

# MEWS-M

## Modular Electronic Warfare System – Man-portable

Developed in partnership with L-3 TRL Technology, MEWS is a high performance spectrum surveillance system for 2MHz to 3GHz communications monitoring and Direction Finding (DF).

Featuring QinetiQ's Electronic Warfare (EW) signal processing expertise and L-3 TRL's proven receiver technology, MEWS is the ultimate EW system for the land based tactical user.

MEWS can scan large parts of the electromagnetic spectrum for RF energy in the form of communications and other electromagnetic signals emitted by adversary forces. Utilising advanced signal detection and clustering techniques, MEWS can detect, direction find, exploit and display signals of interest for further analysis.

A highly versatile system, MEWS can display all signals within a specified frequency range and locate particular signals of interest for further investigation. It also provides a powerful post-event analysis capability; all signal activity prior to a particular event, an IED attack for example, can be displayed for comprehensive intelligence gathering. For additional intelligence gathering requirements, MEWS also provides a valuable Battlespace Spectrum Monitoring capability that can be used to identify frequency usage within the area of operation.

MEWS integrates a combination of lightweight, battery powered components that use software-defined radio and modular hardware for maximum flexibility. This approach enables a multi-role capability that can be readily upgraded as target signals and digital processing techniques evolve.

Multiple MEWS systems can be networked to enable Position Fixing on signals of interest and sharing of

information for a complete intelligence picture. Expansion interfaces can be provided to enable integration and interoperation as part of a larger system. This includes integration with L-3 TRL's range of Electronic Attack (EA) jamming systems.

The user interface for MEWS is provided by QinetiQ's Infoviewer software that incorporates a range of features for detailed analysis, mapping and filtering to support identification and location of key signals of interest. The software provides a comprehensive threat warning capability. In order to utilise the full capabilities of MEWS, and optimise its effectiveness, QinetiQ and L-3 TRL supply a range of training and support solutions which provide customers with cost-effective, complete through-life support capability.

### Hardware

MEWS-M comprises two main hardware components: a bespoke DF antenna, designed to meet the requirements of man-portable operations, and a processing unit comprising the latest signal processing hardware. Each component is battery-powered and offers outstanding mission life. For ease of operation, a COTS/MOTS laptop is provided that runs the QinetiQ Infoviewer interface software.

The compact DF antenna integrates nine elements into a robust, rapidly deployable package which provides excellent

- Portable and lightweight tactical system
- High performance spectrum surveillance
- Automatic Direction Finding of every signal
- Position Fixing of threat emissions
- Audio monitoring & digital IQ recording
- Designed for rapid deployment



MEWS-M, Compact, rugged, high performance

performance across three frequency bands. The antenna features integral GPS and compass to enable automated location and orientation.

The processing unit incorporates three high performance wide band receivers to maximise flexibility when investigating signals of interest, each covering 2MHz to 3GHz. Signal processing is provided by a state-of-the-art software-defined processing platform that can be rapidly re-programmed in the field, making it ideal for use in tactical environments.

Sharing a number of its key components with the MEWS static and vehicle configurations, MEWS-M can be rapidly re-configured to support different deployment scenarios.

The MEWS hardware communicates with the laptop via a 1Gb Fibre Optic Ethernet connection, ensuring rapid communication without compromising system performance.

The equipment features a robust design, capable of withstanding adverse field conditions including temperature, humidity, dust, sand and rain, as well as high altitude transportation.

For maximum versatility, MEWS can be easily packed into a standard military Bergen, mounted on a tripod or mast or quickly installed in vehicles depending on requirements and deployment scenarios.

## Infoviewer Software

QinetiQ's Infoviewer application is used to task the MEWS system and present results to the Operator. Similar to many Internet-based applications, the software is intuitive to use with Operators able to use a range of navigation tools with ease. All data is stored in an SQL database for ease of interoperability with existing systems and data fusion products.

The displays and dialogues available to the Operators include:

### Real-time display

The real-time display enables the Operator to rapidly determine the presence of threat signals. Having established a scan plan for the system, the Operator is able to view signal activity in any or all of the bands of interest. The real-time display is able to show frequency band allocations and known signals.

### Map display

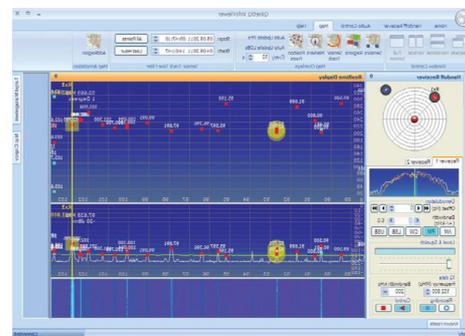
The map display provides the primary situational awareness view and displays the position of the MEWS system, line of bearing information (in stand-alone mode) and position fixes (in networked mode). Using an industry standard ESRI ArcGIS mapping engine, the user is able to easily add region-specific map overlays.

### Target signals management

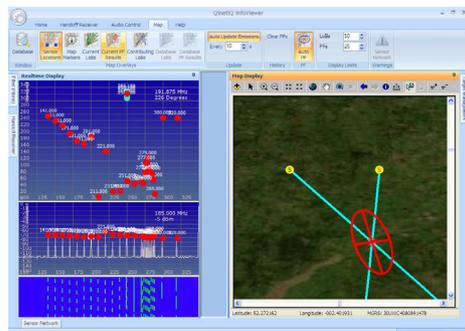
All signal information processed by the system, irrespective of any data filters or mission threat lists, is stored in an SQL database. This allows comprehensive data mining, post-event analysis and graphing of database signal data.

### Third party systems and applications

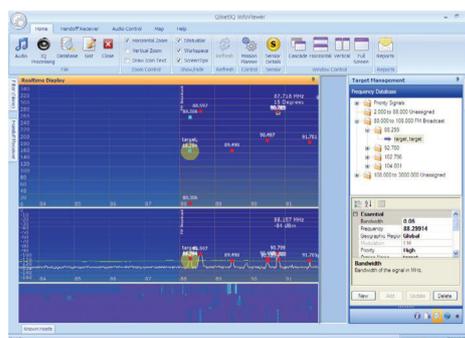
MEWS has been developed using open data standards such as its SQL database and XML data formats for database data and signals of interest export. This allows cost-effective integration of other EW systems and tools, such as digital demodulation software, or L-3 TRL's range of Electronic Attack systems.



Intuitive Real-time display and hand-off receiver



Map display shows automatic Position Fixing results



Target signals management and signals of interest database matches

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