

Luminex Corporation - MAGPIX System



GENERAL DESCRIPTION:

The MAGPIX system is a versatile multiplexing platform capable of performing qualitative and quantitative analysis of proteins and nucleic acids in a variety of sample matrices. This affordable system requires small sample input and can perform up to 50 tests in a single reaction volume, greatly reducing sample input, reagents and labor while improving productivity. The MAGPIX analyzer is based on CCD imaging technology, which allows for a compact, more robust system. Streamlined start-up and shut-down protocols and minimal maintenance requirements make the system easy to operate and maintain. MAGPIX was designed to meet the needs of laboratory medicine and the care of patients, as well as the research environment. It can be ruggedized for biodefense field applications; a ruggedized prototype of MAGPIX was field tested in a Technology Readiness Evaluation by the US Army Research, Development and Engineering Command Edgewood Chemical and Biological Center. Testing was done at the Dugway Proving Ground, UT. System performance on an antibody-based test of seven agents of biological origin was run over a 3 month period. Although assay-level performance information is proprietary, the system proved to be adequately rugged with no performance faults throughout the testing period.



TECHNICAL DESCRIPTION:

The Luminex MAGPIX system comprises three components:

- The MAGPIX instrument, which integrates key components such as LED CCD cameras, optics, and high-speed digital signal processors.
- The MagPlex microspheres, 50 fluorescently dyed 6.5 micron-sized polystyrene paramagnetic microspheres, each with a distinct spectral address, that act as both the identifier and the solid surface to build the assay. They may be multiplexed together up to 50 per well and can be used for many assay formats such as nucleic acid assays and immunoassays.
- The xPONENT software, a modular, flexible, software package for control of the MAGPIX and data analysis.

CONTACT INFORMATION

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COST

- \$35,000/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			
MOBILE Laboratory			
DIAGNOSTIC Laboratory			
ANALYTICAL Laboratory			

Notes

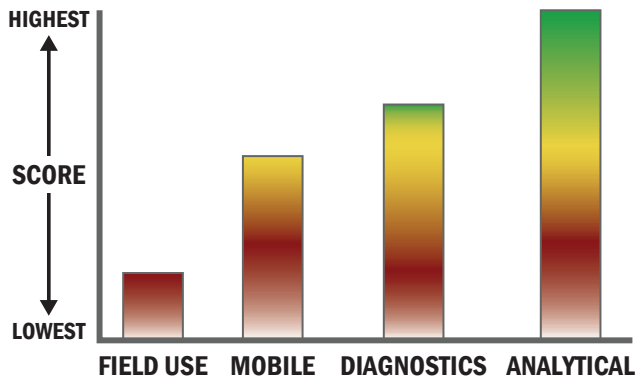
One of several systems that employ bead based xMAP technology. This system is in use by DoD laboratories through the Global Biosurveillance Technologies Initiative (GBTI).

Survey Source

Vendor Supplied Information

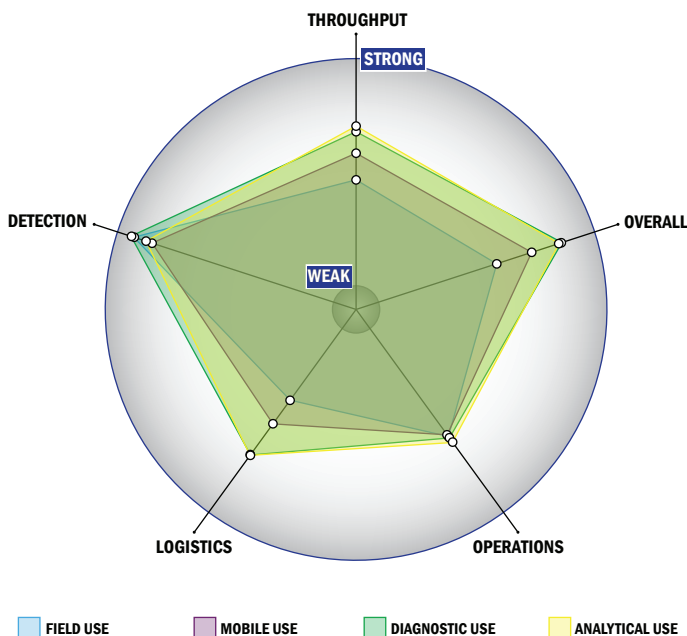
Scoring Analysis

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.



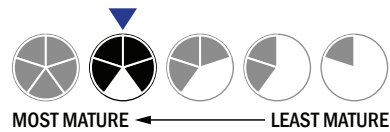
Evaluation Criteria

Throughput:

- Detection is instantaneous
- Multiple samples, multiple tests/sample per run
- 349-96 samples
- The system or device is currently fully automated
- Device or system is intended for multiple detection assays
- 4 solutions, buffer, eluents, and/or reagents
- 3 components
- 10-20 minutes is required for set-up
- 3-5 steps are required for detection

Logistics:

- An afternoon of training and some technical skills required
- Approximately the size of a carry-on luggage suitcase
- Between 5 and 25 kg
- Wired connections are available
- System or device has 110V electrical requirement



Operations:

- Can be used from 4 °C to 37 °C
- Components must be stored at 4 °C
- Device or system has peak performance at normal relative humidity conditions
- Between 1 to 3 years shelf life
- 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:

- Efforts are underway to achieve 510K clearance
- Efforts are underway to achieve FDA approval
- Less than 50 µL
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- 1-100 CFU per mL
- 1-100 PFU per mL
- Less than 1 ng per mL
- Manual kit not integrated with the system handles spore lysis