

Vehicle Portal Explosives Trace Detection



Two vehicle portal modules (with covers removed) in position for vehicle screening.



The operator can adjust the module to the height and contour of the vehicle.

Description

Sandia National Laboratories (Sandia) has developed a prototype portal that screens vehicles for explosives, based on unique technology that has been used successfully in our personnel portal. The system uses engineered air flows to remove vapor or trace particle contamination from a vehicle, a patented chemical preconcentrator to collect this material, and a commercially available ion mobility spectrometer for detection and identification of explosive material. The portal currently consists of two separate modules that can be operated simultaneously to screen different key areas of the vehicle. Alternatively, each module can be deployed separately. The system controls will produce an audible and visual alarm when explosive material is detected, requiring no special knowledge of explosives.

Features

Features of the Vehicle Portal include screening time of not more than five minutes per vehicle, the ability to screen vehicles of greatly varying size, the ability to detect trace amounts of external contamination from several common high explosives, and the ability to screen a vehicle without removing cargo or passengers. This system (when produced commercially) is estimated to cost approximately \$500,000. In contrast, other vehicle portal explosive screening systems can cost in excess of one million dollars.

Applications

The Vehicle Portal can be used for checkpoint screening of vehicles for high-security locations such as embassies, federal buildings, military installations, and at special events. Drug detection can also be accommodated. The significantly reduced cost of this Vehicle Portal will allow wider application of explosive or drug screening.

Availability

This work is funded by the Technical Support Working Group and the Department of Energy Office of Safeguards and Security. Sandia is currently exploring commercialization opportunities.

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