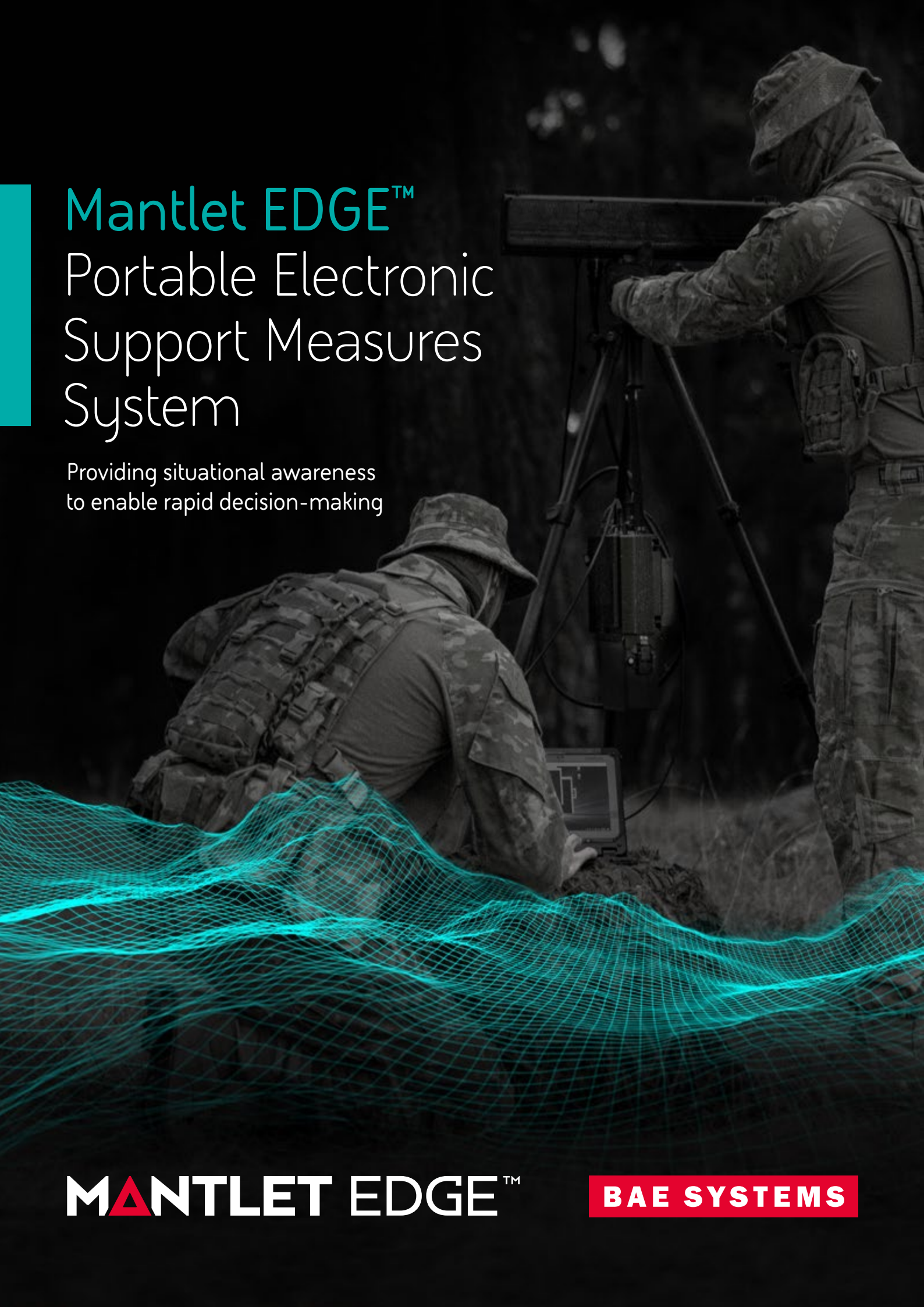

Mantlet EDGE™ Portable Electronic Support Measures System

Providing situational awareness
to enable rapid decision-making

MANTLET EDGE™

BAE SYSTEMS

To meet the challenges of the battlefield's complex and ever changing Electronic Warfare (EW) environment, BAE Systems Australia has developed a high-performance, 'low SWAP', fully digital **ESM system** derived from the proven **Mantlet™** system.

Mantlet Edge™ is an advanced miniature Digital Electronic Support Measures (ESM) system, providing Radio Frequency (RF) situational awareness at the edge, to enable rapid decision-making. For man-portable operations, the sensor is combined with an antenna array navigation solution, for PC and Android analysis and displays.

Mantlet Edge™ is a true 'force-multiplier' enabling **every soldier to be a sensor**. The system addresses the requirements for Communications and Radar ESM detection capability at the tactical edge, reducing cost, increasing commonality and providing greater operational flexibility. Mantlet Edge™ passively detects, identifies and characterises emitters at better than 2°rms providing an unparalleled geo-location capability from a single unit.

