OCTOBER 2026

THE UNSEEN FRONT OF MODERN WARFARE: THE ELECTROMAGNETIC SPECTRUM, ARTIFICIAL INTELLIGENCE, AND NEXT GENERATION DEFENSE

SIGNALS INTELLIGENCE

SigintOS™

SigintOS

HIGH TECHNOLOGY AND DEFENSE PRODUCTS INC.

SIGNAL INTELLIGENCE REPORT

Signal Intelligence (SIGINT), electronic warfare (EW), artificial intelligence, unmanned systems, and multilayered sensor networks are among the key areas driving transformation in defense technology. Across a broad range of activity—from radar emissions and communications signals to satellite links and data flows generated by unmanned aerial vehicles—the challenge is not simply to detect a signal, but to determine which information matters, analyze it reliably, and deliver it to decision makers in time.

This report has been prepared by SigintOS to provide a closer view of the sector and its opportunities. It offers a high-level analysis of solutions around the world and the opportunities enabled by artificial intelligence.

REPORT SCOPE

1. SIGINT AND ELECTRONIC WARFARE İN MODERN CONFLICTS

Technology trends and lessons that can be drawn from Ukraine, the Middle East, and other security environments.

2. SYSTEMS IN USE AND PRODUCT CATEGORIES

SIGINT sensors, SDR, electronic support, direction finding, resistance to jamming, and command-and-control software.

3. GLOBAL MARKET, COMPETITION, AND INVESTMENT

Market size, growth dynamics, suppliers, and procurement models.

4. STRATEGIC OPPORTUNITIES ENABLED BY AI

Strategic opportunities offered by AI-enabled SIGINT platforms and product solutions.

Important methodology note: Since 2026 is not yet complete, this report reflects an industry assessment as of October 23, 2026. Current field developments, announced product features, independent market data, and strategic inferences should be distinguished from one another.

EXECUTIVE SUMMARY

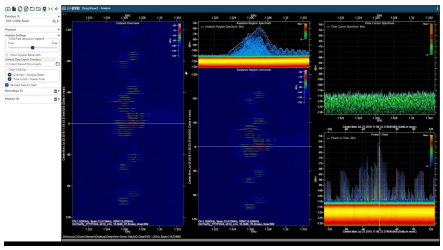
One of the most important defense technology trends of 2026 is the transformation of the electromagnetic spectrum from a separate technical specialty into an information layer connecting land, air, sea, space, and cyber operations. A 2026 assessment by the Norwegian Defence Research Establishment (FFI) emphasizes that electromagnetic emissions can reveal the positions of units, while reliable communications, management of electronic signatures, and secure data sharing between sensors are becoming increasingly important.

Key findings of this report:

$31,5 Billion 2026 SIGINT market estimate	**1. A large and growing market** Global Market Insights estimates the global SIGINT market at USD 31.5 billion for 2026. Another research firm forecasts USD 19.6 billion using a narrower or differently scoped methodology. This difference demonstrates the importance of how the market is defined.
AI + RF Technology convergence	**2. AI is changing sensors' analytical capabilities** On May 18, 2026, Eviden announced the AI-enabled ELIT AI radar signal sensor and reported receiving an order from France's DGA-MI. SigintOS announced its RF Intelligence Dashboard. These are concrete examples of AI being integrated into SIGINT hardware and software.
RF + UAV Field transformation	**3. Unmanned systems and electronic warfare are converging** The war in Ukraine highlights the rapid cycle of technological adaptation between unmanned systems, communications, electronic warfare, and countermeasures.
Software Differentiation opportunity	**4. Turning sensor data into meaningful intelligence** For SigintOS, the strategic opportunity is to build not merely an interface that displays RF data, but a platform that combines data from different sensors, identifies anomalies, and reduces analysts' workload.

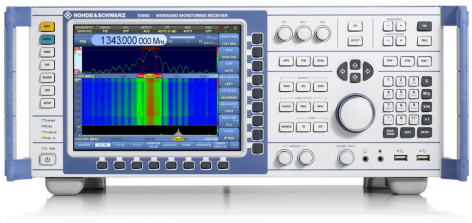
1. WHAT IS SIGINT, AND WHY IS IT BECOMİNG CRİTİCAL?

SIGINT, or Signals Intelligence, is the activity of generating intelligence from electromagnetic signals. It is generally divided into two main subfields:



ELINT — Electronic Intelligence

Examines the technical characteristics of signals emitted by radars and other electronic systems to support understanding of the electromagnetic environment.



