Thales UK - Blacklight

GENERAL DESCRIPTION:

The Thales BLACKLIGHT is an innovative multi-species real time gas and vapor detector that can be used in a wide variety of environments and operational modes, from incident response through to chemical surveillance and pre-event profiling. BLACKLIGHT employs a unique implementation of ultraviolet absorption spectroscopy to offer significant improvements in chemical detection over current systems. Cutting edge sensing technologies and air sampling techniques are combined to provide superior detection performance in static, portable and vehicle mounted configurations. The key product differentiator is concurrent and continuous real-time detection, identification and quantification of a wide range of threat chemicals, including their precursors, by-products and breakdown components. Threat chemicals include TIC's, CWA's, explosives and narcotics. Mutli-species detection, identification and quantification can be done at very low concentrations (single-figure ppb) which when combined with the sensors high volume sampling rate (>100 litres/min) make the unit ideal for mobile search and on 'on the move' applications. Tangible user benefits include; more rapid incident response; significantly reduced search times; and covert chemical surveillance by detecting trace levels of raw products and by-products from illicit manufacturing processes.

TECHNICAL DESCRIPTION:

The system uses differential Ultra Violet absorption spectroscopy in combination with advanced signal processing routines to detect, identify and quantify species. Ultra-Violet spectroscopy is an area largely overlooked in recent decades but modern techniques and a new approach have yielded exciting results. The species enter the system through a high-capacity air inlet to an optical cell where the sample is analyzed. The sensor is able to recognize the chemical compounds in the air, untangle them and quantify their presence in real time (<1 sec). The use of differentials rather than pure absorption allows simultaneous detection of multiple species, avoiding the usual masking.

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	Second Tier	N/A
MOBILE Laboratory	N/A	Top Tier	N/A
DIAGNOSTIC Laboratory	N/A	Top Tier	N/A
ANALYTICAL Laboratory	N/A	Second Tier	N/A

CONTACT INFORMATION

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COST

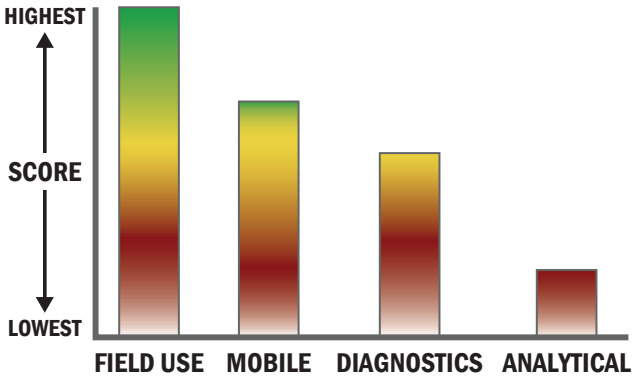
N/A

Survey Source

Vendor Supplied Information

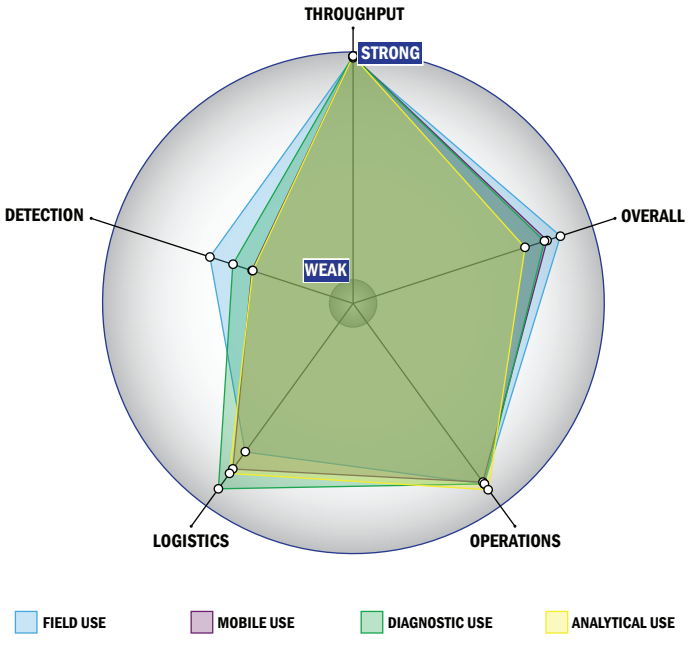
Scoring Analysis

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.



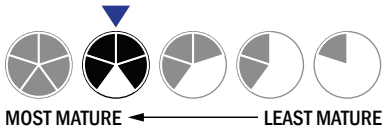
Evaluation Criteria

Throughput:

- Detection is instantaneous
- Continuous operation with no defined runs
- 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
- 0 components
- Less than 5 minutes is required for set-up
- Automatic 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
- Wireless and wired connections are available
- System or device uses batteries
- 2-4 hours battery life



Operations:

- Can be used from -21°C to 41°C
- Components must be stored at room temperature (27°C)
- Performance is not influenced by relative humidity
- Greater than 10 years expected life
- Results can be viewed in real-time
- The system or device is currently fully autonomous
- The system software is open but modification requires licensing
- 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
- This system does not test liquids
- Excellent specificity. System has occasional false alarms under certain conditions (<2%)
- $1x10^{-4}$–$1x10^{-3}$ mg/m^3
- System can identify aerosolized chemical agent
- Possible system could be adapted to identify liquid chemical agent