		

The XIS-Van is a mobile X-ray screening system built into a custom Ford E-450 van. Its tunnel opening is 39.8 inches by 39.8 inches (1,010 mm by 1,010 mm). The van contains openings on both sides to allow space for operation and maintenance. An air-conditioned operator's console is located in the rear of the vehicle. All on-board systems and utilities are powered by a diesel generator.

XIS-Van
Courtesy of Astrophysics, Inc.

The XIS-Trailer uses the same X-ray imaging system (XIS-100X/M) as the XIS-Minivan. See Section 3.1.2

for details.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.1.5 Control Screening, Inc., AUTOCLEAR X-ray Inspection Trailer

PRICE:	$125,000	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	140 keV		

The AUTOCLEAR X-ray Inspection Trailer is a mobile security system built into a U.S. Department of Transportation approved tandem axle trailer. A temperature regulated inspection office is located in the rear of the vehicle. System components such as the air conditioning unit and the power generator were selected to minimize noise in the inspection office, and there is 50 mm of insulation throughout the walls of the vehicle. Packages are inspected through a conveyor system with a tunnel opening of 40 inches by 40 inches (1,016 mm by 1,016 mm). Other tunnel throughputs are available as options.

AUTOCLEAR X-ray Inspection Trailer
Courtesy of Control Screening, Inc.

The X-ray generator operates at 140 keV, has a 100 percent duty cycle with sealed oil bath cooling, and produces X-rays that will penetrate 29 mm of steel. The X-ray detector consists of an array of multi-energy photodiodes integrated to high speed processors and advanced signal processing hardware. Multi-energy organic and inorganic color display is a standard feature. Organic objects are displayed in orange, inorganic objects in blue, overlapping objects in green, and very dense objects in black. Other standard features include automatic density alert, density stripping, and a 25-second initial warm-up. Options include backscatter X-rays, remote operation through a provided cable, TIP, image archiving, and an enhanced conveyor with dual motors.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.1.6 Rapiscan Systems, MobilScan™ 636SV

PRICE:	$140,616	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	160 keV		

The MobilScan™ 636SV is a self-contained mobile X-ray screening system built into a Ford E-350 van containing a 40 inch by 40 inch (1,016 mm by 1,016 mm) tunnel opening for inspecting baggage and parcels. It can be deployed and operated in three different modes, from either side of the van, or in pass-through mode. An optional side mount and awning can be used to operate the system from outside the van. Scan images can be viewed and

MobilScan™ 636SV
Courtesy of Rapiscan Systems

analyzed in the operator's cabin in the rear of the vehicle or at a remote distance by using a 10-foot cable.

Standard features include multi-energy imaging, organic/inorganic stripping, zoom (up to 64X), variable edge enhancement, manual image archiving (up to 180,000 images), and a flat-panel LCD monitor. Optional features include automatic image archiving, TIP, automatic Z-number measurement, and density threshold alert. Steel penetration of X-rays is 29 mm.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.1.7 Smiths Detection, ScanTrailer 130100

PRICE:	$145,101	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	140 keV		

The ScanTrailer 130100 is a mobile X-ray inspection system built into a non-motorized trailer for use on private roads such as those found at airports. A non-motorized trailer for public roads is available as an option. The system operates with alternating current (AC) power. An optional portable power generator can be used if AC power is unavailable. Items are inspected by placing them on a motorized conveyor with a tunnel opening 51.6 inches (1,310 mm) wide by 39.9 inches (1,015 mm) high. A heavy-duty roller conveyor handles scanned items on the output side. A system with reverse mode (130100 DL) is available as an option.

