Agilent Technologies, Inc. - Agilent 6400 Series Triple Quadrupole Mass Spectrometer

GENERAL DESCRIPTION:

The 6400 series instruments are triple quadrupole mass spectrometers designed to be coupled to a liquid chromatography system for sample separation and introduction. The information obtained from the 6400 series instruments can be used to confirm the identity of a compound or determine how much of a particular compound is present. Agilent 6400 Series Triple Quadrupoles are designed and constructed using the latest electronics and hardware manufacturing techniques. The Hyperbolic quadrupole provides unrivaled ion transmission and spectral resolution. The high-pressure hexapole collision cell with linear acceleration yields optimized MS/MS fragmentation without cross-talk effects. The off-axis, high-energy dynode detector enables rapid polarity switching, with low noise, and delivers the widest dynamic range available. The 6400 Series Triple Quadrupole instruments are integrated with MassHunter software, which contains the Autotune algorithm and numerous other data acquisition and processing tools, to deliver the highest quantitative performance available.

TECHNICAL DESCRIPTION:

The 6400 series Triple Quadrupole LC/MS system is a family of instruments comprised of 4 different models of triple quadrupole mass spectrometer. These instruments have a variety of performance characteristics. The 6420 is economical and easy to use, a perfect workhorse instrument. The 6430 offers improved sensitivity to yield more precise quantitation for most assays. The 6460 adds Agilent Jet Stream Technology to dramatically increase sensitivity. The 6490 Includes novel iFunnel technology for ultra trace quantitation to address your most demanding quantitative applications. Triggered MRM (tMRM) acquisition is available on all Agilent 6400 Series Triple Quadrupole LC/MS Systems, enabling quantitative and qualitative analysis in a single run. Triggered MRM acquisition effectively combines MRM quantitative analysis with data dependent acquisition of a product ion spectrum for use in library search, identification, and confirmation. tMRM product ion spectra can be searched against application-specific libraries, such as the Agilent Personal Compound Database and Library (PCDL), or large public spectral libraries.

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	Bottom Tier	Bottom Tier	N/A
MOBILE Laboratory	Bottom Tier	Bottom Tier	N/A
DIAGNOSTIC Laboratory	Fourth Tier	Fourth Tier	N/A
ANALYTICAL Laboratory	Fourth Tier	Third Tier	N/A

CONTACT INFORMATION

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COST

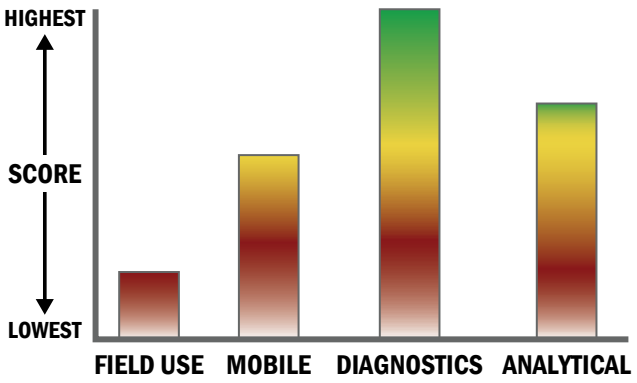
- $350,000/system
- N/A/analysis

Survey Source

Vendor Supplied Information

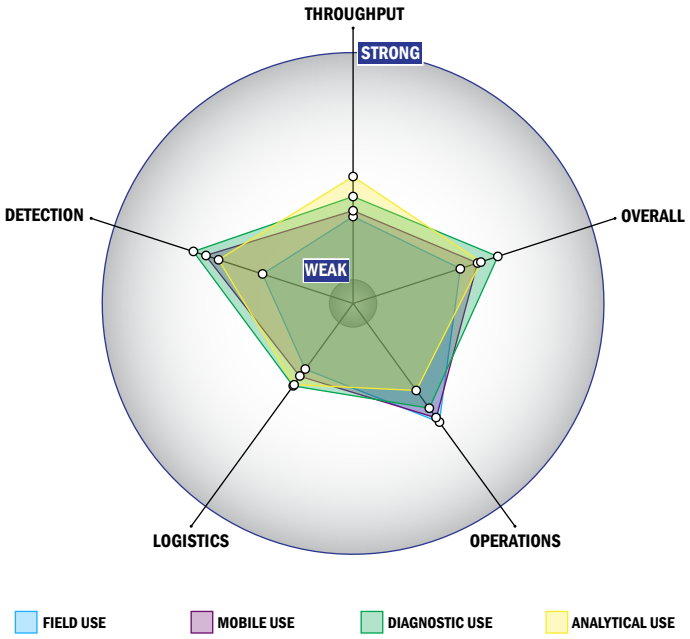
Scoring Analysis

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.



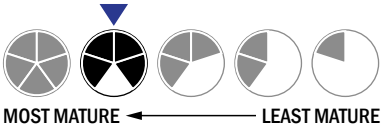
Evaluation Criteria

Throughput:

- Between 15 and 30 minutes for detection
- Multiple samples, multiple tests/sample per run
- 95-32 samples every 2 hours
- The system or device is currently fully automated
- 0-1 solutions, buffer, eluents, and/or reagents
- 10-20 minutes is required for setup

Logistics:

- More than a day of training and significant technical skills are required
- Approximately the size of a home dishwasher
- More than 50 kg
- Wireless and wired connections are available
- System or device has 220V electrical requirement



Operations:

- Can be used from 4°C to 37°C
- This system does not require consumable components
- Device or system has peak performance at normal relative humidity conditions
- 5-10 years expected life
- Results cannot be viewed in real-time
- The system is not capable of autonomy
- 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
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- System currently can identify aerosolized chemical agent
- System currently can identify liquid chemical agent