COMINT — Communications Intelligence

Analyzes the characteristics of communications signals and related communications activity.

SIGINT should not be treated as synonymous with electronic warfare. SIGINT focuses on obtaining information from signals, while electronic warfare is a broader operational framework.

Domain	Primary purpose
SIGINT	Generate intelligence from signals
ELINT	Examine radar and other electronic emissions
COMINT	Assess communications signals for intelligence purposes
ESM / ES	Detect and characterize electromagnetic emissions and provide situational awareness
EA / Electronic Attack	Use electromagnetic energy to affect adversary systems

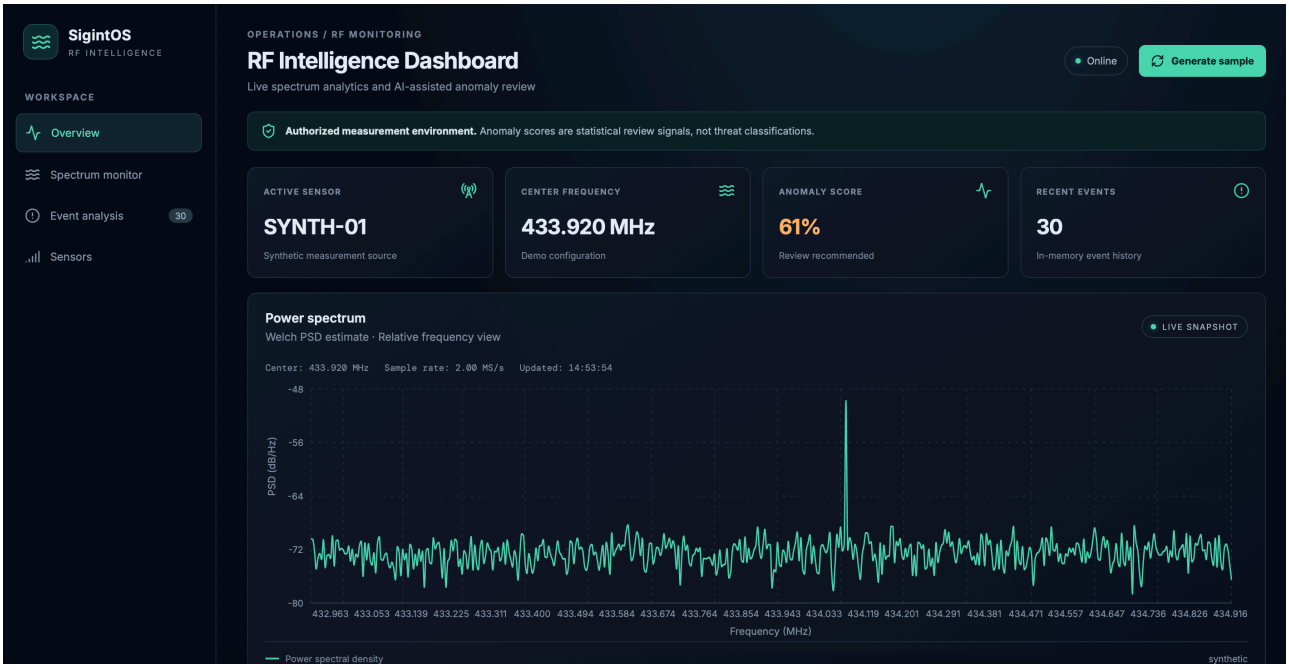
EP / Electronic Protection	Protect own systems against electromagnetic threats
Spectrum Monitoring	Observe spectrum use, interference, and anomalies

WHERE IS VALUE CREATED IN MODERN WARFARE?

A sensor may only indicate that a signal is present. An intelligence platform should help answer questions such as:

- Does this emission resemble a pattern observed before?
- Is a change in the signal measurement a real event or a deviation caused by the environment?
- Are multiple sensors observing the same event?
- Which events should the analyst investigate first?
- What is the confidence level of the finding, and what is its source?

The critical distinction in 2026: the gap is widening between the ability to collect raw signals and the ability to turn that data into accurate, traceable, timely decisions. This is where AI's value proposition emerges.



2. TECHNOLOGY TRENDS OBSERVED IN WARS AND CONFLICTS IN 2026

2.1 THE WAR IN UKRAINE: AN EVER-CHANGING ELECTROMAGNETIC FRONT



The war in Ukraine shows that electronic warfare and unmanned systems are engaged in a continuing cycle of mutual adaptation rather than a one-time technological advantage. New systems can be fielded, countermeasures developed, and tactics revised in short cycles.