ScanTrailer 130100
Courtesy of Smiths Detection

The unit's X-ray inspection system (HI-SCAN 130100) contains a 140-keV X-ray generator that produces X-rays that will penetrate 30 mm of steel. Its detector consists of scintillator crystals, mounted one over another in pairs, in combination with photodiodes and voltage amplifiers. A copper filter mounted between the crystals, which are sensitive to different X-ray energy ranges, spectrally separates the X-radiation, producing a multi-energy response. Solid wires 0.1 mm in diameter (AWG 38) are detectable. Enhanced image processing features and automatic threat identification are provided.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.1.8 Smiths Detection, ScanTrailer 8585 SA

PRICE:	$129,910	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	140 keV		

The ScanTrailer 8585 SA is a mobile X-ray inspection system built into a specially manufactured single-axle trailer for use on public or private roads. The system operates with AC power. An optional portable power generator can be used if AC power is unavailable. Items are inspected by

placing them on a motorized conveyor with a tunnel opening 33.7 inches (855 mm) wide by 33.7 inches (855 mm) high. A heavy-duty roller conveyor handles scanned items on the output side.

ScanTrailer 8585 SA
Courtesy of Smiths Detection

The unit's X-ray inspection system (HI-SCAN 8585) contains a 140-keV X-ray generator that produces X-rays that will penetrate 30 mm of steel. Its detector consists of scintillator crystals, mounted one over another in pairs, in combination with photodiodes and voltage amplifiers. A copper filter mounted between the crystals, which are sensitive to different X-ray energy ranges, spectrally separates the X-radiation, producing a multi-energy response. Solid wires 0.1 mm in diameter (AWG 38) are detectable. Enhanced image processing features and automatic threat identification are provided.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.1.9 Smiths Detection, ScanTrailer 9075-OT

PRICE:	$139,554	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	140 keV		

The ScanTrailer 9075-OT is a mobile X-ray system built into a steel-frame double-axle trailer. It features a tunnel opening 35.8 inches (910 mm) wide by 30.3 inches (770 mm) high. The X-ray generator operates at 140 keV and produces X-rays that will penetrate 30 mm of steel. The X-ray detector consists of scintillator crystals, mounted one over another in pairs, in combination with photodiodes and voltage amplifiers. A copper filter mounted between the crystals, which are sensitive to different X-ray energy ranges, spectrally separates the X-radiation, producing a multi-energy response. Solid wires 0.1 mm in diameter (38 AWG) are detectable. Enhanced image processing features and automatic threat identification are provided.

ScanTrailer 9075-OT
Courtesy of Smiths Detection

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.1.10 Smiths Detection, ScanVan 8585

PRICE:	$172,209	DETECTOR TYPE:	Photodiode array
APPLICATION:	Package and parcel screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	140 keV		

The ScanVan 8585 is a mobile X-ray inspection system built into a Mercedes-Benz Sprinter 313 CDI van with a 4-cylinder diesel engine. The operator's cabin in the rear of the vehicle is heat insulated. An intercom system and independent heating and air conditioning are options. The system operates with AC power. An optional portable power generator can be used if AC power is unavailable. Items are inspected by placing them on a motorized conveyor with a tunnel

opening 33.7 inches (855 mm) wide by 33.7 inches (855 mm) high. A heavy-duty roller conveyor handles scanned items on the output side. Both conveyors can be folded up into the vehicle.

ScanVan 8585
Courtesy of Smiths Detection

The unit's X-ray inspection system (HI-SCAN 8585) contains a 140-keV X-ray generator that produces X-rays that will penetrate 30 mm of steel. Its detector consists of scintillator crystals, mounted one over another in pairs, in combination with photodiodes and voltage amplifiers. A copper filter mounted between the crystals, which are sensitive to different X-ray energy ranges, spectrally separates the X-radiation, producing a multi-energy response. Solid wires 0.1 mm in diameter (AWG 38) are detectable. Enhanced image processing features and automatic threat identification are provided.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.2 Vehicle and Cargo Screening Systems

The vehicle and cargo screening systems range in price from $643,513 to $2,600,000. They are housed in vans or trucks having weights ranging from 14,362 pounds to 68,640 pounds. Product data for these systems is presented in a product comparison matrix (Table 3-2) and in subsequent product descriptions.

