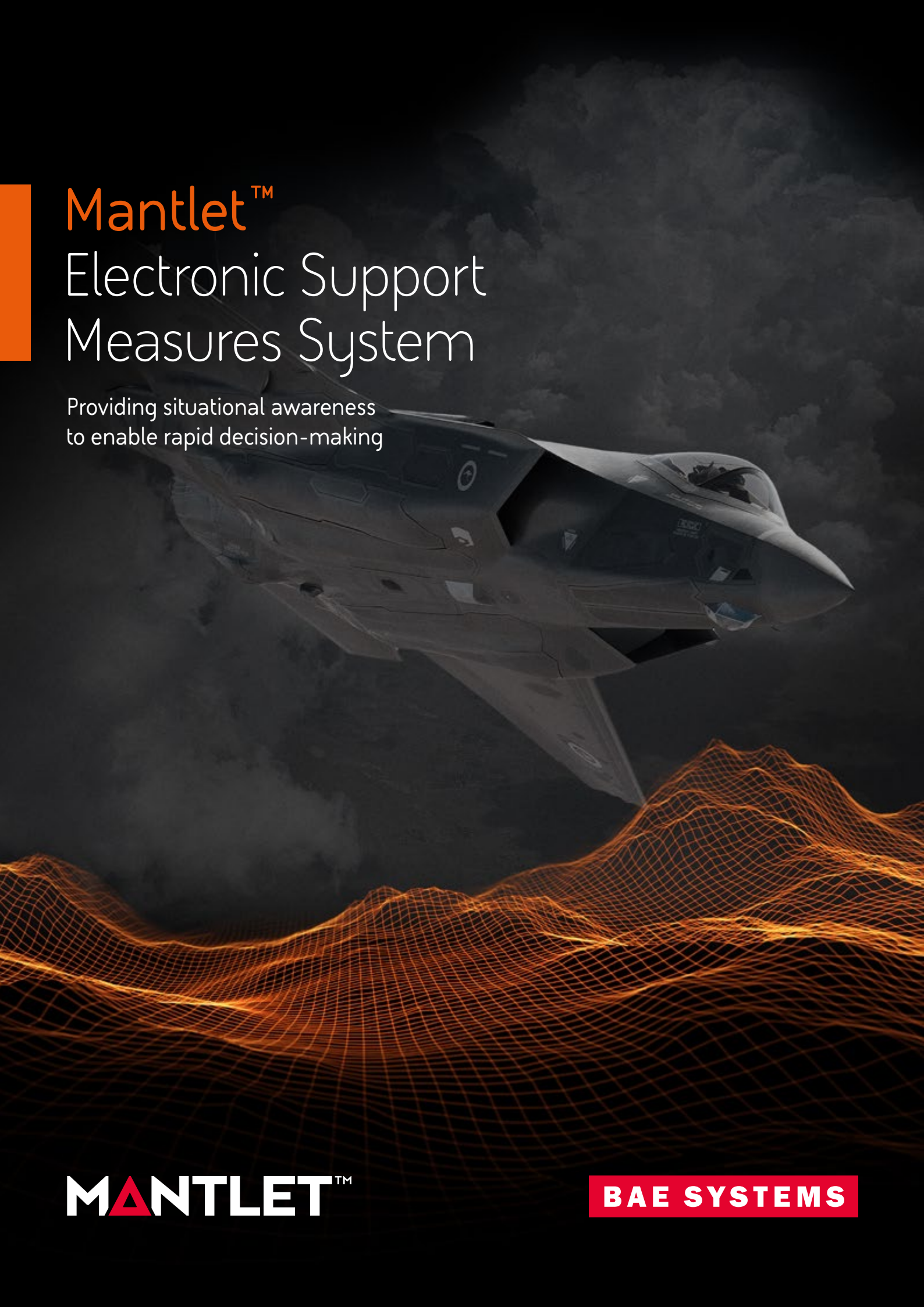
Mantlet™
Electronic Support Measures System

Providing situational awareness
to enable rapid decision-making



MANTLET™

BAE SYSTEMS

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

Mantlet™ is an advanced miniature digital Electronic Support Measures (ESM) System providing Radio Frequency (RF) situational awareness to enable rapid decision-making.

Mantlet™ is a true 'force-multiplier' as the system addresses the requirements for both Communications and Radar ESM platforms whilst reducing cost, increasing commonality and providing greater operational flexibility. Mantlet™ passively detects, identifies and characterises emitters at better than 2°rms and provides an unparalleled geo-location capability from a single host platform with the capability to cue other sensors.

