Spearhead Innovations - PASS (Product Acoustic Signature System)

GENERAL DESCRIPTION:

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.

TECHNICAL DESCRIPTION:

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.

CONTACT INFORMATION

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COST

- N/A/system
- N/A/analysis

Tier Selection

Final tier assignment is based on overall product score.

Top Tier · Second Tier · Third Tier · Fourth Tier · Bottom Tier

RANKINGS

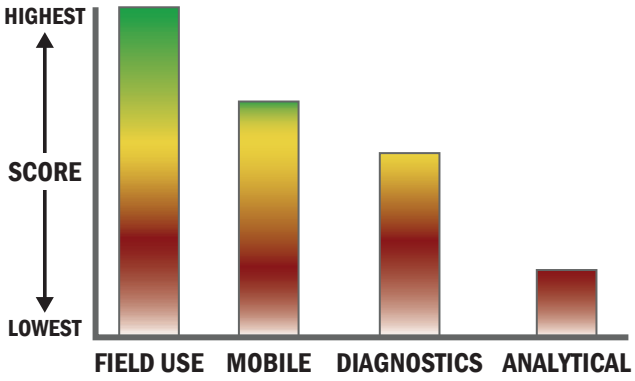
	Biological	Chemical	Radiological
FIELD USE System	N/A	Top Tier	N/A
MOBILE Laboratory	N/A	Second Tier	N/A
DIAGNOSTIC Laboratory	N/A	Fourth Tier	N/A
ANALYTICAL Laboratory	N/A	Fourth Tier	N/A

Survey Source

Vendor Supplied Information

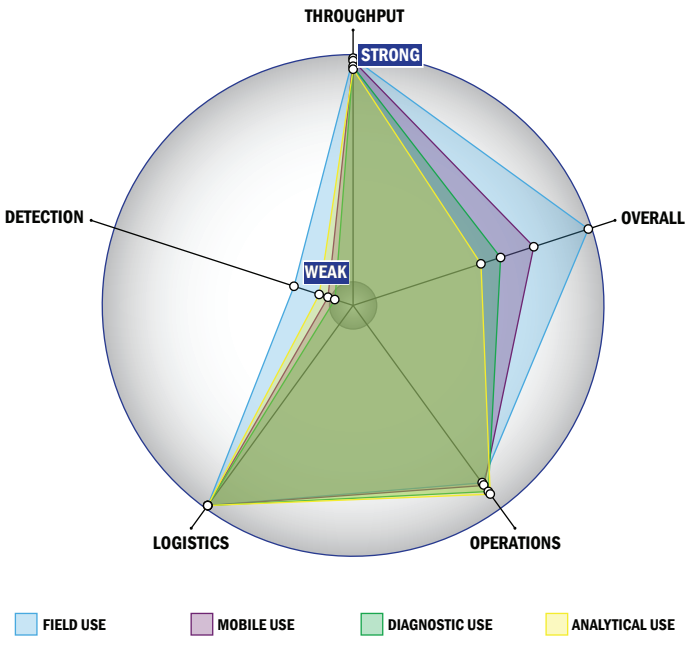
Scoring Analysis

System scores are compared across the four scenarios and ranked from highest to lowest.



Impact Chart

The Impact Chart is a spider graph representing specific categories and designed to give the reader a visual depiction of how a particular system is expected to operate across the four different scenarios. The score for each of the seven categories is presented as the percentage of the total possible score. Higher category scores extend the spokes of a graphic toward the outer edge of the chart. The area graphed for each of the four scenarios relates to how well the system performed in that scenario. Graphics for each of the four scenarios are super-imposed for ease of comparison.



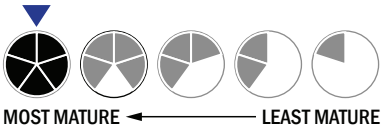
Evaluation Criteria

Throughput:

- 2 minutes or less for detection
- Continuous operation with no defined runs
- Greater than 750 samples every 2 hours
- The system or device is currently fully automated
- Device or system is intended for multiple detection assays
- 0-1 solutions, buffer, eluents, and/or reagents
- 0 components
- No set-up of the system is required
- 1-2 steps are required for detection

Logistics:

- Very brief (minutes-hours) training and minimal technical skills
- Approximately the size of a toaster
- Less than 1 kg
- Satellite, wireless and wired connections are available
- System or device uses batteries
- 4-8 hours battery life



Operations:

- Can be used from 4°C to 41°C
- Performance is not influenced by relative humidity
- Greater than 3 years shelf life
- 5-10 years expected life
- Results can be viewed in real-time
- The system is not capable of autonomy
- The system software is open and available for modification
- The system hardware is open and available for modification

Detection:

- Less than 10 µL
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- System currently can identify liquid chemical agent