LS telcom
Smart Spectrum Solutions

ENABLING ELECTROMAGNETIC DOMINANCE

OBSERVE & DEFEND your Spectrum

LS OBSERVER

Automated Spectrum Monitoring, Detection and Geolocation for Defense and Security Operations

Continuous spectrum awareness. Faster threat detection. Actionable intelligence for the electromagnetic battlespace.

See the Spectrum. Understand the Situation. Act with Confidence.

Modern military operations depend on assured access to the electromagnetic spectrum. Command and control, intelligence, surveillance, reconnaissance and tactical communications all rely on spectrum-dependent systems operating in an environment that is increasingly congested, dynamic and contested.

LS OBSERVER provides armed forces with continuous situational awareness across the electromagnetic domain. Distributed sensors detect, record and analyze RF activity 24/7, transforming spectrum data into actionable information for operators and commanders. Friendly, hostile, unusual and unknown emissions can be identified quickly, assessed in context and located for an effective operational response. This provides a critical foundation for Electronic Warfare operations and informed decision-making across the electromagnetic domain.

Designed for fixed, mobile, man portable and airborne deployment, LS OBSERVER combines remote monitoring units with powerful Central Monitoring Software (CMS). The system supports live operations as well as analysis of recorded data, enabling teams to investigate events even after a transmission has ended.

Operational advantage

- **Persistent awareness** - continuous passive monitoring across the frequency range of interest
- **Rapid detection** - automatic alerts for new, unusual or unauthorized emissions
- **Actionable location intelligence** - direction finding and geolocation for the signal of interest
- **Resilient operations** - local processing and storage support missions with limited or disrupted connectivity
- **Software-Defined Defense and integrated EMSO workflows –** interfaces connect monitoring results with spectrum management, analysis and C2 environments.

PERSISTENT AWARENESS

Continous passive monitoring across the frequency range of interest

RAPID DETECTION

Automatic alerts for new, unusual or unauthorized emissions

LOCATION INTELLIGENCE

Direction finding and geolocation for the signal of interest

RESILENT OPERATIONS

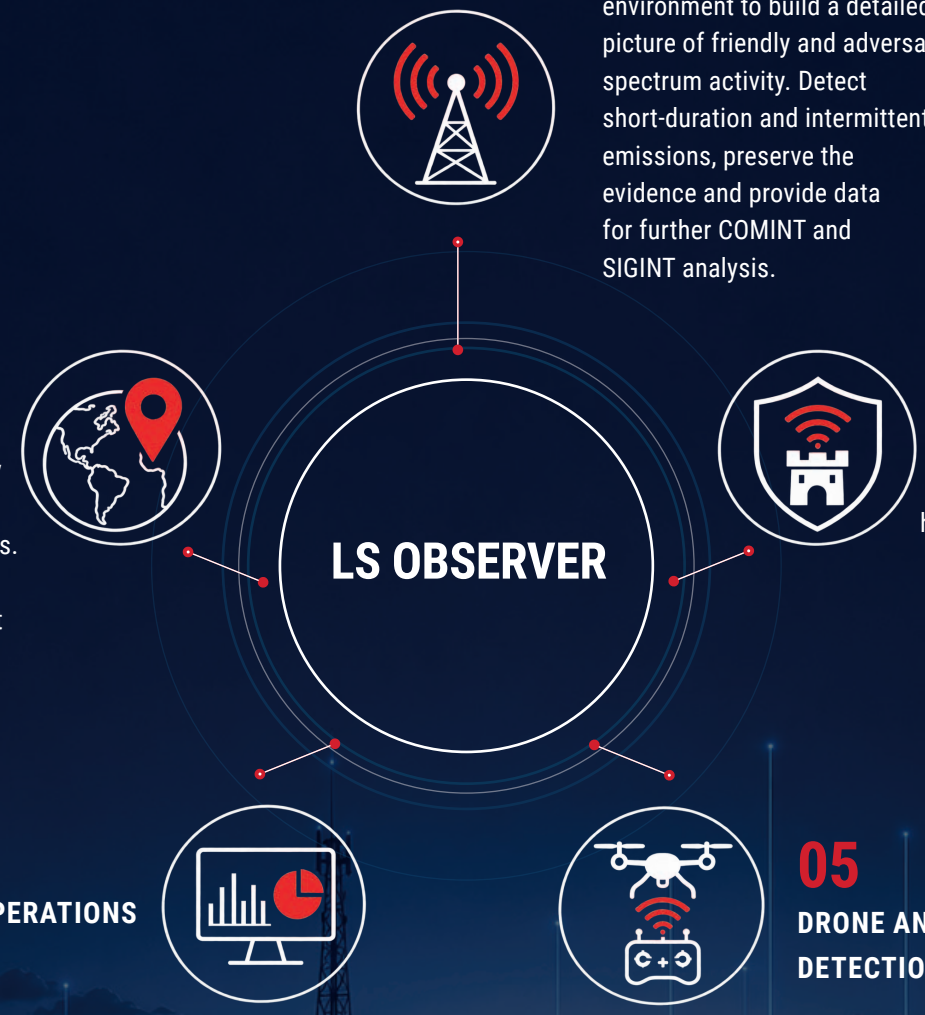
Local processing and storage support missions with limited or disrupted connectivity

