Environmental Instruments Canada, Inc. - CT007 Personal Radiation Detector

GENERAL DESCRIPTION:

Designed primarily for use by First Responders, the CT007 is a very small, non-intrusive, low-cost personal radiation detector, with no buttons or screens that communicates wirelessly with a smart phone. User interface functions are provided by the phone. When unusual radiation readings are encountered, the phone vibrates/rings to alert the user and the readings are then shown on the phone's display.

Using the phone's networking capabilities, the detector's readings can be monitored from a central location and expert advice can be given. The most important features are:

- **Cost.** By eliminating the user interface and higher level logic from the CT007, the unit cost is less than one third of the radiation detectors currently used by first responders.
- **Space.** There is limited amount of space on the officers' belts. By eliminating the user interface, the CT007 is approximately one third of the volume and less than one third of the weight of the radiation detectors currently used by first responders.
- **Focus.** The officers do not want another gadget that they need to handle and requires their attention. They want something that is in a pouch, on their belt, and they can forget about it, until they need it.
- **Coordinated Response.** The CT007's capability of logging radiation data in real time, so it can be centrally monitored, is a definite advantage over radiation detectors currently used by first responders.

TECHNICAL DESCRIPTION:

Simple Geiger Muller tube based radiation detector. Connects via Bluetooth to a Smart Phone, running an app. Smart Phone provides the user interface, audio and vibrator alarm, as well as networking capabilities.

CONTACT INFORMATION

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COST

- $450/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

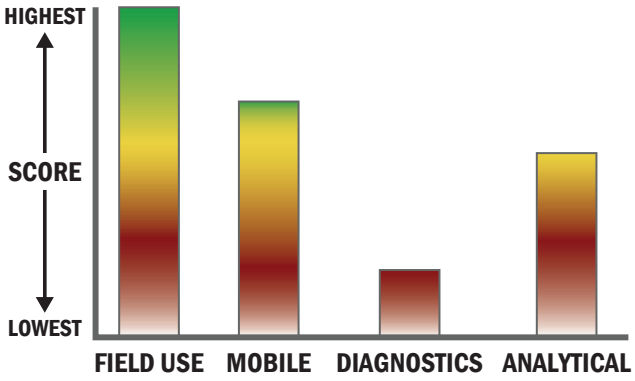
	Biological	Chemical	Radiological
FIELD USE System	N/A	N/A	Top Tier
MOBILE Laboratory	N/A	N/A	Top Tier
DIAGNOSTIC Laboratory	N/A	N/A	Second Tier
ANALYTICAL Laboratory	N/A	N/A	Second Tier

Survey Source

Vendor Supplied Information

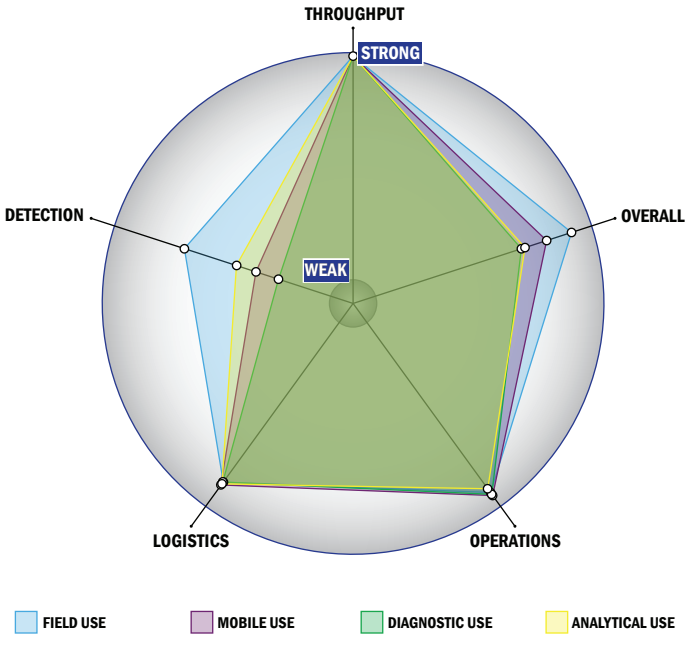
Scoring Analysis

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.



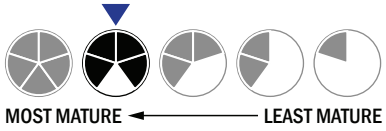
Evaluation Criteria

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
- 0 components
- No set-up of the system is required
- Automatic detection

Logistics:

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



Operations:

- Can be used from -21°C to 41°C
- Performance is not influenced by relative humidity
- 5-10 years expected life
- Results can be viewed in real-time
- The system could easily be adapted into a fully autonomous system
- The system software is closed and not available for modification
- The system hardware is closed and not available for modification

Detection:

- Not possible for the system to achieve 510K clearance
- Not possible for the system to achieve FDA approval
- This system does not test liquids
- Superior specificity. System has a false alarm rate approaching zero (~0%)
- Total dose and dose rate
- Down to background level radiation for dose rate
- System is used for personnel detection