Illumina, Inc. - HiScanSQ Systems

GENERAL DESCRIPTION:

The HiScanSQ system integrates the power and resolution of next-generation sequencing with the high-throughput capacity of genotyping and gene expression arrays, delivering unprecedented flexibility for experimental design. The instrument features two distinct components, the HiScan Reader and the SQ Module.

The HiScan Reader functions as a high-speed, precision imaging scanner for Illumina sequencing and microarray-based analyses. The SQ Module is reagent handling fluidics device needed to perform Illumina next-generation sequencing. Other components include the cBot Cluster Generation System, a suite of data collection and analysis software, and dedicated consumables. cBot provides automated clonal amplification of single molecules randomly distributed on a glass surface.

TECHNICAL DESCRIPTION:

The HiScan Reader is a high-speed, precision imaging scanner for Illumina sequencing and microarray-based analyses. The SQ Module is an add-on reagent handling fluidics device needed to perform Illumina next-generation sequencing on the HiScan reader. BeadArray technology is utilized in Illumina's HiScanSQ System for a broad range of DNA and RNA analysis applications. Illumina's BeadArray Technology is based on sub-micron silica beads that self-assemble in microwells on planar silica slides. Each bead is covered with hundreds of thousands of copies of a specific oligonucleotide that act as the capture sequences in one of Illumina's assays. Illumina sequencing technology leverages clonal array formation and proprietary reversible terminator technology for rapid and accurate large-scale sequencing. The innovative and flexible sequencing system enables a broad array of applications in genomics, transcriptomics, and epigenomics.

CONTACT INFORMATION

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COST

- $405,000/system
- $6-$5,000/analysis

Tier Selection

Final tier assignment is based on overall product score.

Top Tier | Second Tier | Third Tier | Fourth Tier | Bottom Tier

RANKINGS

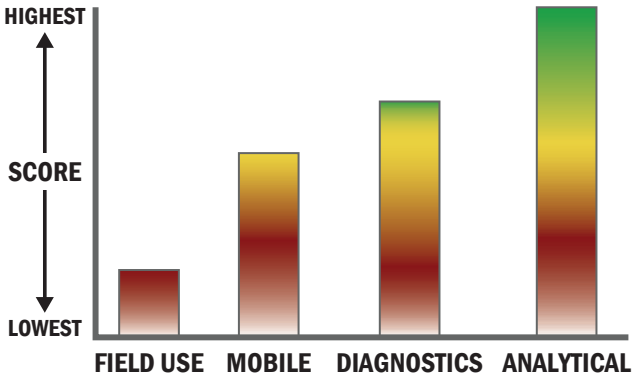
	Biological	Chemical	Radiological
FIELD USE System	Bottom Tier	N/A	N/A
MOBILE Laboratory	Bottom Tier	N/A	N/A
DIAGNOSTIC Laboratory	Fourth Tier	N/A	N/A
ANALYTICAL Laboratory	Fourth Tier	N/A	N/A

Survey Source

Vendor and Internet Supplied Information

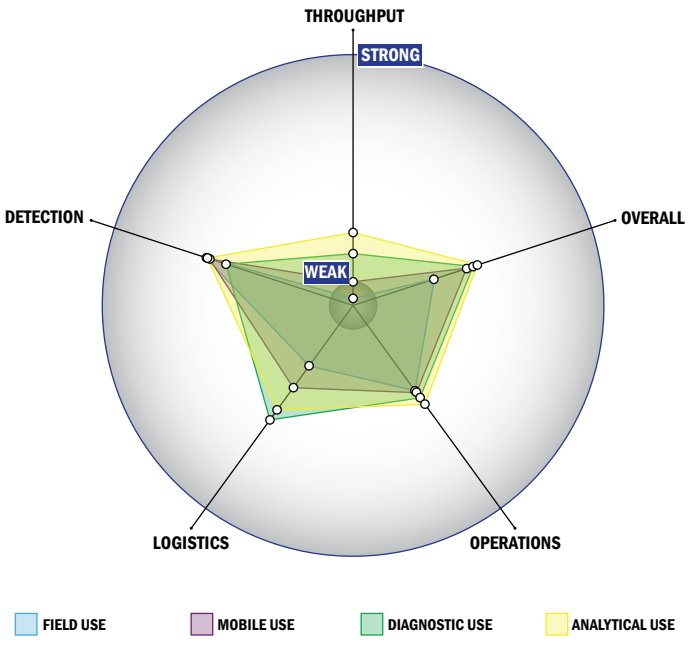
Scoring Analysis

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.



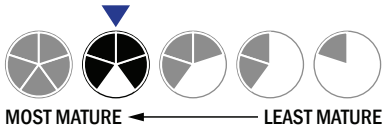
Evaluation Criteria

Throughput:

- Greater than 8 hours for detection
- Multiple samples, multiple tests/sample per run
- Less than 32 samples every 2 hours
- The system or device is currently semi-automated
- Device or system is intended for multiple detection assays
- 5 or more solutions, buffer, eluents, and/or reagents
- 5 or more components
- Greater than 12 steps are required for detection

Logistics:

- A day of training and technical skills are required
- Larger than a home dishwasher
- More than 50 kg
- Wired connections are available
- System or device has 110V electrical requirement



Operations:

- Can be used from 25°C to 37°C
- Components must be frozen (-20°C)
- Device or system has peak performance at normal relative humidity conditions
- Between 1 to 6 months shelf life
- 5-10 years expected life
- Results can be viewed in real-time
- The system is not capable of autonomy
- 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
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- 100-1,000 CFU per mL
- 100-1,000 PFU per mL
- Manual kit not integrated with the system handles spore lysis