This modern state-of-the-art system is suitable for multiple platforms ranging from small UAVs and high altitude balloons, to fighter, maritime and large transport aircraft. Available with the option to add Communication ESM signal processing and K Band detection hardware, Mantlet™ can be tailored to platform requirements.

Key benefits

- Ultra Small SWaP at less than 2.5kg (5.5lbs)
- 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 and storage for further analysis and sovereign EW database creation
- Scalable and enduring via regular upgrades and updates
- Utilises open architectures and ethernet for effortless integration, network and data link connectivity.

Key applications

Mantlet™'s small size, weight and power enables it to be easily integrated onto UAVs, high altitude balloons, stay behind ESM, land vehicles, helicopters, fast jets, transport aircraft and maritime platforms. Mantlet™'s 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 a single unit. The high performance of the system in today's complex and ever changing Electronic Warfare (EW) environment is achieved by using powerful processors and advanced real-time signal measuring and analysis techniques.

Mantlet™ provides improved situational awareness and intelligence gathering. 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™ system performs advanced ESM, and geo-location functions in both military and civil applications. Mantlet™ is as ideally suited to today's low altitude, short range engagements, as it is to long range engagements.

It's a miniature ESM for all platforms requiring high performance operation in high density modern electromagnetic environments.

Mantlet™ 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 EW databases and threat libraries whilst providing the capability to create and tailor library files for sovereign needs.

System description

In its A-J band configuration, Mantlet™ comprises a single 2.5kg unit comprising of four receivers, and their associated signal processing chains. K band extensions are available to meet user's needs.

The analogue signals are digitised, classified in accordance with the Mission Library and displayed on a dedicated ESM Console, pre-existing aircraft Multi-Function Display, or relayed via tactical data links to remote ground stations.

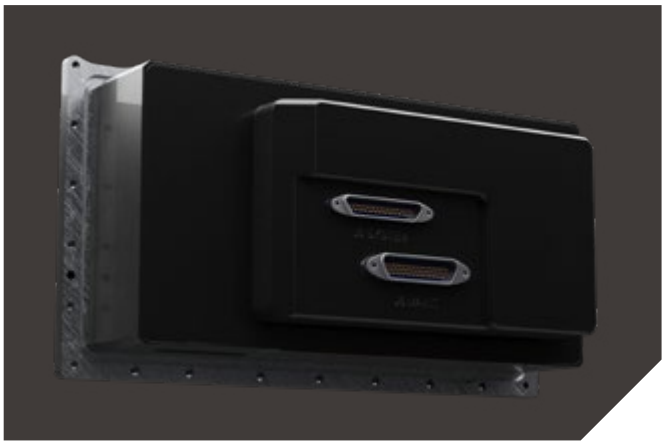
The small size, weight and power allows the placement of the ESM unit closer to the antennas preventing losses in sensitivity that are typically associated with long RF cable runs. This also reduces platform integration issues.

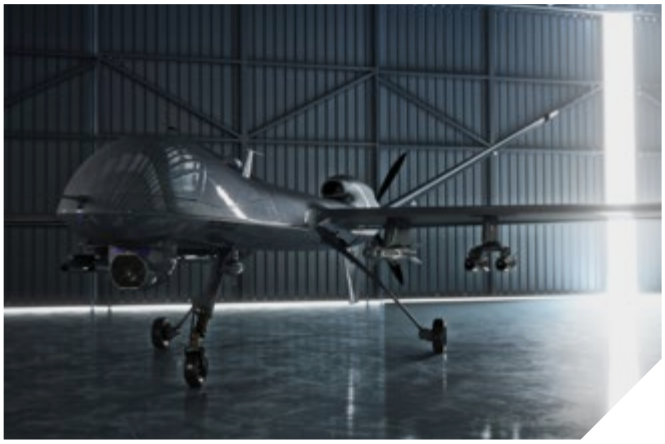
EW Operational Support (EWOS) is provided with a PC based Mission Library Generator (MLG) and mission replay tool. The MLG gives users full control over library and logged data, allowing rapid Mission Library updates in accordance with their local theatre of operations at the speed of relevance.

Furthermore, the parametric level RF emitter data that is detected by Mantlet™ is recorded and made available for mission analysis using the EWOS replay tool. Mantlet™ is fully programmable, allowing users to configure its operation with indigenous library data.

EW Suite Controller (EWSC)

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





MANTLET™

Specifications

RF Band	A-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	A – J Band 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	<2.5kg

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