The French Institute of International Relations (IFRI), in its February 2026 study *Mapping the MilTech War*, examines military technologies developed over four years of war and lessons for NATO. A 2026 study published by the Australian Army Research Centre also addresses developments in unmanned systems during 2024–2026.

Key product and technology categories:



TACTICAL ELECTRONIC WARFARE AND RF MONITORING SYSTEMS

Observe electromagnetic emissions in the field, maintain spectrum awareness, and assess communications resilience.

Software that can be reconfigured as quickly as the equipment, along with up-to-date threat libraries, is also important.



UNMANNED AERIAL SYSTEMS FOR RECONNAISSANCE AND ATTACK

Unmanned platforms and ground-control systems across different ranges, cost levels, and mission classes.

UAVs increase the operational importance of dependencies between communications and the electromagnetic environment.



COUNTER-UAS DETECTION AND PROTECTION SYSTEMS

RF sensing, radar, electro-optical sensors, and fused situational-awareness solutions.

Combining multiple sensing methods rather than relying on a single sensor can improve coverage and verification.



SECURE AND RESILIENT COMMUNICATIONS SYSTEMS

Secure radios, data links, gateways, and technologies resilient to electronic interference.

Spectrum management is not only about observing an adversary; it is also about maintaining one's own communications continuity.

A Concrete Indicator for 2026

On September 3, 2026, Ukraine's Ministry of Defence announced that 1,526 new weapon and military equipment models had been codified for procurement during the first eight months of the year; 64 were in the electronic warfare or SIGINT/ELINT categories. This figure represents the number of codified models, not sales, active deployments, or market share.

This development points to two important implications:

1. Locally developed systems and rapid product-refresh cycles are becoming increasingly visible.

2. Evaluating data from systems made by different manufacturers on a shared analytics platform creates a potential need for integration.

2.2 THE MIDDLE EAST AND THE GULF: GNSS, UNMANNED SYSTEMS, AND WIDE-AREA RF SENSING



The security environment in the Middle East shows that electromagnetic interference is not only a concern for military platforms; it can also matter for maritime transport, aviation safety, and critical infrastructure.

A March 6, 2026 assessment by *Armada International* discusses how unmanned aerial vehicles, maritime attacks, GNSS jamming, and border-security challenges in the region are increasing interest in RF sensing and electronic support systems.

A March 4, 2026 report by *Lloyd's List* stated that 655 vessels in the Gulf and Gulf of Oman were affected by GNSS interference in the period following the start of the war.

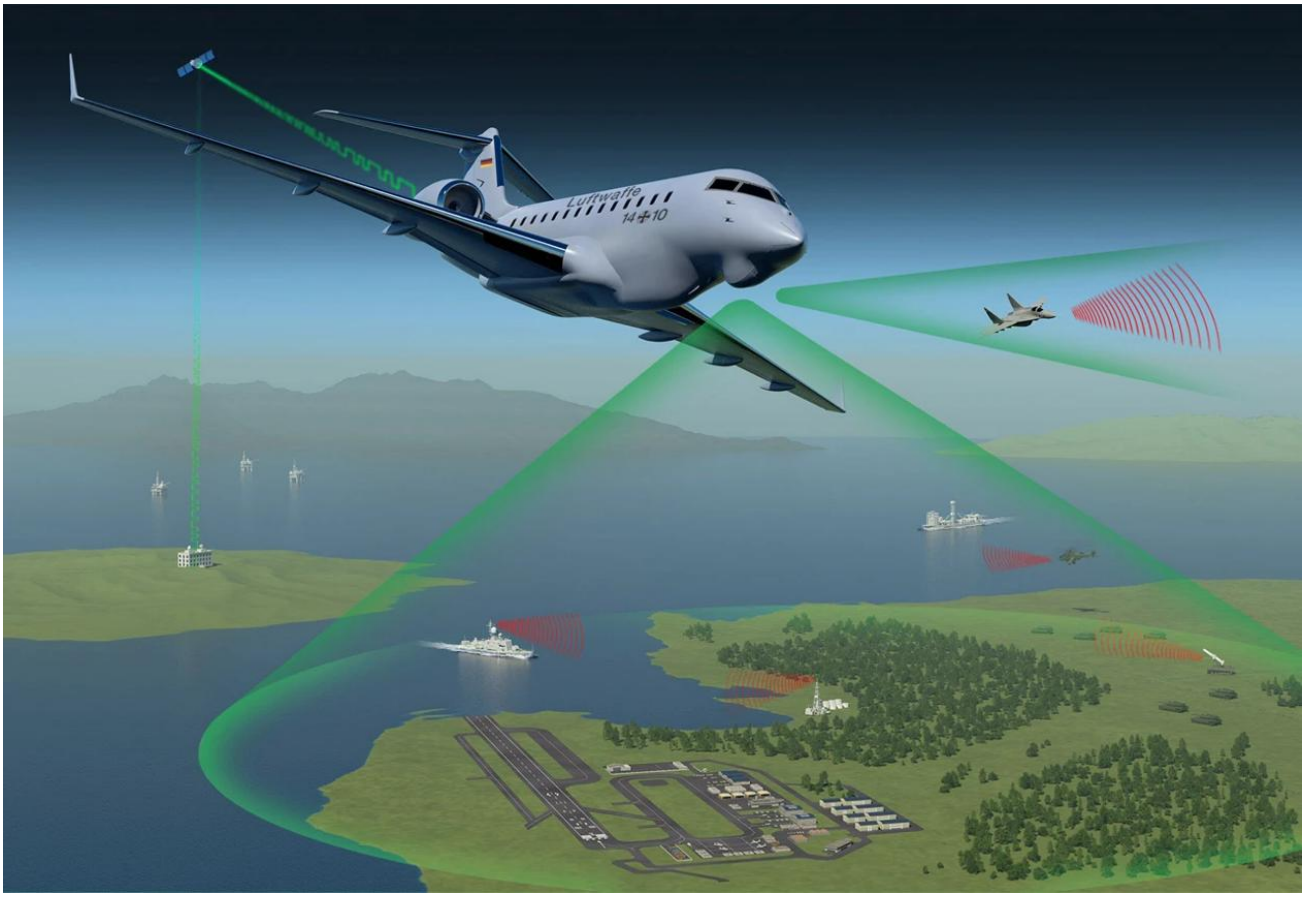
This report concerns a specific period and geographic area; it should not be interpreted as a global total or an independently verified count of all incidents.

