Morphix Technologies - Morphix ChemBio Detector

GENERAL DESCRIPTION:

In January 2005, Morphix Technologies was awarded a contract by the Defense Threat Reduction Agency (DTRA) to develop a hand-held chemical / biological detection unit for use by the military and first responders. After completion of this two-year program, three prototypes have been developed. The wireless, electronic, chemical biological agent detector is very small (35mm x 85mm x 105mm) and weighs less than 400 grams. The Morphix chem/bio detector is easy to use. Simply insert the colorimetric coupon coated with chemical formulations specific for classes of chemical and biological agents, into the Morphix chem/bio detector and turn the unit on. Optoelectronic sensing of the coupon occurs at a predetermined rate. Upon detection of a color change on the coupon, the results are communicated wirelessly. The modular net-centric wireless communication technology is adaptable to multiple communication protocols. The modularity of this device makes it adaptable to many applications including as a personal detection badge, perimeter detection, standoff detection and mounted on an unmanned aerial vehicle or unmanned ground vehicle. Given it is the only known device capable of detecting both chemical and biological threats in such a compact package, the Morphix chem/bio detector is an excellent screening tool. This device has broad applicability within the military and first responder communities. The wireless, electronic, chemical, biological agent detection module provides broad chemical and biological agent class detection with significantly smaller size, weight, cost, training requirements and power requirements than current technologies.

TECHNICAL DESCRIPTION:

Generic biological agent class detection (e.g. bacterial vegetative cells or bacterial endospores) is achieved through the use of colorimetric, labeled antibodies, and fluorescence-on chemistries coupled with optical spectroscopy. Chemistries are contained in stable, proprietary formulations which have been hardened to perform under mil-spec environmental conditions.

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
MOBILE Laboratory			N/A
DIAGNOSTIC Laboratory			N/A
ANALYTICAL Laboratory			N/A

Survey Source

Vendor and Internet Supplied Information

CONTACT INFORMATION

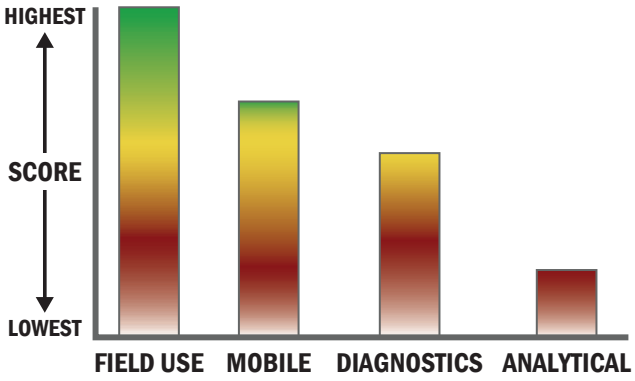
Morphix Technologies
2557 Production Road
Virginia Beach, VA 23454
POC: Kim Chapman

COST

- $1,500/system
- $25/analysis

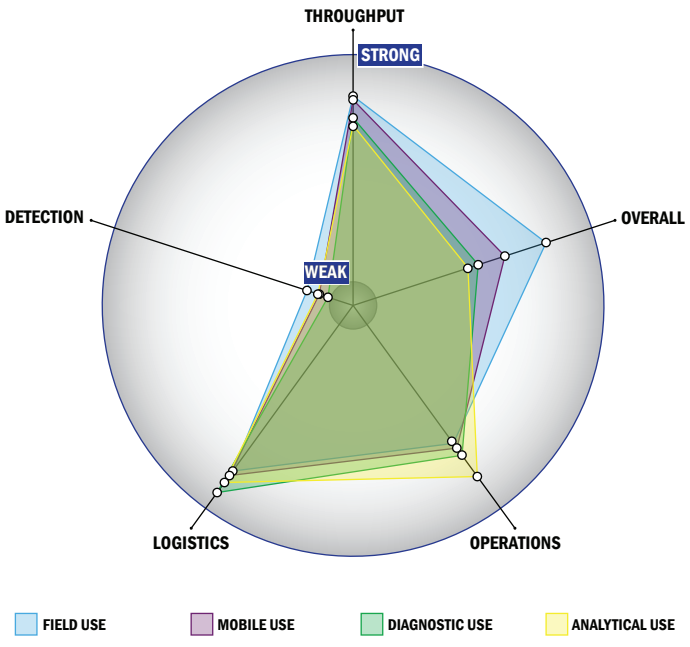
Scoring Analysis

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.



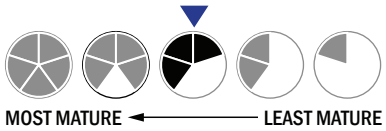
Evaluation Criteria

Throughput:

- Between 2 and 15 minutes for detection
- 1 sample, single test/sample per run
- 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
- 2 components
- 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 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 25 °C to 37 °C
- Between 6 months and 1 year shelf life
- 1-3 years expected life
- Results can be viewed in real-time
- The system or device is currently fully autonomous
- The system software is open and available for modification
- The system hardware is open and available for modification

Detection:

- This system does not test liquids
- Spore lysis not necessary for detection by system
- $1x10^{-3}$ mg/m^3
- Possible the system could identify aerosolized chemical agent