# Snowy Range Instruments - CBEx Threat Identification System

GENERAL DESCRIPTION:

The CBEx based chemical and explosive identification system is constructed from the best components in a solid aluminum body for rugged long-lifetime usage. CBEx features short analysis times and easy to interpret results on its highly visible OLED touch screen. The resistive touch screen permits the use of the CBEx while dressed in the highest level of personal protection equipment (PPE). With a 10 hour operational time using 2 AA batteries the CBEx threat identification system offers flexibility in the field during long missions. CBEx features the unique Orbital Raster Scan (ORS™) technology developed by SnRI for the interrogation of light sensitive threat materials.
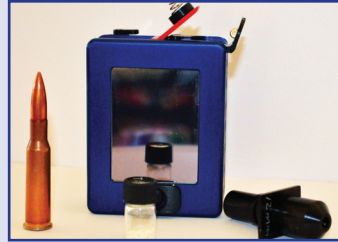
TECHNICAL DESCRIPTION:

The CBEx is a chemical and explosive identification system that employs Raman spectroscopy and spectral library matching software to identify and catalog chemical and explosives. The CBEx features the unique Orbital Raster Scan (ORS™) technology developed by SnRI for the interrogation of sensitive threat materials. The high speed movement of the laser spot in the ORS reduces the laser power density which reduces the potential of setting off explosives or destroying evidence.

CONTACT INFORMATION

Snowy Range Instruments
628 Plaza Lane
Laramie, WY 82070

COST

- $12,000/system
- $0/analysis

Tier Selection

Final tier assignment is based on overall product score.

- 🟢 Top Tier
- 🟢 Second Tier
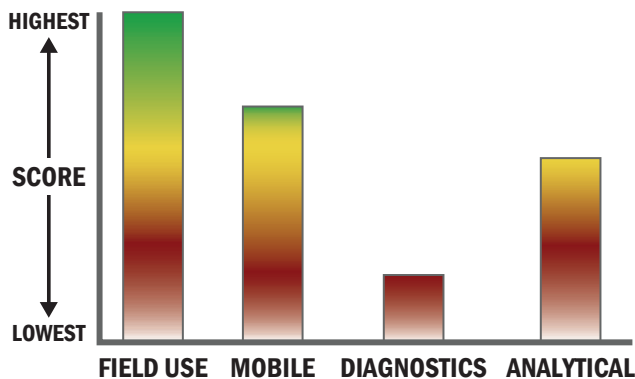- ⚪ Third Tier
- 🔴 Fourth Tier
- 🔴 Bottom Tier

RANKINGS

|	Biological	Chemical	Radiological
FIELD USE System	N/A	🟢	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.
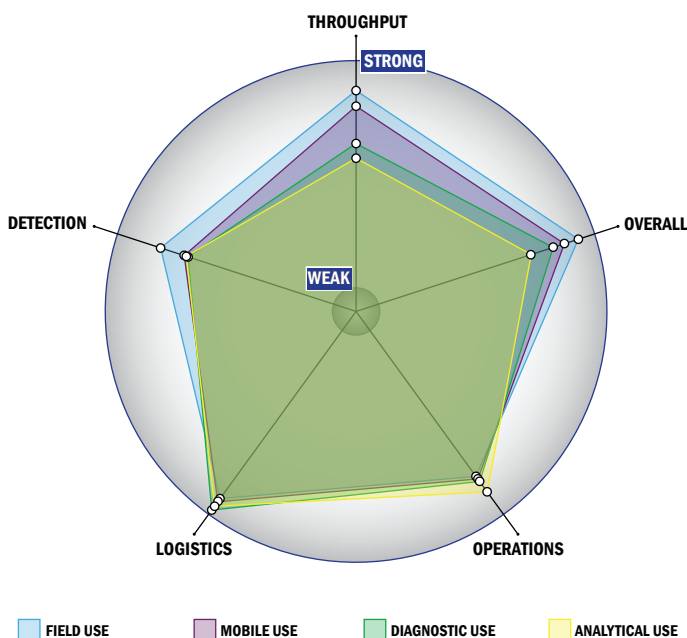

Evaluation Criteria

Throughput:
- Detection is instantaneous
- 1 sample, single test/sample per run
- 95-32 samples
- The system could easily be adapted into a fully automated system
- 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 soda can
- Less than 1 kg
- Wired connections are available
- System or device uses batteries
- 4-8 hours battery life

MOST MATURE ← LEAST MATURE
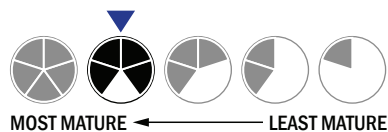
Operations:
- Can be used from 4°C to 41°C
- Components must be stored at 4°C
- Performance is not influenced by relative humidity
- Greater than 3 years shelf life
- 3-5 years expected life
- Results can be viewed in real-time
- The system or device is currently fully autonomous
- The system software is open but modification requires licensing
- The system hardware is open but modification requires licensing

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 50 μL
- Superior specificity. System has a false alarm rate approaching zero (~0%)
- 1×10^{-6}-3×10^{-5} mg/m^3
- 100 ppm – 1 ppt
- Efforts underway to identify aerosolized chemical agent
- System can currently identify liquid chemical agent