SOFTWARE-DEFINED DEFENSE

Interfaces connect monitoring results with spectrum management, analysis and C2 environments

MISSION-READY SPECTRUM AWARENESS

LS OBSERVER supports multiple defense and security missions with one scalable monitoring and geolocation platform. Capabilities can be configured for permanent infrastructure, deployable operations and airborne sensing.



01
ELECTRONIC SUPPORT MEASURES

Continuously monitor the RF environment to build a detailed picture of friendly and adversary spectrum activity. Detect short-duration and intermittent emissions, preserve the evidence and provide data for further COMINT and SIGINT analysis.

02
BORDER AND AREA SURVEILLANCE

Detect, classify, locate and track suspicious RF activity across borders, training areas and operational zones. Automated workflows help operators focus on relevant events instead of watching the spectrum continuously.

03
PROTECTION OF CRITICAL SITES AND NETWORKS

Identify interference and hostile emissions affecting military bases, airfields, command posts and mission-critical radio networks. Rapid alarms and geolocation support timely investigation and response.

04
SPECTRUM OPERATIONS PLANNING

Compare measured RF activity with authorized spectrum data to identify new, unusual or unknown signals. Monitoring results can be shared with spectrum management and C2 systems to strengthen the common operational picture.

05
DRONE AND CONTROLLER DETECTION

Detect and analyze RF links associated with unmanned systems and their controllers. Ground-based and airborne sensors extend coverage and support earlier warning in complex terrain.

From Disturbed Sensors to Actionable Intelligence

LS OBSERVER combines networked Remote Monitoring Units with the intuitive Central Monitoring Software (CMS). Each sensor independently measures, processes and records RF data at the point of collection. Operators can access live results from a control center or from the field, retrieve precisely filtered historical data and coordinate monitoring and geolocation tasks.

Sense

Remote units continuously capture the frequency range of interest and can perform monitoring, direction finding, recording and analysis tasks according to their configuration.

Process and Store at the Edge

Embedded processing converts measurements into raw, noise-reduced, overview and frequency channel occupancy data. Local storage preserves mission data even when network bandwidth is limited or a connection is temporarily unavailable.

Detect and Alert

Automatic Violation Detection compares the measured RF environment with expected or authorized spectrum use. Defined anomalies trigger alarms and are recorded for later investigation and reporting, and alarms can trigger secondary actions on other units like DF and geolocation.

Analyze and Share

CMS presents live and recorded measurements in spectrum, waterfall and map views. Open interfaces enable the exchange of results with spectrum management, third-party analysis and command-and-control environments.

Resilient by design

Local processing and storage reduce dependency on permanent high-bandwidth links and allow autonomous sensor operation.

Various
Monitoring Units

A modular portfolio of Remote Monitoring Units allows **LS OBSERVER** to be tailored to the mission, terrain and operational concept. Units can operate independently or as part of a distributed monitoring and geolocation network. Configurations, antennas and receiver options are selected according to the required frequency range and task.

FMU
FIXED MONITORING UNIT

Compact, robust sensor for permanent 24/7 monitoring at military sites, borders and critical infrastructure.

PPU
PROTECTED PORTABLE UNIT

Ruggedized field battery-supported unit for temporary deployments, vehicle-based missions and portable operations.

AMU
AIRBORNE MONITORING UNIT

Drone-integrated sensor for elevated monitoring, direction finding andairborne drive tests.