Products are listed in alphabetical order by vendor. The product data was obtained directly from the vendor, product specification sheets, and the vendor's website. The information obtained from these sources has not been independently validated by the SAVER Program.

Features in Table 3-2 that were not previously defined in Section 3-1 are defined as follows:

Maximum Scan Area indicates the maximum width and height of vehicles, containers, or objects that can be X-rayed by the system. Values are rounded to the nearest inch.

X-ray Energy indicates the maximum X-ray photon energy in MeV produced by the system (1 MeV equals 1,000 keV).

Spatial Resolution indicates the typical size of the smallest possible feature that can be detected in images produced by the X-ray system. Values are given in mm.

Table 3-2 Product Comparison Matrix for Vehicle and Cargo Screening Systems

Vendor	Product	Cost ($)	GSA Schedule	Vehicle Weight (pounds)	Maximum Scan Area (Width x Height) (inches)	Operating Temperature (°F)	Operating Relative Humidity (%RH)	Cable Length for Remote Operation (feet)	X ray energy (MeV)	X ray Penetration (mm steel)	Spatial Resolution (mm)	Multi energy X rays	Backscatter X rays	Density Threshold Alert
American Science and Engineering, Inc.	MobileSearch™ HE	NA	No	48,878	122 x 197	-22 - 122	5 - 95	None	4.5 *	305	2	Opt	Opt	Yes
	Z Backscatter Van™	643,513	Yes	14,362	†	32 - 108 ‡	0 - 95	1,640	0.225	6.1	7	No	Yes	No
Rapiscan Systems	Eagle™ M10	1,209,000	Yes	26,400	110 x 181	-40 - 131	0 - 95	300	1	125	4	No	No	No
	Eagle™ M4508	2,372,754	Yes	59,400	110 x 181	-40 - 131	0 - 95	None	4.5	305	3	No	No	Opt
	Eagle™ M60	2,600,000	Yes	59,400	110 x 181 §	-40 - 131	0 - 95	None	6	340	3	Yes	Opt	Opt
	Eagle™ T10	1,209,000	Yes	19,800	110 x 181	-40 - 131	0 - 95	300	1	125	4	Yes	Opt	No
Science Applications International Corporation (SAIC)	VACIS® M6500	2,400,000	Yes	68,640	157 x 188	-22 - 122	0 - 95	None	6.5	318	12	No	No	NA

Notes:
* A backscatter X-ray of 0.225 MeV (225 keV) is optionally available as well.
† There is no boom on this vehicle to limit the scan area. Scan field-of-view height is 168 inches at 90 inches from the van, and 144 inches at 60 inches from the van.
‡ -20 to 122 °F is optional.
§ A scan height of 197 inches (5 meters) is available as an option.

Abbreviations:
°F = degrees Fahrenheit; GSA = General Services Administration;
keV = kilo-electron volts; mm = millimeters; MeV = mega-electron volts;
NA = information not available; Opt = optional feature; %RH = percent relative humidity.

3.2.1 American Science and Engineering, Inc., MobileSearch™ HE

PRICE:	Information not available	DETECTOR TYPE:	Cadmium tungstate scintillator
APPLICATION:	Vehicle and cargo screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	4.5 MeV, 225 keV (optional)		

The MobileSearch™ HE (High Energy) is a mobile X-ray cargo and vehicle inspection system built into a solid-frame truck with a deployable boom. An integrated cab design allows the driver and operators to be located in the same cabin. The system generates 4.5-MeV transmission X-rays that can scan vehicles, containers, and objects that pass through the boom. Steel penetration of the transmission X-rays is 12 inches (304.8 mm), allowing for inspection of densely-loaded cargo. A cadmium tungstate scintillator detector located in the boom produces images with 2-mm spatial resolution. The tunnel size of the system with the boom deployed is 122.4 inches wide by 196.8 inches high.

