Rigaku Raman Technologies - Progeny ResQ

GENERAL DESCRIPTION:

TECHNICAL DESCRIPTION:

Raman spectroscopy can be used to effectively and efficiently identify and distinguish between different materials in liquid and solid forms, including organic and polyatomic inorganic materials. The identification can be accomplished in as quick as 20 seconds from collection of data to analysis report. Many packaging materials such as polymer bags, glass bottles, flasks and vials do not interfere with the measurement, allowing the user to screen materials by non-contact, non-destructive analysis, without opening containers.

Raman spectroscopy is a vibrational technique, which means any chemical or physical change that affects the molecular vibrations will change the Raman spectrum. This extends the technique's ability to include the identification of counterfeits and patented formulations infringement. In addition, unlike other vibrational spectroscopies such as Fourier transform infrared (FTIR), water has relatively weak Raman peaks which allows Raman to measure samples that are hydrated or in aqueous solutions.

The specificity of Raman, which allows for rapid creation of new material databases and methods, and its relative ease of use, have made Raman spectroscopy a popular technique when chemical identification and material inspection is required.

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

CONTACT INFORMATION

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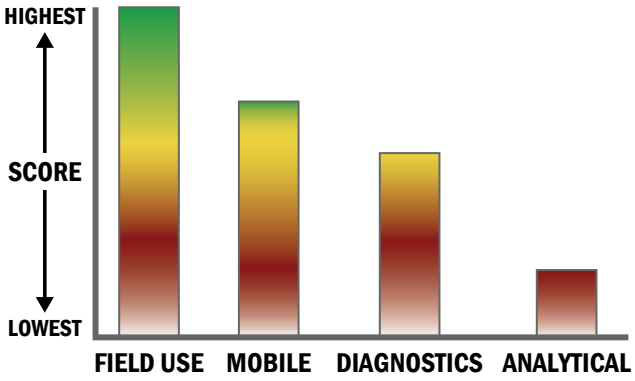
COST

- N/A/system
- N/A/analysis

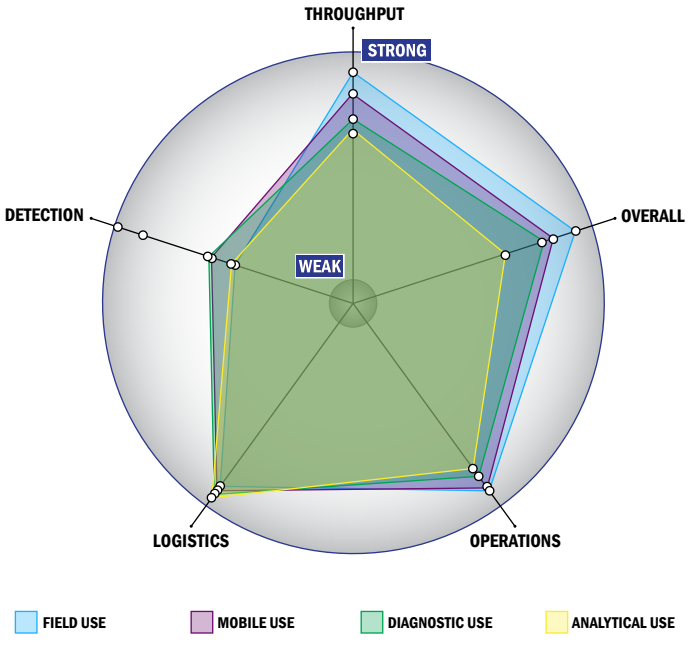
Scoring Analysis

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.



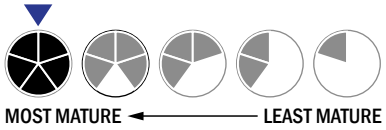
Evaluation Criteria

Throughput:

- 2 minutes or less for detection
- 349-96 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
- 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
- Between 1 and 5 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 > 42°C (All temperatures)
- This system does not require consumable components
- Performance is not influenced by relative humidity
- 5-10 years expected life
- The system could be adapted to a fully autonomous system with some effort
- 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 100 µl
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- > $1x10^{-3}$ mg/m^3
- > 1 ppt
- Possible system could be adapted to identify aerosolized
- chemical agent
- System currently can identify liquid chemical agent