

ROHDE & SCHWARZ

Make ideas real



DYNAMIC OPERATIONS IN THE ELECTROMAGNETIC SPECTRUM

Ensure freedom of action in the EMS



ELECTRONIC WARFARE ON THE FORWARD EDGE

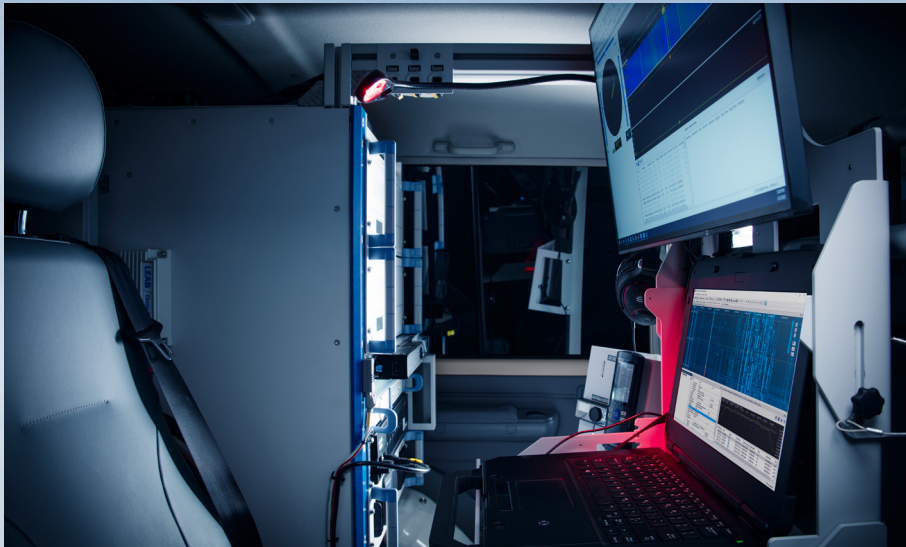
The electromagnetic spectrum (EMS) is an integral part of today's land warfare scenarios and a vital dimension that enables tactical freedom of action. Therefore, electronic warfare (EW) is fully integrated into tactical operations and increasingly supports operational requirements at the brigade level, down to combat companies.

It offers commanders some key advantages: self protection, situational awareness and operational intelligence.

Communications electronic support measures (CESM) is a crucial support function for the tactical leaders' decision-making process. CESM provides commanders critical capabilities, such as:

- ▶ Continuous and omnidirectional detection of potential threats
- ▶ Identification, direction finding (DF) and accurate geolocation
- ▶ Gain actionable intelligence
- ▶ Cueing other battlefield sensors to targets
- ▶ Gaining knowledge of the adversary's spectral and tactical disposition
- ▶ Freedom of action to control the EM spectrum





ACTIONABLE INTELLIGENCE

The role of light CESM vehicles is to operate alongside and in direct mission support of maneuver elements, meeting the same tactical requirements and maintaining the same operational tempo. Light CESM vehicles look like typical armored vehicles but fulfill their mission in two overlapping dimensions:

1. The physical dimension of the battlefiled: Light CESM vehicles operate in demanding tactical environments, often at the forward line of own troops. A vehicle offering protection, maneuverability, autonomy, stealth and ruggedness is required. Another key aspect of these systems is their ability to exploit the terrain using specialized software to optimize RF coverage of the area of interest (AOI).
2. The electromagnetic dimension of the tactical AOI: Light CESM, light CESM vehicles carry a specialized crew, a capable modular CESM payload with a low-profile antenna, and a battle management system.

These qualities make CESM vehicles uniquely well suited to transitioning swiftly between several operating modes while keeping pace with maneuver elements:

- ▶ Mounted modes: on the move, on the pause and stationary operations
- ▶ Dismounted modes: transportable and manpack operations





BATTLEFIELD TRANSPARENCY THROUGH EXPLOITING LOCAL RF ACTIVITY



EW solution

Every light ESM asset is capable of fully embedded operations to provide support to troops involved in ongoing dynamic operations. Rapid deployment, turnkey operation and the ability to operate on the move and on the pause are key for these missions. With unique combined wideband DF and monitoring antennas, Rohde & Schwarz provides light ESM assets with a low-profile paired with excellent RF performance. A very high degree of automation enables the system to provide automatic threat warnings.

Surveillance and reconnaissance

Surveillance and reconnaissance operations typically require a deployment of multiple light ESM assets in the area of operation. This creates a networked ESM system capable of providing real-time position fixes for all detected transmitters and revealing communication networks of a potential adversary. This geospatial information combined with the results of multi-channel signal processing can significantly improve the quality of the situation awareness provided to the battle groups.

Rohde & Schwarz light ESM vehicles can be networked in different ways: via satellite communications, mobile networks (3G/4G) or SOVERON family software defined radios.

SIGINT support & information collection

The capability to provide both EW support and communications intelligence (COMINT) functionalities extends the wide range of supported use cases for Rohde & Schwarz light ESM vehicles. When operated in combination with or remotely by other COMINT/signals intelligence (SIGINT) assets, the light CESM vehicles further increase the overall RF coverage towards the adversary and cast a wider net for the intelligence gathering effort.

The option of making wideband spectrum recordings and forwarding them to COMINT systems for in-depth technical analysis provides a deep look into adversary C4I systems.





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KEY FEATURES

- ▶ Highly flexible system setup to reliably handle all different operational scenarios (from EW scouting to SIGINT support)
- ▶ Excellent RF performance
- ▶ High degree of automation for detection, DF/geolocation and multichannel signal processing from HF to SHF
- ▶ Network operations support
- ▶ Interception of military and non-military communications
- ▶ Automatic classification and threat detection based on target profile lists
- ▶ Smart intuitive GUI to facilitate operator tasks





TECHNICAL DATA

Frequency	DF: 20 MHz (300 kHz optional) – 6 GHz Monitoring: 20 MHz (8,3 kHz optional) – 8 GHz
DF and geolocation	20 MHz – 6 GHz — 2 1° RMS (typ.) 40 MHz – 1.3 GHz 2 0.5° RMS (meas.) HF (optional): ≤ 2° RMS
DF capability	Fast scanning multichannel DF
Multichannel signal analysis	<ul style="list-style-type: none"> ▶ Automatic classification and threat detection based on target profile lists ▶ Large and growing demodulator/decoder library enabling content access
Multi sensor data fusion	Interfaces to SSE TARAN software suite
Sensor deployment	<ul style="list-style-type: none"> ▶ Independent assets deployment for scouting ▶ Sensor networked deployment for collaborative reconnaissance missions ▶ Remote operation capability via proper data connection



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- ▶ Worldwide
- ▶ Local and personalized
- ▶ Customized and flexible
- ▶ Uncompromising quality
- ▶ Long-term dependability

Rohde & Schwarz

The Rohde & Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test & measurement, technology systems and networks & cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

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Sustainable product design

- ▶ Environmental compatibility and eco-footprint
- ▶ Energy efficiency and low emissions
- ▶ Longevity and optimized total cost of ownership

Certified Quality Management

ISO 9001

Certified Environmental Management

ISO 14001

Information Security Management System

ISO/IEC 27001

Certified Quality Management

AQAP-2110

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Dynamic operations in the electromagnetic spectrum

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