Technology Categories Gaining Importance in This Region

- Wide-area RF sensing and spectrum monitoring
- Monitoring GNSS interference and positioning anomalies
- Maritime situational awareness and correlation with AIS data
- Fusion of radar and RF sensors
- Incident management for critical facilities and borders
- Retrospective review of sensor records and auditable reporting

One distinction is especially important: AIS, ADS-B, and RF measurements are not the same type of data. AIS and ADS-B contain data provided by their respective communication and broadcast systems, while RF measurements can record different characteristics of the electromagnetic environment. A platform that combines them should clearly indicate source reliability and data quality.

2.3 AIR AND SPACE: ELECTRONIC SIGNATURES, RADAR, AND MULTISENSOR ANALYSIS



Airborne and space-based systems can provide observation over wide areas. However, the volume of collected data, differing recording formats across platforms, and changing signal characteristics make analysis more complex.

Important trends in this area include:

- Sensing across wider frequency ranges
- Classification of complex radar emissions
- Examination of low-observable or variable-characteristic emissions
- Integration of air, land, sea, and space sensors using common data structures
- Continuity between post-mission and live analysis

Announced in May 2026, Eviden ELIT AI is an example combining AI and SDR technologies to analyze variable and complex radar waveforms. The product

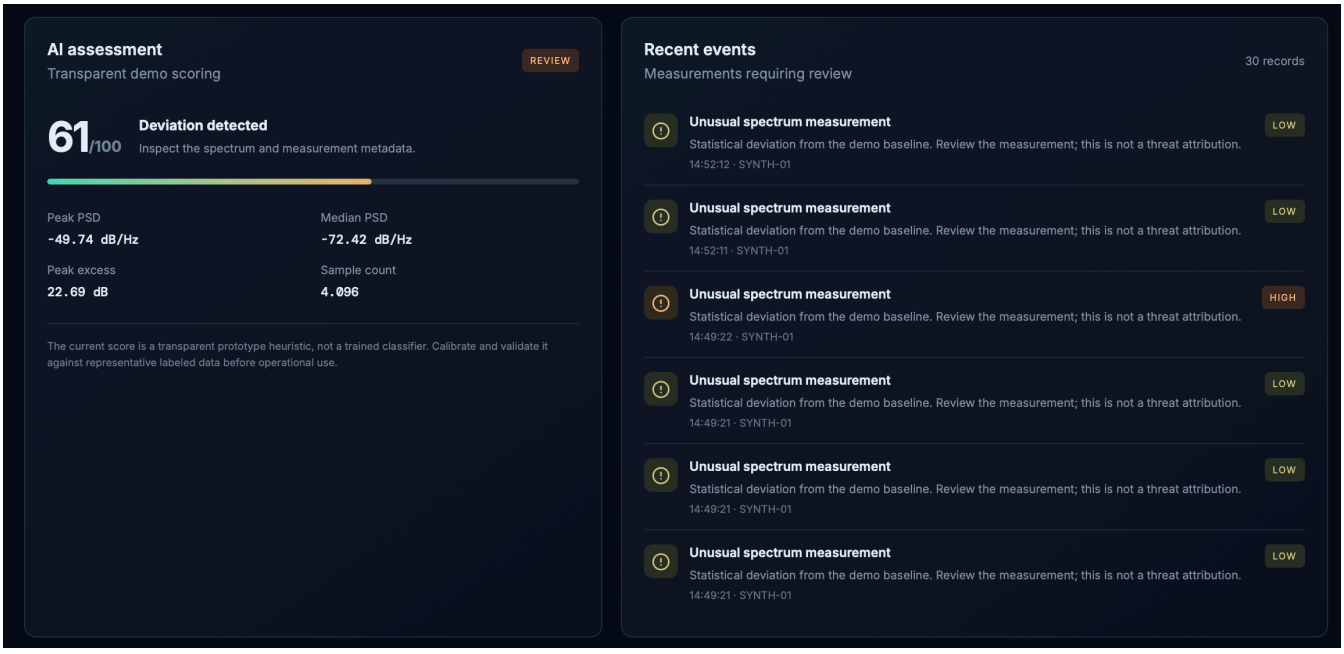
announcement indicates that these capabilities are being commercialized; however, not all performance claims should be considered independently verified.

2.4 AI ON THE BATTLEFIELD: FROM ANALYSIS TO DECISION SUPPORT

Recent developments in 2026 show that AI is being used not only to classify sensor signals, but also to analyze broader operational datasets.

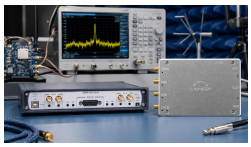
