Spearhead Innovations
Cutting Edge That Works.

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PASS Detection System

Non-Intrusive, Non-Destructive Inspection Tool

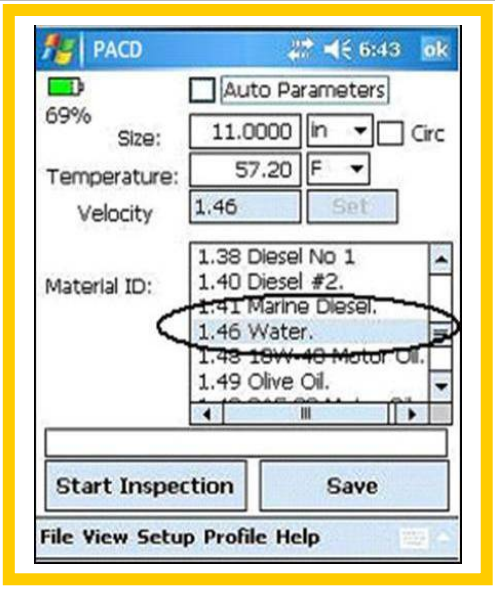
PASS uses acoustic inspection technology to rapidly, reliably, and safely interrogate sealed, liquid-filled containers and bulk solid commodities to:

- **Detect** submerged contraband or hidden compartments
- **Classify/Identify** material contents (by name if in database)
- **Expose** containers/commodities that have been fraudulently labeled
- **Flag** containers with contents different from surrounding containers
- **Determine** container fill levels

Handheld and battery-operated, PASS is designed for fast and easy use on sealed containers of various sizes, including large jugs, propane tanks, 55-gallon drums, tanker trucks, and railroad cars. Since the device makes its determinations without opening containers, its handlers and the public are protected from potentially disastrous exposure to lethal or otherwise hazardous materials and vapors. It is sensitive enough to distinguish between different grades of fuel.

***How it works*:** PASS measures the speed of sound through an unknown material at a known distance and temperature. This acoustic velocity is compared with values in a database to identify or classify material. When a signal does not reach a known distance, contraband or a hidden compartment is indicated.

User-friendly PASS software clearly displays container contents.



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PASS Performance Features and Benefits

Fast	Readings in 5 seconds or less	**Traffic moves quickly**
Non-intrusive	Containers stay sealed	**Operators, public stay safe** **Inspectors save time, money**
Non-destructive	Containers not damaged	**Inspectees won't complain**
Easy to use	No specialized skills required	**Anyone can use them**
Small and portable	Handheld device	**Deploys anywhere**
Inexpensive to own	Low maintenance, few consumables	**Users save money**
Inherently safe	No radiation/dangerous materials	**Avoids operator health risk**
Flexible in form	Technology readily repackaged	**Custom systems available**

Proven Technology: PASS technology was initially developed at the Pacific Northwest National Laboratory (PNNL), operated by Battelle Memorial Institute on behalf of the U.S. Department of Energy. Called the Acoustic Inspection Device in this early phase, the technology was developed for verification related to the bilateral U.S.-Russian chemical weapons treaty and for inspection of chemical weapon stockpiles in Iraq following the 1991 Gulf War. A commercialized variant of PNNL's prototype system, PASS has been deployed with U.S. federal government agencies, first responders, and international LEAs in several countries supporting **anti-drug, anti-terror, border security, weapons inspection, cargo inspection, and regulatory compliance activities**.

PASS Detection System Technical Specifications

Sensor Unit Weight	3.5 lbs
Dimensions of Sensor Unit	9" x 4.5" x 4.75"
Processing Unit Model	HP iPAQ Pocket PC hx2400 series
Processing Unit Power Requirements	5V 2 A DC (internal Li battery)
Sensor Unit Power Requirements	12V 2 Amp Hours DC
Total Case Weight (all components Included)	16.0 lbs
Dimensions of Case	19 1/8" x 15 7/16" x 7 9/16"
Recharge Time	12V battery pack – 4 hours
Communication	TCP/IP
Processing Unit OS	Microsoft Windows Mobile 5.0
Display	240 x 320 pixels
Recharge Power	120V AC
Operating Frequency	iPAQ 52 MHz; transducer 1.0 MHz
Target Size Limits	8" minimum to 96" maximum

The only device of its kind, PASS was rated one of the 100 Most Technologically Significant Products in the World by R&D Magazine.

AWARD WINNER

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