MobileSearch™ HE

An optional feature is American Science and Engineering, Inc.'s, Z Backscatter technology. With this feature 225-keV backscatter X-rays are generated to scan vehicles and cargo. Backscatter X-rays preferentially highlight organic materials such as explosives and narcotics. An additional benefit is that image analysis is faster compared with using only transmission X-rays. Z Backscatter can be used with the boom deployed or stowed, and it provides a wide field of view with no tire or ground.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.2.2 American Science and Engineering, Inc., Z Backscatter Van™

PRICE:	$643,513	DETECTOR TYPE:	Collective detector chambers with scintillators and photomultiplier tubes
APPLICATION:	Vehicle and cargo screening		
X-RAY ENERGY:	225 keV	IMAGING TYPE:	Digital radiography

The Z Backscatter Van™ (ZBV) is a mobile X-ray screening system built into an unmarked commercial delivery van. The ZBV produces 225-keV backscatter X-rays using American Science and Engineering, Inc.'s, Z Backscatter technology. Backscatter X-rays preferentially highlight organic materials such as explosives and narcotics. Images are rendered with 7-mm spatial resolution. There is no boom on the vehicle. The system operates in drive-by mode. One or two operators screen suspect vehicles and objects while the ZBV drives past. Z Backscatter technology provides faster image

Z Backscatter Van™ (ZBV)

analysis and a wider field of view than systems using transmission X-rays. Using a fiber optic cable, the van can be operated remotely from an operator's console located up to 1,640 feet from the parked van in stationary scan mode. A 90-meter Ethernet cable is supplied as a backup. Steel penetration of X-rays is 6.1 mm.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.2.3 Rapiscan Systems, Eagle™ M10

PRICE:	$1,209,000	DETECTOR TYPE:	Cadmium tungstate scintillator
APPLICATION:	Vehicle and cargo screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	1 MeV		

Eagle™ M10
Courtesy of Rapiscan Systems

The Eagle™ M10 is a 1-MeV mobile X-ray imaging system for inspecting vehicles and cargo. Built into a light-duty crew cab commercial truck with an onboard diesel generator, the system can be driven on local roads and ready to inspect within 30 minutes of arrival at an inspection site. It can operate in drive-by scan mode or drive-through portal scan mode. A comprehensive scan is provided through shield materials, liquids, dense cargo, and densely-packed cargo. Steel penetration of X-rays is 125 mm. A spatial resolution of 4 mm is achieved by a cadmium tungstate scintillator detector. Images are displayed in 16-bit resolution and can be transmitted wirelessly to an operations center. Remote operation using a 300-foot cable is possible. Cargo Viewer software, a set of tools for image enhancement and analysis, is provided as a standard feature.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.2.4 Rapiscan Systems, Eagle™ M4508

PRICE:	$2,372,754	DETECTOR TYPE:	Cadmium tungstate scintillator
APPLICATION:	Vehicle and cargo screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	4.5 MeV		

Eagle™ M4508
Courtesy of Rapiscan Systems

The Eagle™ M4508 is a 4.5-MeV mobile X-ray inspection system capable of scanning containers, vehicles, and a wide range of cargo. Built on a commercially available solid-frame Mack truck chassis with an onboard diesel generator, the system can be driven on local roads and ready to inspect within 20 minutes of arrival at an inspection site. Containing a boom

that can be deployed to the passenger or driver side at 0° or 10° offset angles, the Eagle M4508 can operate in pass-through portal mode or be used to scan unoccupied parked trucks in either forward or reverse directions. Scan speeds of 130, 270, and 400 mm/s are supported. Two onboard inspectors are required to operate the Eagle M4508.

The system's cadmium tungstate scintillator detector produces images with a spatial resolution of 3 mm. Images are displayed in 16-bit resolution and can be transmitted wirelessly to an operations center. Cargo Viewer software, a set of tools for image enhancement and analysis, is provided as a standard feature. Auto-Z, a software tool that automatically identifies the presence of high atomic number materials in cargo, is optional. Steel penetration of X-rays is 300 mm.