On September 25, 2026, Ukraine's Ministry of Defence announced SPECTR, an AI platform developed to analyze battlefield data and support operational planning. The ministry reported that some military units were testing the system. On October 13, 2026, an AI model designed to predict unmanned aerial vehicle activity and developed through the Ukraine–NATO JATEC partnership was also reported.

These examples do not directly prove the performance of an RF analysis product. They do, however, show that AI investment in defense is part of a broader trend in data analytics and decision support.



3. SYSTEMS IN USE AND THE PRODUCT ECOSYSTEM

The SIGINT market does not consist of a single device or software category. Hardware, signal processing, recording, analytics, data management, and command-and-control components work together.



A. SDRS AND WIDEBAND RF RECEIVERS

With the right combination of hardware and software, software-defined radios can be adapted to various RF measurement and research applications. They can be used for prototyping, spectrum monitoring, and laboratory testing.



B. ESM, ELINT, AND COMINT SYSTEMS

These consist of mission-specific receivers, antennas, recording systems, and analysis software. Solutions can be portable, fixed, or integrated into maritime, airborne, or space platforms.



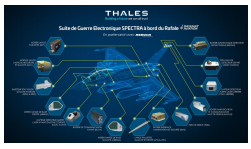
C. RF ANALYSIS AND SPECTRUM SOFTWARE

Provides spectrum and waterfall visualization, measurement recording, event detection, signal-characteristic analysis, and reporting.



D. SENSOR-FUSION AND INTELLIGENCE PLATFORMS

Combines data from different sensors within a shared event model and jointly evaluates time, location, source, and reliability information.

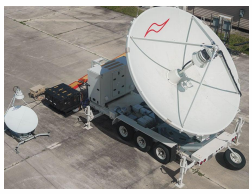


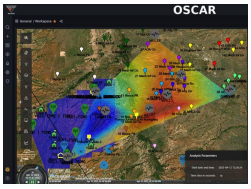
E. ELECTRONIC WARFARE AND ELECTRONIC PROTECTION SYSTEMS

Includes electronic support, threat warning, protection, countermeasures, and platform-specific components of related systems. Not every product in this category is a general-purpose SIGINT receiver.

3.1 EXAMPLES OF GLOBAL SUPPLIERS AND PRODUCTS

The following is an illustrative map based on publicly available product portfolios. The companies operate in different segments; the list is not ranked by market share or performance.