TMU
TRANSPORTABLE MONITORING UNIT

Weather-resistant, battery-supported unit for temporary deployments and vehicle-based missions.

PMU
PORTABLE MONITORING UNIT

Lightweight deployable system for portable operator-controlled field missions.

ECM SYSTEM
ELECTRONIC COUNTER MEASUREMENTS

Containerized and vehicle-integrated configurations enable deployment of complete monitoring and geolocation capabilities.

All units are controlled through the same **LS OBSERVER** software environment, enabling consistent workflows from a single field deployment to a nationwide or theatre-wide sensor network.

Detect Faster.
Locate with Confidence.

LS OBSERVER automates the transition from persistent monitoring to focused investigation. Operators receive alerts when measured spectrum activity deviates from the expected operational picture, then use complementary analysis and geolocation methods to identify the source.

Automatic Violation Detection

The measured spectrum is continuously compared with a calibrated reference environment. In addition, it can use licensed station data to verify the operational paramaeters of the emitters. New, unusual or non-compliant emissions trigger an alarm and are logged for analysis. Alarms can trigger secondary units to perform direction finding, geolocation and recording.

Live and Historical Analysis

Operators can work with live FFT, waterfall and map views or return to continuously recorded data after an incident. Filters retrieve only the mission-relevant period, frequency and sensor data, reducing transfer requirements and accelerating investigation.

Complementary Geolocation Methods

- **Angle of Arrival (AoA)** - lines of bearing and triangulation from one or more direction-finding sensors
- **Time Difference of Arrival (TDoA)** - time-synchronized localization using multiple distributed sensors
- **Hybrid geolocation** - combined methods to improve confidence in complex RF environments
- **DF Time Travel®** - direction finding and geolocation based on recorded measurements after the emission has ended

Parallel Tasking

Multi-receiver configurations can perform wideband monitoring, direction finding, IQ recording, demodulation and signal analysis in parallel, increasing sensor utilization and operational efficiency.

Extend
the Sensor Horizon

Elevated sensing adds a decisive dimension to spectrum monitoring. The LS OBSERVER Airborne Monitoring Unit extends line of sight, reaches areas that are difficult to cover from the ground and supports flexible, mission-specific collection without permanent infrastructure.

Airborne Spectrum Intelligence

- **Detection and direction finding** - identify and locate RF activity beyond the effective reach of ground sensors
- **Drone-based monitoring** - collect spectrum data along planned flight paths and assess the RF environment across complex terrain
- **Coverage assessment** - measure and visualize the performance of friendly tactical communication networks
- **Vulnerability assessment** - assess the vulnerability of your own signals and their coverage to hostile SIGINT by flying around military sites and camps. Satellite uplink monitoring - detect selected sattelite uplink activity from the air and support an initial estimate of the ground terminal location.

Integrated into the Operational Environment

LS OBSERVER is designed for open, interoperable deployments. Interfaces enable integration with spectrum management databases, C2 and BMS environments, third-party SIGINT/COMINT tools and existing monitoring equipment where open interfaces are available. New, unusual or unknown signals can be forwarded into operational workflows and reflected in the common operational picture.

From COTS Components to Turnkey Systems

LS telcom combines software, receivers, antennas, direction-finding technology, communications and operator workstations into tailored systems for command posts, protected vehicles, transportable shelters, maritime units, aircraft and UAV platforms.

Enabling Electromagnetic Dominance

LS telcom – A Trusted Partner for Armed Forces Worldwide

LS telcom is a German technology company with more than 30 years of field-proven expertise in Electronic Warfare (EW), spectrum management, monitoring and mission-critical communications. Our software and system solutions support customers in more than 100 countries.

Technology under our control

Core solutions are developed in-house and supported by dedicated research, development and test capabilities in Germany. This provides a strong foundation for secure, maintainable and continuously evolving systems.

Built for long-term operational use

LS OBSERVER can be delivered as a configurable COTS solution or as part of a customer-specific, turnkey system. A modular architecture supports phased deployment, future expansion and integration into existing defense structures.

Expertise beyond technology

Consulting, system design, integration, commissioning and role-based training help defense organizations turn monitoring technology into a sustainable operational capability.

OBSERVE & DEFEND your Spectrum. Connect with our experts to discuss your operational requirements.

GIA

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