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Electronically Scanned Arrays Market Outlook 2025-2034: Market Share, and Growth Analysis By Type (Active, Passive), By Geometry (Linear, Planar, Frequency Scanning), By Range, By Application, By User

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Abstracts

The Electronically Scanned Arrays Market is valued at USD 10.4 billion in 2025 and is projected to grow at a CAGR of 6.1% to reach USD 17.7 billion by 2034.The Electronically Scanned Arrays (ESA) market is experiencing rapid expansion, driven by the growing demand for advanced radar and communication systems across military, aerospace, and commercial applications. These arrays, which include Active Electronically Scanned Arrays (AESA) and Passive Electronically Scanned Arrays (PESA), enable high-speed, multi-target tracking, enhanced situational awareness, and superior operational efficiency. Defense organizations worldwide are increasingly adopting ESA technology for applications such as surveillance, missile detection, air defense, and naval warfare. The integration of ESA-based radars in modern fighter jets, warships, and ground-based systems is improving detection capabilities and resilience against electronic warfare. Additionally, commercial aviation and satellite communication sectors are also leveraging ESA technology to enhance navigation, weather monitoring, and broadband connectivity. As radar technology advances, ESA manufacturers are focusing on miniaturization, enhanced power efficiency, and the integration of artificial intelligence (AI) for predictive analytics and autonomous operation, leading to increased adoption across various industries. The Electronically Scanned Arrays market is seeing significant advancements fueled by global defense modernization programs. Countries are prioritizing the development and deployment of next-generation AESA radars for their air force, naval, and ground-based systems, enhancing multi-domain operational capabilities. The rise of drone warfare and hypersonic missile threats is further driving the need for advanced radar solutions

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capable of tracking high-speed, maneuverable targets with precision. The commercial satellite industry is also benefiting from ESA technology, as companies deploy electronically steered phased arrays for high-speed broadband communication in remote areas. Additionally, advancements in gallium nitride (GaN)-based semiconductors are enhancing the performance and efficiency of ESA radars, leading to lower power consumption and improved thermal management. Meanwhile, collaborations between defense contractors and tech firms are accelerating AI-driven radar solutions that optimize target tracking, reduce false alarms, and enhance real-time data processing. Amidst these advancements, supply chain challenges persist, with semiconductor shortages and geopolitical tensions impacting the production and delivery of key ESA components. The Electronically Scanned Arrays market is expected to undergo further transformation, driven by emerging defense strategies, space-based radar applications, and AI-powered radar analytics. The increasing focus on network-centric warfare will drive the adoption of software-defined ESA radars capable of seamless integration with multi-domain command and control networks. The continued proliferation of unmanned aerial vehicles (UAVs) and autonomous systems will further fuel the demand for lightweight, low-power ESA solutions optimized for airborne and spaceborne platforms. Additionally, the space industry is expected to witness significant investments in satellite-based ESA radars for earth observation, climate monitoring, and disaster response. With rapid advancements in AI and machine learning, ESA manufacturers will develop smart radar systems capable of adaptive beamforming, predictive analytics, and real-time threat classification. Furthermore, as defense agencies seek cost-effective radar solutions, modular and scalable ESA architectures will gain traction, enabling flexible upgrades and system longevity. However, regulatory challenges and export restrictions on radar technology may pose hurdles for market expansion, requiring strategic partnerships and localization efforts to sustain growth.

Key Insights Electronically Scanned Arrays Market

AI-Driven Radar Systems: The integration of artificial intelligence and machine learning in ESA radars is enhancing target identification, predictive analytics, and autonomous threat detection, improving operational efficiency in defense and aerospace applications.

Miniaturization and Lightweight ESA Designs: The demand for compact and lightweight ESA radars is rising, particularly for UAVs, satellites, and portable military applications, driving innovations in semiconductor materials and antenna technologies.

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Gallium Nitride (GaN) Semiconductor Advancements: GaN-based ESA radars are offering improved power efficiency, thermal management, and signal clarity, making them a preferred choice for next-generation radar and communication systems.

Increased Adoption in Commercial Satellite Communications: ESA technology is being integrated into satellite networks to enable high-speed broadband connectivity, particularly for remote and underserved regions, driving growth in the commercial space sector.

Software-Defined Radar Systems: The shift towards software-defined ESA radars is enabling real-time adaptability, seamless system upgrades, and integration with advanced multi-domain defense networks for enhanced operational flexibility.

Rising Defense Modernization Programs: Governments worldwide are investing heavily in modernizing their defense capabilities, driving the adoption of ESA-based radars for enhanced surveillance, threat detection, and missile defense applications.

Growth of Unmanned and Autonomous Systems: The increasing use of UAVs, autonomous naval vessels, and robotic ground systems is fueling demand for lightweight, energy-efficient ESA radars for real-time situational awareness.

Expansion of Space-Based Radar Applications: The growing demand for satellite-based radar systems for earth observation, weather monitoring, and national security is creating new opportunities for ESA technology.

Advancements in Multi-Domain Warfare: The need for integrated, network-centric warfare strategies is pushing defense organizations to deploy ESA radars capable of seamless data sharing and interoperability with air, land, sea, and space assets.

Regulatory and Export Restrictions: Stringent government regulations and export controls on radar technology are limiting market expansion, posing challenges for international collaborations and technology transfers in the defense and aerospace sectors.