SigintOS™	**SigintOS** A Linux-based operating system for signal intelligence. Since 2018, it has been used by military and civilian users as well as organizations such as NASA, ESA, and CERN. It has more than 60,000 users. Its portfolio includes critical communications and intelligence systems such as IMSI Catcher and PECS. It offers advanced intelligence systems through its RF Intelligence Platform. Source: www.sigintos.com
	**L3Harris Technologies** Provides electronic warfare, electronic support, radar warning, platform protection, and multidomain spectrum-awareness solutions. Its portfolio includes systems such as CORVUS and Viper Shield. Source: The company's official product descriptions.
	**Rohde & Schwarz** In addition to SIGINT and electronic warfare solutions, it operates in RF measurement and test infrastructure. It is a notable reference supplier in signal reception and analysis. Source: The company's official product descriptions.
	**Eviden / Avantix** ELIT AI is an ELINT sensor developed for AI-assisted radar signal analysis. Alongside related solutions such as CARACAL and OSCAR, it offers a product ecosystem for managing and analyzing radar threat data. Source: Company announcement dated May 18, 2026.

	**CRFS / Silvus Technologies** The RFeye product family is associated with spectrum monitoring, RF recording, interference analysis, RF-based sensing, and integration with different platforms. The company's current brand structure and product names should be verified before procurement. Source: The product provider's publicly available website.
	**Peraton** The OSCAR platform focuses on sensor-integrated spectrum awareness, RF situation assessment, and analysis before, during, and after operations. Source: The company's official product descriptions.

What Does This Competitive Landscape Tell Us?

Market solutions broadly cluster around four different value propositions:

1. Hardware advantage: sensitivity, frequency coverage, dynamic range, and operation in demanding environments.

2. Analysis: classification, recording, and technical examination tailored to radar or communications signals.

3. Platform approach: software that brings multiple sensors together, correlates events, and provides operational awareness.

4. Specialized capabilities: systems supporting use and training across a range of military and civilian sectors.

4. THE GLOBAL SIGINT MARKET: SIZE, GROWTH, AND MARKET SHARE

4.1 MARKET SIZE IN 2026

Research firms do not use a uniform definition of the SIGINT market. Some include platforms, defense integration, and broader intelligence infrastructure more extensively, while others use a narrower product scope.

Global SIGINT Market in 2026 — Two Separate Research Estimates

$19,6B	$31,5B
Grand View Research	**Global Market Insights**
2025: $18,5 milyar	2025: $30,4 milyar
2033: $28,5 milyar	2035: $60,9 milyar
2026–2033 CAGR: %5,5	2026–2035 CAGR: %7,6

Kaynaklar: Grand View Research, Haziran 2026; Global Market Insights, Ağustos 2026. Rakamlar aynı pazar tanımının alternatif ölçümleri olarak doğrulanmış değildir.

Estimates published for 2026 by two different research firms. Because their scopes may differ, the comparison illustrates the difference between estimates rather than establishing the market's definitive size.

The difference between these two estimates is approximately USD 11.9 billion. It should not be treated as a simple margin of error; the scope, revenue categories, and market classifications used by the studies should be examined.

4.2 THE ELECTRONIC WARFARE MARKET

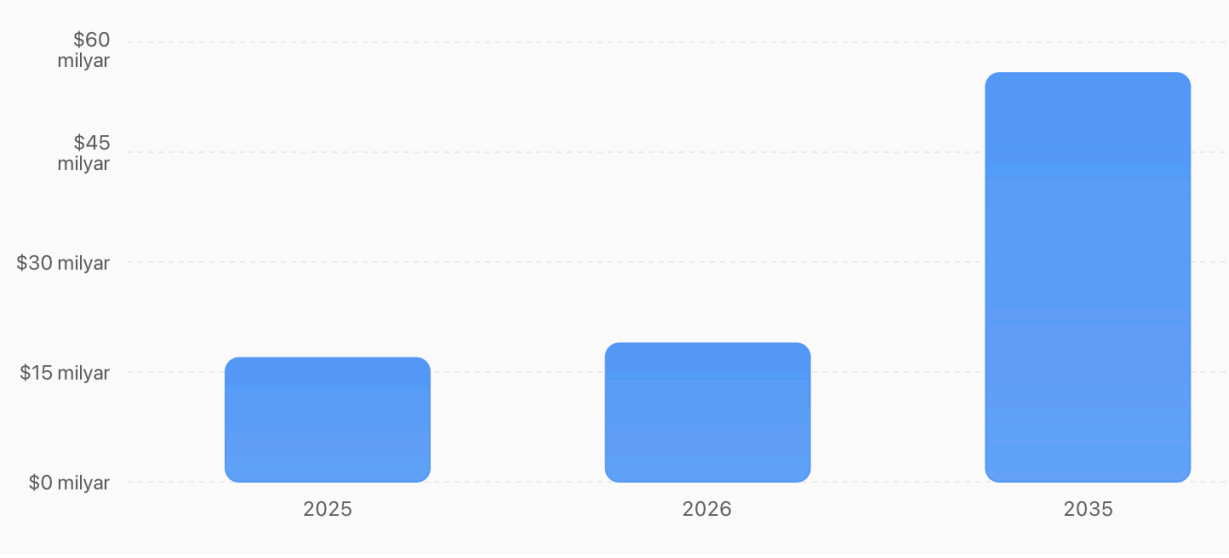
Although SIGINT and electronic warfare are related, they are not the same market. Electronic warfare includes electronic attack and protection solutions in addition to sensing and support systems.