This state-of-the-art system is derived from the proven Mantlet™ digital ESM, specifically for man-portable and vehicle borne land operations. Available with the option to add Communication ESM signal processing and K Band detection hardware, the Mantlet Edge™ system can be tailored to meet bespoke mission needs.

Key benefits

- Ultra small SWaP
- Single platform geo-location algorithms enable highly accurate sensor cueing at tactically significant ranges; purposefully optimised for man-portable and vehicle borne operations
- Rapid decision making by shortening the OODA (Observe, Orientate, Decide, Act) loop timeline
- Detects and identifies all modern search, acquisition and tracking radars of maritime ground-based and aircraft weapons systems
- Data recording for further analysis and sovereign EW database creation
- Compact, modular and easy to assemble
- Light-weight at 5.5kg (12lbs), including antenna, cables and navigation solution
- Scalable and enduring via regular upgrades and updates
- Utilises open architectures and ethernet for effortless integration, network and data link connectivity.

Key applications

The Mantlet Edge™ system's small size, weight and power has been optimised for man-portable and land vehicle integration. The use of state of the art components results in a significant reduction in size, allowing all the receiving and processing functions to be contained within the sensor. High performance is achieved by using powerful processors and advanced real-time signal measuring and analysis techniques.

Mantlet Edge™ provides improved intelligence gathering and situational awareness.

These capabilities are provided through wideband digital receivers which generate instantaneous detections and enable fine grain signal analysis, increasing the probability of intercept.

The Mantlet Edge™ system performs advanced ESM, and geo-location functions in both military and civil applications. Its small size and weight makes it ideally suited to forward surveillance and reconnaissance of complex electromagnetic environments.

Mantlet Edge™ is ideally suited to today's battlefield – it is the proven miniature EW solution for all land environments requiring high performance in high density modern electromagnetic environments.

Mantlet Edge™ detects, identifies and categorises complex emitters, whilst recording data for further analysis. This data can give the foundation of a true sovereign ELINT capability, enabling users to take control of their own EW databases and threat libraries, whilst providing the capability to create and tailor library files for sovereign needs.

System description

In its E-J band configuration, Mantlet Edge™ comprises a sensor, interconnecting cables, tripod, antenna assembly, PC and Android Phone (S20TE) displays. The sensor and antenna assemblies contain an integrated BITE and calibration source. The ESM comprises four phase-matched receivers, and associated signal processing chains. K band extensions are available to meet advanced needs.

The analogue signals are received by the antenna array, digitised, classified in the sensor in accordance with the Mission Library, and then displayed on dedicated PC/ S20TE displays. Additionally, intelligence can be relayed via tactical data links to remote ground stations. The small size, weight and power allows the placement of the EMS unit closer to the antennas preventing losses in sensitivity.

EW Operational Support (EWOS) is provided with a PC based Mission Library Generator (MLG) and replay tool. The MLG gives users full control over their library and logged data, allowing them to rapidly update Mission Libraries in accordance with their local theatre of operations at the speed of relevance.

Furthermore, the parametric level RF emitter data detected by Mantlet Edge™ is recorded and made available for mission analysis using the EWOS replay tool.

Mantlet Edge™ is fully programmable, allowing users to configure its operation with indigenous library data.

EW Suite Controller (EWSC)

Mantlet Edge™ seamlessly performs the core functions of an EW Suite Controller and has been integrated with external EWSCs. Mantlet Edge™ provides EW communities with a cost effective means of merging Radar ESM and Communications ESM in a single system, improving performance.

MANTLET EDGE™

Specifications

Sensor RF Band	A-J Band
Antenna RF Band	E-J Band with growth to K Band
RF Measurement Agility including RF characteristics	1 MHz RMS typical
Sensitivity	Better than -75dBmi achievable sensitivity dependent on FFT (This figure does not include antenna gain)
High Accuracy DF	Typically better than 2°rms (antenna array dependent)
PRF Types	Fixed, jittered, slide, stagger, random stagger, drift batch, irregular, n-lets
Geo-Location	Typically better than 5% (antenna array dependent)
Pulse Width	<100ns, ICW and CW
Pulse Width Agility	Fixed, agile, agile discrete
Fine Frequency Measurement	<200 KHz RMS for Pulse Widths >1µs
Frequency Modulation	FMICW, FMCW, FM Chirp
Phase Modulation	Phase Shift Keying (PSK) Barker Codes
Emitter Library Size	50,000 mode lines
Communication ESM	Antenna configuration dependant and software update required
Co-site Interoperability	2 Dedicated interfaces
Extended capability	Can act as an EW System Control Processor
Power consumption	<110W
Power Requirement	28V
Interface	Ethernet
Total weight	5.5Kgs (excluding battery)

For more information contact:
BAE Systems Australia

T: +61 (0)8 8480 8888
E: auswebinfo@baesystems.com.au
W: www.baesystems.com

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