Two other models in the M4500 series are available. The M4506 is built on to a Mercedes-Benz truck chassis and is similar to the M4508 in all other features. The M4507 has a Mercedes-Benz truck chassis and deploys its boom to the passenger side at 0° offset only.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.2.5 Rapiscan Systems, Eagle™ M60

PRICE:	$2,600,000	DETECTOR TYPE:	Cadmium tungstate scintillator
APPLICATION:	Vehicle and cargo screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	6 MeV		

Eagle™ M60
Courtesy of Rapiscan Systems

The Eagle™ M60 is a 6-MeV mobile X-ray imaging system for inspecting vehicles and cargo. Built into a heavy-duty commercial truck with an onboard diesel generator, the system can be driven on local roads and ready to inspect within 30 minutes of arrival at an inspection site. It can operate in drive-by scan mode or in an optional drive-through portal scan mode. A comprehensive scan is provided even through shield materials, liquids, dense cargo, and densely-packed cargo. Steel penetration of X-rays is 340 mm. A spatial resolution of 3 mm is achieved by a cadmium tungstate scintillator detector. Images are displayed in 16-bit resolution and can be transmitted wirelessly to an operations center. Cargo Viewer software, a set of tools for image enhancement and analysis, is provided as a standard feature. Auto-Z, a software tool that automatically identifies the presence of high atomic number materials in cargo, is optional. Other optional features include radiation detection, license plate recognition, drive-through scanning, shore power operation, and taller object scanning (up to 5 meters tall). The Eagle M60 also has a material separation option in which a dual-energy LINAC X-ray generator emits alternating X-ray pulses at 6 MeV and 4 MeV, allowing the system to categorize materials based on their atomic number.

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.2.6 Rapiscan Systems, Eagle™ T10

PRICE:	$1,209,000	DETECTOR TYPE:	Cadmium tungstate scintillator
APPLICATION:	Vehicle and cargo screening	IMAGING TYPE:	Digital radiography
X-RAY ENERGY:	1 MeV		

The Eagle™ T10 is a 1-MeV mobile X-ray imaging system built on to a towable trailer designed for inspecting vehicles and cargo. The system can be towed on local roads and ready to inspect within 30 minutes of arrival at an inspection site. It operates in drive-through portal scan mode only. A comprehensive scan is provided even through shield materials, liquids, dense cargo, and densely-packed cargo. Steel penetration of X-rays is 125 mm. A spatial resolution of 4 mm is achieved by a cadmium tungstate scintillator X-ray detector. Images are displayed in 16-bit resolution and can be transmitted wirelessly to an operations center. Cargo Viewer software, a set of tools for image enhancement and analysis, is provided as a standard feature. Remote operation using a 300-foot cable is possible. An onboard diesel generator is provided.

Eagle™ T10
Courtesy of Rapiscan Systems

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

3.2.7 SAIC, VACIS® M6500 Mobile Imaging System

PRICE:	$2,400,000	DETECTOR TYPE:	Information not available
APPLICATION:	Vehicle and cargo screening	IMAGING TYPE:	Information not available
X-RAY ENERGY:	6.5 MeV		

The VACIS® M6500 system is a 6.5-MeV mobile X-ray imaging system for inspecting vehicles and cargo. Built into a 10-wheeled truck with an extendable boom and onboard power generator, the system is self-contained and can be driven on all roads including those in remote rugged locations. When set up as a checkpoint, the VACIS M6500 can scan 150 trucks and containers per hour in the normal flow of traffic. There is no limit on target length, and multiple targets can be scanned on a single pass. Tunnel size with the boom extended is 157 inches (13.1 feet) wide by 188 inches (15.7 feet) high. X-ray penetration is 12.5 inches (317.5 mm) of steel at normal scanning speeds. The X-ray dose to cargo is 4.1 microsieverts (µSv), which is approximately the dose that an airline passenger receives naturally during a cross-country flight. Science Application International Corporation's image-enhancement software is provided. Optional features include radiation detection and optical character recognition (OCR) container identification.

