

FLIR Systems, Inc. - CHIRP (Chemical Hazard Indicating and Ranging Pack)



GENERAL DESCRIPTION:

CHIRP can be used for continuous detection of chemical warfare agents (CWAs) in air. The enzymatic detection capabilities are highly sensitive to chemical agents yet extremely resistant to potential environmental and chemical interferents. Currently CHIRP can detect nerve agents (G & V series) at myosis level concentrations in air. Future developments include expanding the capability of the monitor for other CWAs such as blood agents or TICs detection. In future developments the CHIRP will carry GPS and wireless communications and relays data to a central command center software package.



TECHNICAL DESCRIPTION:

A wet chemistry technique formulated to indicate the presence of a CWA by a chemical reaction that causes a color change when agents come in contact with certain solutions or substrates. The color change can be detected either visually or with spectrophotometric devices. The current unit has been proven to detect nerve agents at myosis level concentrations in air in 3rd party conducted live agent studies. The CHIRP is highly selective towards nerve agents and resistant to common environmental interferents.

CONTACT INFORMATION

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 CBRNE Detection
 2240 William Pitt Way
 Pittsburgh, PA 15238
 412.423.2100

COST

N/A

Tier Selection

Final tier assignment is based on overall product score.

- Top Tier ● Second Tier ○ Third Tier
- ◐ Fourth Tier ● Bottom Tier

RANKINGS

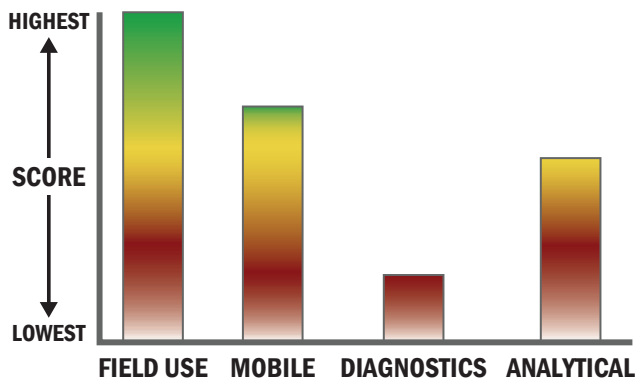
	Biological	Chemical	Radiological
FIELD USE System	N/A	●	N/A
MOBILE Laboratory	N/A	◐	N/A
DIAGNOSTIC Laboratory	N/A	○	N/A
ANALYTICAL Laboratory	N/A	○	N/A

Survey Source

Vendor Supplied Information

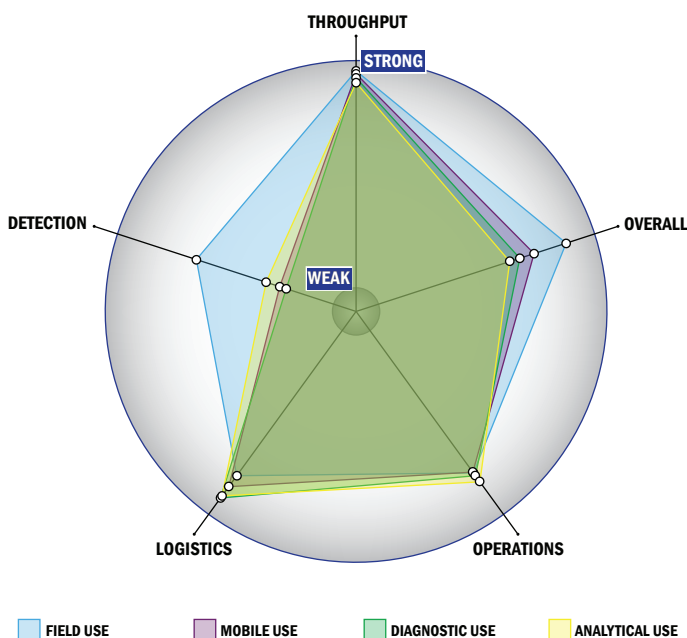
Scoring Analysis

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.



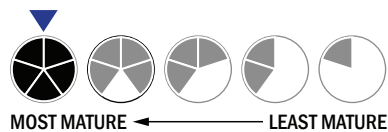
Evaluation Criteria

Throughput:

- Between 2 and 15 minutes for detection
- 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
- 0 components
- Less than 5 minutes is required for set-up
- Automatic detection

Logistics:

- An afternoon of training and some technical skills required
- Approximately the size of a toaster
- Between 5 and 25 kg
- 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
- Components must be stored at room temperature (27 °C)
- Performance is not influenced by relative humidity
- Between 1 to 3 years shelf life
- 5-10 years expected life
- Results can 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
- This system does not test liquids
- Superior specificity. System has a false alarm rate approaching zero (~0%)
- $<1 \times 10^{-6} \text{ mg/m}^3$
- Possible system can be adapted to identify aerosolized chemical agent