According to Global Market Insights' September 2026 estimate:

Indicator	Estimate
Electronic warfare market, 2025	$16.9 billion
Electronic warfare market, 2026	$18.9 billion
Electronic warfare market, 2035	$55.8 billion
Compound annual growth rate, 2026–2035	12.8%

These figures indicate strong expected growth for electronic warfare systems. However, an estimate published in 2026 is not an outcome already realized by 2035.

Market estimates published by Global Market Insights are projections for years after 2026, not realized sales.



4.3 WHAT DOES MARKET SHARE MEAN?

Market share is a company's sales or revenue in a defined market divided by total revenue for that market. Brand awareness, product count, or technological capability alone does not constitute market share.

Grand View Research's SIGINT report estimates that North America accounted for more than 36% of revenue in 2025. This is a regional share, not the market share of a single company.

Within its own definition of the SIGINT market, Global Market Insights estimates that Lockheed Martin held a share of more than 13.1% in 2025. This is an estimate within that research firm's scope, not a universally applicable figure independently verified across all SIGINT subsegments.

5. SIX TECHNOLOGIES SHAPING THE FUTURE OF THE MARKET



5.1 AI-ENABLED SIGNAL CLASSIFICATION

With suitable training and validation data, machine learning can help group signal characteristics, recognize known patterns, and flag unusual measurements.

Commercial value: less manual review, more consistent analysis, and measurable analyst productivity



5.2 MULTISENSOR DATA FUSION

Correlate RF measurements with authorized SDR recordings, radar data, location information, and relevant event records on a common timeline.

Commercial value: an integrated operational view instead of isolated systems.



5.3 EDGE AI AND OFFLINE ANALYSIS

Analyze data on a local device or field server without transferring all of it to a remote server.

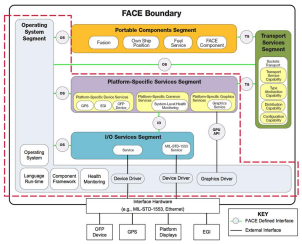
Commercial value: less dependence on connectivity, better data control, and continuity in field conditions.



5.4 DATA SOVEREIGNTY AND AUDITABILITY

Show where customer data is stored, who has access, which record the model used to produce a result, and which software version was used.

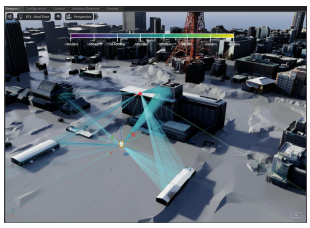
Commercial value: enterprise trust, readiness for public tenders, and regulatory compliance.



5.5 OPEN INTERFACES AND HARDWARE-INDEPENDENT SOFTWARE

Integrate sensors from different manufacturers through common APIs, data models, and adapters.

Commercial value: lower hardware replacement costs and faster integration projects.



5.6 DIGITAL TWINS AND SYNTHETIC DATA

Develop and test models with synthetic signals, measure performance, and evaluate system behavior under changing conditions without putting real systems at risk.

Commercial value: faster R&D, repeatable tests, and safer prototyping.

Not all these technologies need to be present for the same customer or in the same product release. A successful product strategy should prioritize features that solve a specific user problem in a measurable way.

6. AI-ENABLED SIGINT: HOW A NEXT-GENERATION PRODUCT WORKS

SigintOS's RF Intelligence Dashboard approach is built on a software architecture that takes raw measurement data through to auditable analytical results.

6.1 DATA PROCESSING PIPELINE

Example Use Case

Signal data from sensors is ingested in raw form.