VACIS® M6500 Mobile Imaging System
Courtesy of SAIC

The preceding information was compiled from vendor-provided information and supplemented with information from the vendor's website.

4. VENDOR CONTACT INFORMATION

Additional information on the products included in this market survey report can be obtained from the vendors, as well as other vendors of mobile X-ray systems for search and inspection.

Table 4-1 Product and Vendor List

Company	Product	Point of Contact	Address/Phone Number	Website
American Innovation, Inc.	MXIS-VAN	Diana Enciso DianaE@aiiNY.com	500 Chestnut Ridge Road Chestnut Ridge, NY 10977 (845) 371-3333	www.bombdetection.com
American Science and Engineering, Inc.	MobileSearch™ HEZ Backscatter Van™	Robyn Smith RRock@as-e.com	829 Middlesex Turnpike Billerica, MA 01821 (978) 262-8700 (800) 225-1608 (toll free)	www.as-e.com
Astrophysics, Inc.	XIS-Trailer XIS-Minivan XIS-Van	sales@astrophysicsinc.com	21481 Ferrero Parkway City of Industry, CA 91789 (909) 598-5488	www.astrophysicsinc.com
Control Screening, Inc.	AUTOCLEAR X-ray Inspection Trailer	sales@autoclearUS.com	2 Gardner Road Fairfield, NJ 07004-2206 (973) 276-6161 (800) 231-6414 (toll free)	www.autoclearUS.com
Rapiscan Systems	MobilScan™ 636V Eagle™ M10 Eagle™ T10 Eagle™ M60 Eagle™ M4508	John Kennedy jkennedy@rapiscansystems.com	2805 Columbia Street Torrance, CA 90503 (310) 978-1457	www.rapiscansystems.com
Science Application International Corporation (SAIC)	VACIS® M6500 Mobile Imaging System	Stan DeFilippis defillipis@saic.com	1710 SAIC Drive McLean, VA 22101 (703) 676-4300	www.saic.com/products
Smiths Detection	ScanTrailer 8585SA ScanTrailer 9075-OT ScanTrailer 130100 ScanVan 8585	USA.info@smithsdetection.com	60A Columbia Road Morristown, NJ 07960 (973) 496-9200	www.smithsdetection.com

5. SUMMARY

This market survey report includes seventeen mobile X-ray systems from seven different vendors.

Ten of the mobile X-ray systems described in this report are designed for screening packages and parcels. The features of these systems are summarized as follows:

- Five systems are mounted in trailers, four systems in vans, and one system in a mini-van;
- Prices range from $109,000 to $172,209;
- System weights range from 8,500 pounds to 16,000 pounds;
- All systems are conveyor based, with tunnel opening dimensions varying in width from 34 inches to 52 inches, and in height from 30 inches to 40 inches;
- Maximum package weights range from 331 pounds to 441 pounds;
- Eight systems have remote operation by cable as a standard feature while two systems have it as an option. Length of supplied cables range from 10 feet to 200 feet;
- X-ray energies of these systems range from 140 keV to 165 keV; steel penetrations range from 29 to 37 mm;
- Spatial resolution of the imaging systems range from 38 AWG (0.101 mm) to 40 AWG (0.0799 mm);
- All systems use multi-energy X-rays and distinguish organic and inorganic substances;
- One system has the option of backscatter X-rays;
- Five systems have Density Threshold Alert as a standard feature, while five systems have it as an option; and
- Five systems have Automatic Atomic Number Measurement as a standard feature, while five systems have it as an option;

Seven of the mobile X-ray systems described in this report are designed for screening vehicles and cargo. The features of these systems are summarized as follows:

