![PSI Physical Sciences Inc.]

kromek
detect image identify

PERM-Mobile

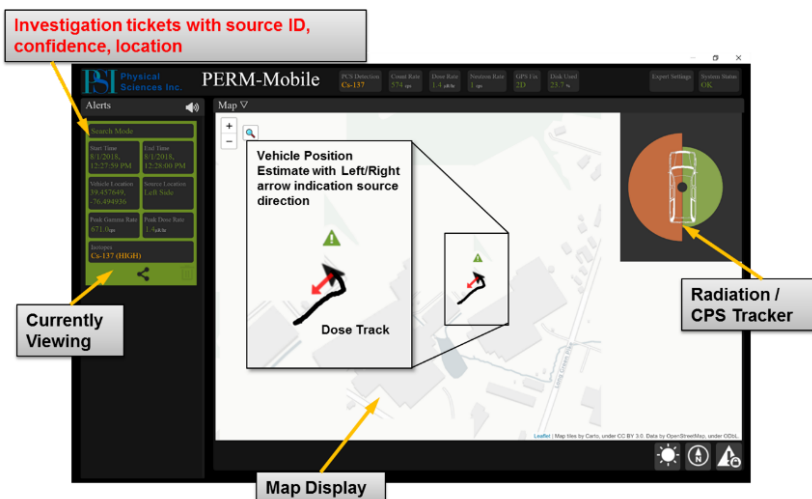## Highly Configurable Mobile Solution for Real-Time Source ID

PERM-Mobile is an advanced mobile radiation detection and source identification system that can be easily configured for mobile and static applications. The system provides fast vehicle integration with power provided through the 12V vehicle supply (cigarette lighter).

PERM-Mobile uses a local WiFi network and a tablet that provides the user interface and processes the detection algorithms. The system can be configured as a standalone portal in under 15 minutes using the same mounting equipment used for vehicle installation.

The detector system consists of 2 NaI(Tl) scintillators and a ^{6}LiF neutron detector. The gamma detection module is designed to achieve ~1% absolute energy calibration uncertainty and < 1% instability.

The system offers unparalleled urban threat detection, identification and left/right source directionality using interactive urban maps. A contextual subsystem also provides a basic snapshot of the surrounding environment during a source encounter.

Real-time source detection and identification in complex urban environments using the state-of-the-art Poisson Clutter Split (PCS) algorithm

Investigation tickets with source ID, confidence, location

Currently Viewing

Vehicle Position Estimate with Left/Right arrow indication source direction

Dose Track

Radiation / CPS Tracker

Map Display

Easy-to-Use Graphical User Interface on Portable Tablet Displaying Critical Information:

- Investigation tickets with isotope ID and left / right source directionality.
- N42 reporting with embedded context image and SIGMA interface.
- Map overlay with vehicle position and dose levels
- Access to Radiation Field Guide

PERFORMANCE ADVANTAGES

- *Exceptionally low false alarm rate and stability in complex and variable radiological backgrounds using NORM rejection and clutter suppression*
- *Highly sensitive, 1 Hz detection, identification and left / right directionality via PCS algorithm*
- *Ruggedized, operationally quiet detector package*
- *Low power, fast and flexible vehicle integration with ability to reconfigure as vertical portal for static applications*
- *Simple context camera system provides snapshot of the surrounding environment at the time of the maximum signal encounter.*
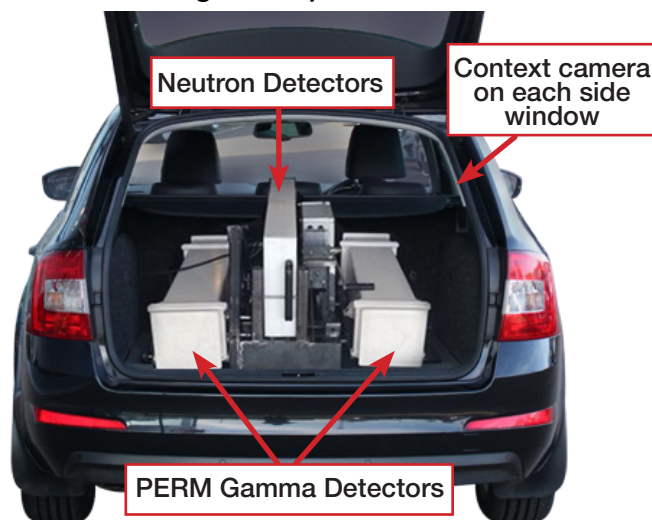
PERM-Mobile Specifications

Performance	
Key Performance Parameter	**Measured Performance**
Detection and identification of gamma sources, including SNM, industrial, and medicals	Meets or exceeds ANSI N42.43 and/or DNDO TCS at significantly lower operational FAR
Operational false alarm rate (FAR)	~ 1 in 340 hrs (standard mode) ~ 1 in 48 hrs (high sensitivity mode)
Source positon information	Left and Right directionality
Source ID update rate	1 Hz via PCS-SBE
Neutron detection sensitivity	Neutron detection channel uses 6LiF/ZnS (Ag) technology, provided by single NeuTruck2000 rated at 1.9 cps/ng against 4 cm moderated Cf-252 at 2m. As upright portal, system meets ANSI N42.43 § 6.5 and § 6.7 for area monitors. A dual neutron detector configuration is optional and meets ANSI N42.43 § 6.5 and § 6.7 for mobile vehicle monitors.
Net encounter speed during source detection and ID	Up to 55 mph
Context Camera System (Optional)	Left/Right contextual image generated at the highest signal encounter. 1 Hz frame rate.

Attribute	Value		Comments
Size (Mobile)	38" D x 38" W x 21" H		Can be stowed in most full and mid- size SUVs with rear seats collapsed
Size (Portal)	21" D x 38" W x 106" H		Upper PERM raised above height of vehicle, portal positioned close to vehicle to reduce depth into traffic, adjustable
Weight	PERMs + Cameras	100 lbs.	System removed from vehicle in manageable pieces
	Neutron	63 lbs.	
	Frame	150 lbs.	
	Anchor	35 lbs.	
	Total	350 lbs.	
Power	Peak	Avg	Peak power based on max power draw by router. System powered by 12V vehicle supply.(Does not include Tablet power requirements)
	35 W	23 W	
Environment	Storage	Operating	Temperatures measured inside the vehicle, limited only by DigiBASE MCA
	-20°C to 65°C	5°C to 50°C	
Operation	Rapid transition from mobile to portal configuration in under 15 minutes, no tools required. Designed not to tip over in 80 MPH winds when in portal configuration.		

PERM-Mobile Portal Configuration

Detector Package: Component Identification

Neutron Detectors

Context camera on each side window

PERM Gamma Detectors