

Biomeme, Inc. - Mobile Real-Time qPCR Platform



GENERAL DESCRIPTION:

Biomeme's platform turns any smartphone or like device (iPod Touch, iPad Mini, etc.) into a mobile lab for performing advanced diagnostics. The system requires no special lab equipment or experience and can be used at the point of need in the field or in a mobile lab. The full system includes a hardware add-on, a mobile device software application, and disposable test kits. The system performs molecular diagnostics and near real-time surveillance of pathogens via real-time quantitative polymerase chain reaction (qPCR). In addition to Biomeme's tests, the platform is open enough for experienced users in analytical and diagnostic laboratories to develop their own tests for use on the system.



TECHNICAL DESCRIPTION:

Real time hydrolysis probe polymerase chain reaction amplification of genetic material on a smartphone or like device (iPod Touch, iPad Mini) hardware add-on thermal cyclers.

CONTACT INFORMATION

Biomeme, Inc.
417 N. 8th Street Suite 201
Philadelphia, PA 19123

COST

- ~\$1,000/system
- \$5-\$50/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

Notes

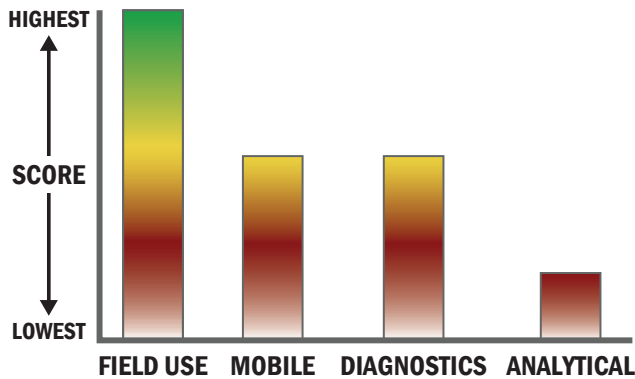
Being tested as part of the DoD's JUPITR ATD.

Survey Source

Vendor Supplied Information

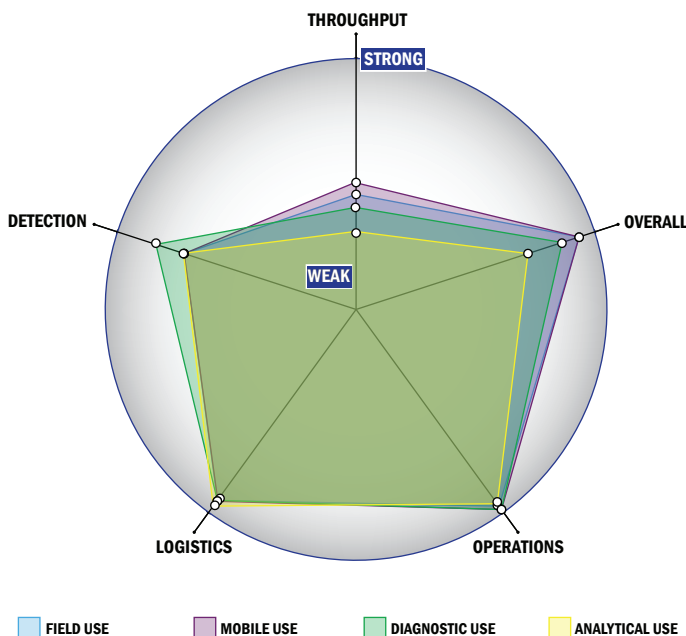
Scoring Analysis

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.



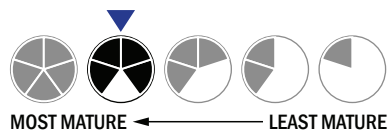
Evaluation Criteria

Throughput:

- Between 30 and 60 minutes for detection
- 1 sample, <10 tests/sample per run
- Less than 32 samples every 2 hours
- The system could be adapted to a fully automated system with some effort
- Device or system is intended for multiple detection assays
- 4 solutions, buffer, eluents, and/or reagents
- 4 components
- No set-up of the system is required
- 3-5 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
- Satellite, wireless and wired connections are available
- System or device has 110V electrical requirement
- 4-8 hours battery life



Operations:

- Components must be stored at room temperature (27 °C)
- Performance is not influenced by relative humidity
- Between 1 to 3 years shelf life
- Greater than 10 years expected life
- Results can be viewed in real-time
- The system could be adapted to a fully autonomous system with some effort
- The system software is open but modification requires licensing
- The system hardware is open but modification requires licensing

Detection:

- Efforts are underway to achieve 510K clearance
- Efforts are underway to achieve FDA approval
- Less than 100 µL
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- 1-100 CFU per mL
- 1-100 PFU per mL
- Manual kit not integrated with the system handles spore lysis