- Six systems are mounted in trucks with extendable booms, and one system is mounted in a van with no extendable boom;
- Prices range from $643,513 to $2,600,000;
- System weights range from 14,362 pounds to 68,640 pounds;
- Maximum scan widths range from 110 inches to 157 inches and maximum scan heights range from 181 inches to 197 inches;
- Three systems can be operated remotely via cable, at distances ranging from 300 feet to 1,640 feet;
- X-ray energies (excluding backscatter X-rays) range from 1 MeV to 6.5 MeV; steel penetrations for these systems (also excluding backscatter X-rays) range from 125 mm to 340 mm;

- Spatial resolution of the imaging systems range from 2 mm to 12 mm;
- Two systems have multi-energy X-rays as a standard feature, and one system has it as an option;
- One system uses backscatter X-rays (225 keV) only, while three other systems have backscatter X-rays as an option in addition to transmission X-rays; and
- One system has Density Threshold Alert as a standard feature, and two systems have it as an option.

APPENDIX A. REQUEST FOR INFORMATION

U. S. Department of Homeland Security
National Urban Security Technology Laboratory
201 Varick Street, 5th Floor, New York, NY 10014-7447

Homeland Security

Document Type: Special Notice

Title: Market Survey – MOBILE SEARCH AND INSPECTION X-RAY SYSTEMS

Posted Date: September 14, 2010

Contracting Office Address:

Office of the Chief Procurement Officer
Washington, District of Columbia 20528
United States

Description:

Request for Information (RFI) - Mobile Search and Inspection X-ray Systems

DUE: September 29, 2010

The U. S. Department of Homeland Security, National Urban Security Technology Laboratory (NUSTL), formerly the Environmental Measurements Laboratory (EML), 201 Varick St. 5th Floor, New York, NY 10014, is seeking information about mobile search and inspection x-ray systems to meet the needs of emergency responders. The Department of Homeland Security (DHS) Authorized Equipment List (AEL) item number(s) for this equipment is 15IN-00-XRAY. The target audience for this information is law enforcement personnel, fire fighters, and emergency medical and public safety providers and their purchasing agents. All submittals should be suited to the target audience's specific needs.

Review of this information is being performed for the DHS, Science and Technology Directorates System Assessment and Validation for Emergency Responders (SAVER) Program. DHS established SAVER to conduct comparative assessments and validation activities that provide the emergency responder community with information on important products and services. For more information on the SAVER Program, visit the SAVER Website at https://www.rkb.us/saver/.

All information received will be treated as public knowledge and may be used in SAVER Program documentation; therefore, vendors should not submit proprietary information in response to this RFI. Specific information sought includes:

1. Company information, including name, address, point of contact, URL and the number of employees.
2. Whether the company is a manufacturer or distributor.

www.dhs.gov

3. A point of contact for follow-up information, and the point of contacts phone number and e-mail address.
4. Product name, brief description and specifications.
5. Cost information such as purchase price and General Services Administration (GSA) schedule information.

The submitted information will be evaluated for inclusion in SAVER projects and reports. Determination as to an individual product's suitability will be made by the National Urban Security Technology Laboratory based on the objectives of this request. Therefore, requests for feedback should not be made through the Federal Business Opportunities posting agency. Vendors may be contacted following submission for more detailed product information. Vendor provided information may be reformatted for publication in SAVER Program documents.

Submittals

Respondents are required to complete a product summary questionnaire for each product. The questionnaire may be obtained, via E-mail, by contacting the technical point of contact Alfred Cavallo at alfred.cavallo@dhs.gov.

This RFI is for information gathering and planning purposes only, and should not be construed as a Request for Proposal (RFP) or solicitation of an offer. The Government does not intend to award a contract on the basis of this RFI or otherwise pay for the information solicited. Submission of vendor information constitutes consent to publication of that information in SAVER Program documentation. E-mail your non-technical questions to Sharon Flowers, DHS Contracting Officer (Sharon.flowers1@dhs.gov, 202-254-6816).