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Electronically Scanned Arrays Market Segmentation

By Type

- Active
- Passive

By Geometry

- Linear
- Planar
- Frequency Scanning

By Range

- Land
- Navel
- Airborne

By Application

- Defense
- Government
- Commercial

By User

- Short

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Medium

Long

Key Companies Analysed

The Boeing Company

Airbus SE

Lockheed Martin Corporation

Raytheon Technologies Corporation

General Dynamics Corporation

Northrop Grumman Corporation

Honeywell International Inc.

Mitsubishi Heavy Industries Ltd.

Toshiba Corporation

BAE Systems plc

Telefonaktiebolaget LM Ericsson

Thales Group

L3Harris Technologies Inc.

Leonardo S.p.A.

Leonardo S.p.A.

Teledyne Technologies Incorporated

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Elbit Systems Ltd.

Svenska Aeroplan Aktiebolaget

Rafael Advanced Defense Systems Ltd.

Kongsberg Gruppen ASA

Cobham plc

Terma A/S

ASELSAN A.?.

Kratos Defense & Security Solutions Inc.

Mercury Systems Inc.

Syracuse Research Corporation

RADA Electronic Industries Ltd.

Israel Aerospace Industries Ltd.

Radar Systemtechnik AG

Gallium Nitride Systems LLC

Macom Technology Solutions Holdings Inc.

Rohde & Schwarz GmbH & Co KG

Electronically Scanned Arrays Market Analytics

The report employs rigorous tools, including Porter’s Five Forces, value chain mapping, and scenario-based modeling, to assess supply–demand dynamics. Cross-sector influences from parent, derived, and substitute markets are evaluated to identify risks

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and opportunities. Trade and pricing analytics provide an up-to-date view of international flows, including leading exporters, importers, and regional price trends.

Macroeconomic indicators, policy frameworks such as carbon pricing and energy security strategies, and evolving consumer behavior are considered in forecasting scenarios. Recent deal flows, partnerships, and technology innovations are incorporated to assess their impact on future market performance.

Electronically Scanned Arrays Market Competitive Intelligence

The competitive landscape is mapped through OG Analysis' proprietary frameworks, profiling leading companies with details on business models, product portfolios, financial performance, and strategic initiatives. Key developments such as mergers & acquisitions, technology collaborations, investment inflows, and regional expansions are analyzed for their competitive impact. The report also identifies emerging players and innovative startups contributing to market disruption.

Regional insights highlight the most promising investment destinations, regulatory landscapes, and evolving partnerships across energy and industrial corridors.

Countries Covered

North America — Electronically Scanned Arrays market data and outlook to 2034

United States

Canada

Mexico

Europe — Electronically Scanned Arrays market data and outlook to 2034

Germany

United Kingdom

France

Italy

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Spain

BeNeLux

Russia

Sweden

Asia-Pacific — Electronically Scanned Arrays market data and outlook to 2034

China

Japan

India

South Korea

Australia

Indonesia

Malaysia

Vietnam

Middle East and Africa — Electronically Scanned Arrays market data and outlook to 2034

Saudi Arabia

South Africa

Iran

UAE

Egypt

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South and Central America — Electronically Scanned Arrays market data and outlook to 2034

Brazil

Argentina

Chile

Peru

* *We can include data and analysis of additional countries on demand.*

Research Methodology

This study combines primary inputs from industry experts across the Electronically Scanned Arrays value chain with secondary data from associations, government publications, trade databases, and company disclosures. Proprietary modeling techniques, including data triangulation, statistical correlation, and scenario planning, are applied to deliver reliable market sizing and forecasting.

Key Questions Addressed

What is the current and forecast market size of the Electronically Scanned Arrays industry at global, regional, and country levels?

Which types, applications, and technologies present the highest growth potential?

How are supply chains adapting to geopolitical and economic shocks?

What role do policy frameworks, trade flows, and sustainability targets play in shaping demand?

Who are the leading players, and how are their strategies evolving in the face of global uncertainty?

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Which regional “hotspots” and customer segments will outpace the market, and what go-to-market and partnership models best support entry and expansion?

Where are the most investable opportunities—across technology roadmaps, sustainability-linked innovation, and M&A—and what is the best segment to invest over the next 3–5 years?

Your Key Takeaways from the Electronically Scanned Arrays Market Report

Global Electronically Scanned Arrays market size and growth projections (CAGR), 2024-2034

Impact of Russia-Ukraine, Israel-Palestine, and Hamas conflicts on Electronically Scanned Arrays trade, costs, and supply chains

Electronically Scanned Arrays market size, share, and outlook across 5 regions and 27 countries, 2023-2034

Electronically Scanned Arrays market size, CAGR, and market share of key products, applications, and end-user verticals, 2023-2034

Short- and long-term Electronically Scanned Arrays market trends, drivers, restraints, and opportunities

Porter’s Five Forces analysis, technological developments, and Electronically Scanned Arrays supply chain analysis

Electronically Scanned Arrays trade analysis, Electronically Scanned Arrays market price analysis, and Electronically Scanned Arrays supply/demand dynamics

Profiles of 5 leading companies—overview, key strategies, financials, and products

Latest Electronically Scanned Arrays market news and developments

Additional Support

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An updated PDF report and an MS Excel data workbook containing all market tables and figures for easy analysis.

7-day post-sale analyst support for clarifications and in-scope supplementary data, ensuring the deliverable aligns precisely with your requirements.

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