1. 1. The system receives measurements and converts them into a common data model.
2. 2. The dashboard displays the measurement's frequency, time, power, and data quality.
3. 3. The analytics layer classifies known patterns in test data and flags unexpected changes.
4. 4. The analyst can see which features led the model to flag an event.
5. 5. The result is stored together with the model version used and a reference to the raw record.

In this scenario, AI's role is not to make definitive judgments on its own, but to prioritize data for analyst review and make the result verifiable. This provides a strong approach from a safety and assurance perspective.

6.2 PERFORMANCE MEASUREMENT METRICS

Metric	Why it matters?
Precision	What proportion of the events flagged by the system are actually relevant?
Recall	What proportion of events in the reference dataset are detected?
False-alarm rate	How much the analyst is burdened by unnecessary alerts
Processing latency	Time elapsed from measurement to displayed result
Data loss	How many measurement records are lost under load
Model confidence calibration	How closely the model's confidence level corresponds to its accuracy
Cross-sensor consistency	How consistent measurements from different sources are
Auditability	Ability to trace which data, model, and software version produced the result

7. SIGINTOS'S IMPACT ON THE INDUSTRY

SigintOS's impact on the industry can be measured by the innovation it has enabled. With more than 60,000 users, SigintOS Linux has opened up many opportunities for institutions and individual users conducting research in signal intelligence. Its products and solutions for existing enterprise customers aim to deliver meaningful innovation and impact at lower cost.

7.1 WHAT PROBLEM DOES SIGINTOS RF INTELLIGENCE SOLVE?

Bringing Different Hardware into a Single Analytics Platform

Developing an integration layer that works with devices such as RTL-SDR, HackRF, and BladeRF, while clearly defining device capabilities and supported data formats, offers significant value to prototyping and laboratory customers.

Success metric: Integration time for a newly supported device and the proportion of reusable adapters.

Moving from Raw Data to Explainable Analysis

Reviewing signal recordings, spectrum visualizations, event labels, and model outputs within the same workflow reduces the need for analysts to switch between tools.

Success metrics: task completion time, false-alarm rate, and the number of records reviewed per analyst.

Persistent Recording and Audit Infrastructure

Storing measurement events, user actions, model versions, and references to data sources in a database supports retrospective analysis and quality assurance.

Success metrics: record integrity, query performance, and end-to-end event traceability.

Data Sovereignty and On-Premises Deployment

A product that runs on customer infrastructure or local servers, works without an internet connection, and provides role-based access may be preferable for certain enterprise customers.

Success metrics: security assessment pass rate, deployment time, and successful offline operation.

7.2 SIGINTOS'S DIFFERENTIATION THESIS

Examples in the market suggest that both specialized sensors and broader spectrum-analysis platforms can be substantially more expensive and cumbersome than SigintOS when total cost is considered. SigintOS differentiates itself through innovative product use, software adapted to field conditions, and a practical approach to integration.

- Hardware independence: connect supported devices through a common data model.
- Explainable AI: show classification results and anomaly flags alongside the relevant evidence.
- Enterprise data control: on-premises deployment, access controls, and detailed logging.

- Rapid integration: add new sensors, data formats, and analytics modules in a scalable way.

8. CONCLUSION: THE DIRECTION OF THE SIGINT SECTOR IN 2026

The SIGINT and electronic warfare ecosystem in 2026 is taking shape around three important changes.

First, the electromagnetic spectrum is no longer merely a technical measurement topic; it is directly connected to communications continuity, unmanned systems, critical-infrastructure security, and multidomain operations. Research on the war in Ukraine and assessments of RF interference in the Middle East reveal different aspects of this relationship.

Second, AI-enabled signal analysis is no longer just an idea for the future. Eviden's ELIT AI product and data-analysis initiatives announced in Ukraine show that AI applications are being developed at different layers of the defense ecosystem. Nevertheless, genuine commercial advantage must be demonstrated through measurable gains in accuracy, reliability, and workflow efficiency.

Third, market growth alone does not guarantee success. Market forecasts for SIGINT and electronic warfare point to significant investment expectations, but their scopes differ, and companies' revenue opportunities cannot be inferred directly from the total market size.

REFERENCES AND REPORT METHODOLOGY

This report is based on open-source research, industry analyses, public statements by product providers, and strategic assessments available as of October 23, 2026.

Market and Industry Research

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Product and AI Examples

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- L3Harris — Electronic warfare product portfolio.
- Rohde & Schwarz — SIGINT/EW solutions.
- Peraton — OSCAR Spectrum Intelligence.
- Ministry of Defence of Ukraine — SPECTR AI platform. September 2026.