

# Berkeley Nucleonics Corporation - Radionuclide Isotope Identifier - SAM 940



### GENERAL DESCRIPTION:

Identification of known and unknown radio-isotopes for environmental, security and anti-terrorism activities. Identify multiple nuclear isotopes, shielded nuclear isotopes, highly enriched uranium and weapons grade Pu.



### TECHNICAL DESCRIPTION:

Scintillator or solid state detectors coupled with collector electronics and a multi-channel analyzer. Fast microprocessors (released in 2009) allow peak and template matching with full background and compton subtraction. Identification is then achievable at levels 100X below background radiation (ambient levels).

### CONTACT INFORMATION

Berkeley Nucleonics Corporation  
2955 Kerner Blvd  
San Rafael, CA 94901

### COST

- \$10,000/system
- \$1/analysis

### Tier Selection

Final tier assignment is based on overall product score.

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

### RANKINGS

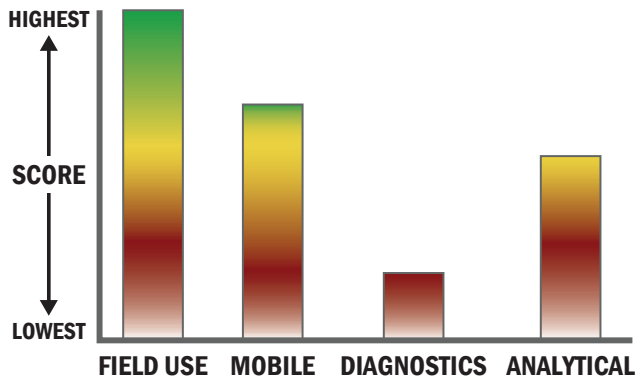
	Biological	Chemical	Radiological
FIELD USE System	N/A	N/A	●
MOBILE Laboratory	N/A	N/A	●
DIAGNOSTIC Laboratory	N/A	N/A	●
ANALYTICAL Laboratory	N/A	N/A	●

### Survey Source

Vendor Supplied Information

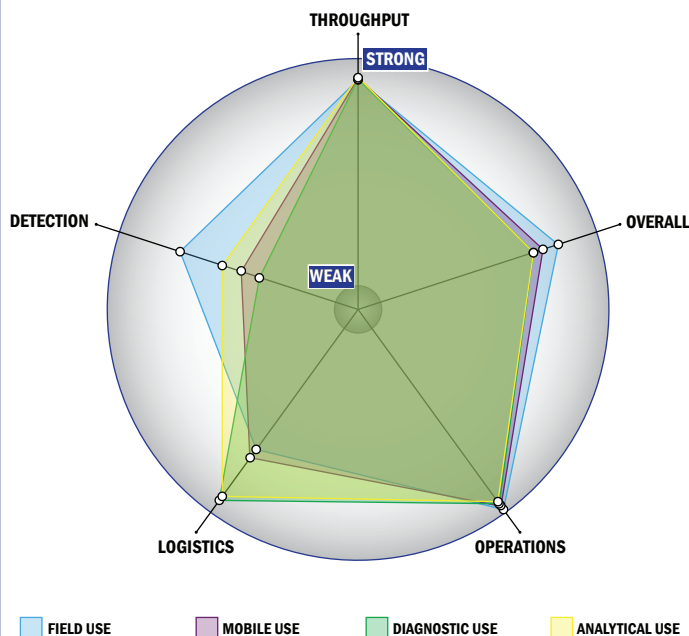
## Scoring Analysis

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.



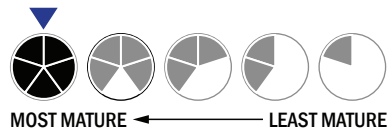
## Evaluation Criteria

### Throughput:

- 2 minutes or less for detection
- Multiple samples, multiple tests/sample per run
- 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
- 1 component
- Less than 5 minutes is required for set-up
- 1-2 steps are required for detection

### Logistics:

- Very brief (minutes-hours) training and minimal technical skills
- Approximately the size of a toaster
- Between 1 and 5 kg
- System or device uses batteries
- 4-8 hours battery life



### Operations:

- Can be used from  $-21^{\circ}\text{C}$  to  $42^{\circ}\text{C}$  (All temperatures)
- Performance is not influenced by relative humidity
- Greater than 3 years shelf life
- Greater than 10 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:

- Less than 10  $\mu\text{L}$
- Superior specificity. System has a false alarm rate approaching zero ( $\sim 0\%$ )
- Total dose, dose rate and count rate with simultaneous display readout and automatic differentiation between types of radiation detected
- Down to background level radiation for dose rate
- Down to background level radiation for count rate
- System is used for surveying