

How Advanced EW Sensors Can Address The Challenges of the Digital Battlespace

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Operational Advantage through Integrated Sensors

Multi-Domain Operations

Space

Air

Land

Maritime

Cyber

Spectrum Operations

Contested

Congested

Constrained

CEMA Activities

Cyber

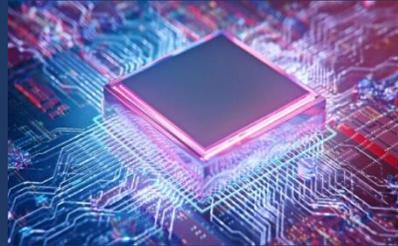
EW Surveillance

EW Attack

EW Protection

SIGINT

Exploiting Disruptive Technology



Microelectronics

- Digital apertures
- 3U VPX Processors
- Directed Energy
- Advanced Antennas



Innovative Algorithms

- Digital Signal Processing
- Cognitive Systems
- Autonomous Systems
- Multi-function Systems



Open Architectures

- Software Layer
- Functional Decomposition
- Hardware Layer
- Network Layer

Spectrum Dominance is achieved through disruptive EMS capabilities

Maximising Performance

- Adaptive Digital Beamforming
- Super Resolution Direction Finding
- Alternate Positioning
- Counter Counter Measures



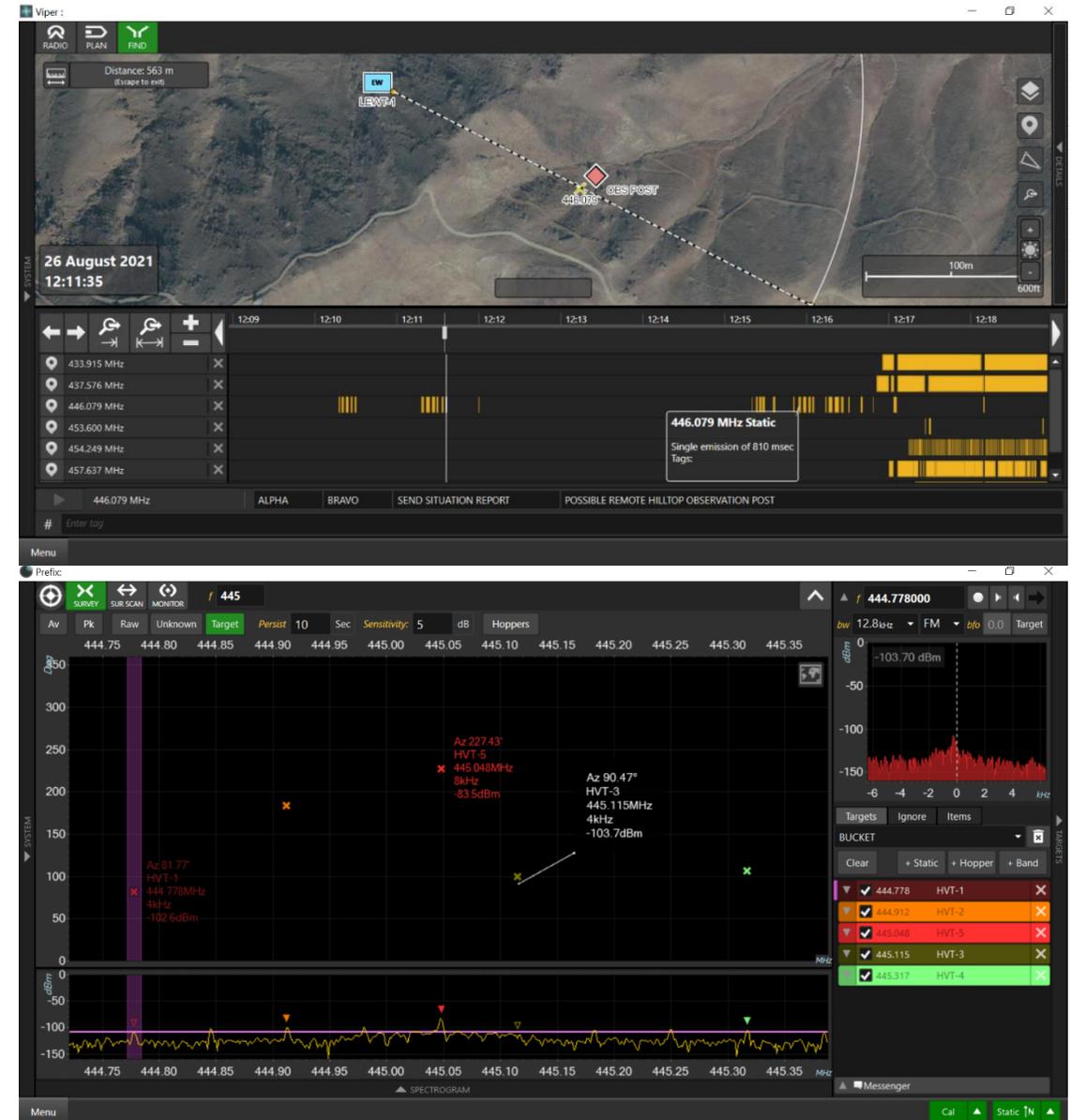
Hardware Design Objectives

- Operational Flexibility
- Exploit Advanced Processors and PCB Design
- Minimised Size, Weight and Power
- Highly Integrated Whilst Retaining Upgradeability



Software Is Key

- Intuitive Operation to reduce workload and minimise Training Burden
- Exploit AI/ML Techniques for Data Processing, Search and Interpretation/Classification
- Open Standards for System Integration and Upgrade



Summary

- Digitally enabled threats will be ubiquitous, pervasive and smart
- Battle space will be contested, cluttered and congested
- EW Surveillance will remain key to situational awareness and systems must deploy new techniques, exploiting new technologies
- Advances in RF and PCB design and software should be designed in, for integration with flexibility
- Wide band integrated sensors can have low size, weight and power with minimal off-board support
- Software must exploit new techniques to reduce operator workload and facilitate upgrade



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