Smiths Detection - Lightweight Chemical Detector (LCD) 3.2e

GENERAL DESCRIPTION:

LCD (Lightweight Chemical Detector) is a sophisticated yet small and lightweight chemical warfare agent detectors, has revolutionized the soldier/squad's protection. The LCD contains no radioactive source, has a volume of less than 30in³ and weighs less than 1 lb (0.45kg).

Principally used as an unobtrusive compact detector, the LCD constantly samples the air for traces of nerve (G), blister (H), TICs (T) or blood (H) and choking (T) agents, to enable the user to take appropriate action. When used in survey mode, the unit has the capability for checking cargo, equipment, personnel or facilities. Additionally, the unit can be deployed on fixed or mobile platforms, including vehicles, ships, aircraft and fixed site installations.

Equipped with an audible and/or visual alarm the unit incorporates an LED display mounted on the top face, to show operating status and give visual alarms (when worn), and a bar display on the front of the unit indicates concentration levels. In the event of an attack, the unit has the ability to recover quickly with a rapid clear-down time.

The LCD 3.2E is user-friendly, highly reliable and field maintainable to minimize whole life cost. The only consumable items are standard commercially available AA batteries and the molecular sieve pack; both of which are replaceable in the field in less than two minutes and can be undertaken whilst wearing Individual Protective Equipment. Once deployed, the detector requires no calibration, lubrication or other scheduled maintenance

TECHNICAL DESCRIPTION:

LCD 3.2e uses Ion Mobility Spectroscopy (IMS) and analysis software to match sample spectral results to stored libraries to classify, identify and quantify chemical warfare agents (CWAs) and toxic industrial chemicals (TICs).

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	●	N/A
MOBILE Laboratory	N/A	●	N/A
DIAGNOSTIC Laboratory	N/A	●	N/A
ANALYTICAL Laboratory	N/A	◒	N/A

CONTACT INFORMATION

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COST

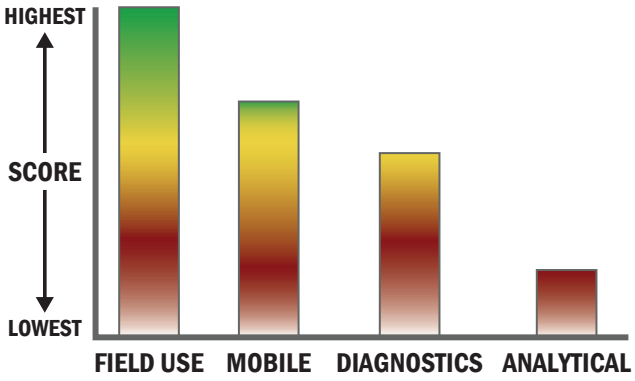
- N/A/system
- $0.003/analysis

Survey Source

Vendor Supplied Information

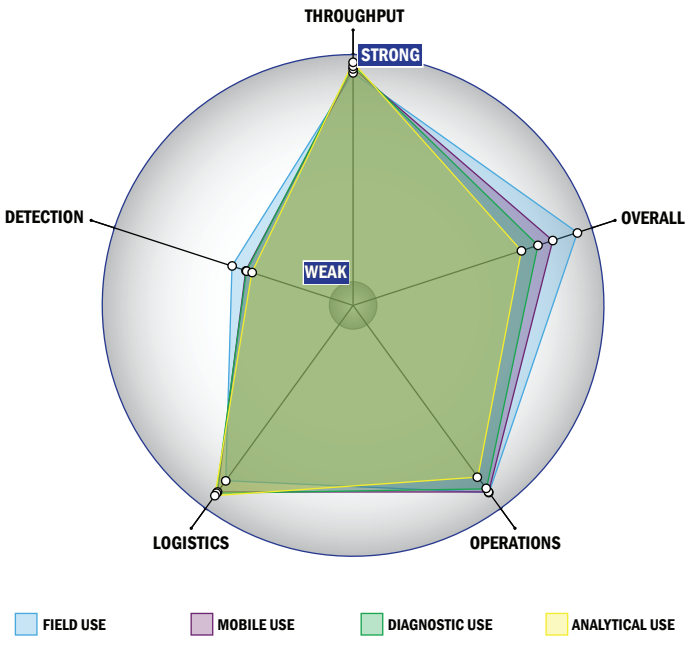
Scoring Analysis

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.



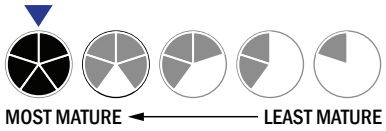
Evaluation Criteria

Throughput:

- Detection is instantaneous
- Continuous operation with no defined runs
- System is continuous and provides real time analysis with no defined tests/samples
- 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
- 2 components
- Less than 5 minutes is required for set-up
- Automatic detection

Logistics:

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



Operations:

- Can be used from < -21°C to > 42°C (All temperatures)
- Performance is not influenced by relative humidity
- Greater than 10 years expected life
- Results cannot be viewed in real-time
- The system or device is currently fully autonomous
- The system software is closed and not available for modification
- The system hardware is closed and not available for modification

Detection:

- Possible the system could receive 510K clearance, no current efforts at this time
- Possible the system could receive FDA approval, no current efforts at this time
- Less than 10 µL
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- >$1x10^{-3}$ mg/m^3
- Possible system could identify aerosolized chemical agent
- System currently can identify liquid chemical agent