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Radar Transmitter Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Range (C and X Band, K Band, W Band and others), By Type (Contact Type and Non-Contact Type), By Industrial Verticals (Military & Defense, Oil & Gas, Chemical, Mining, Water Waste Treatment, Telecommunication, Food & Beverages and others), By Region & Competition, 2021-2031F

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Abstracts

The Global Radar Transmitter Market is projected to expand from USD 7.20 Billion in 2025 to USD 10.89 Billion by 2031, registering a compound annual growth rate (CAGR) of 7.14%. As a critical electronic element within radar infrastructure, the transmitter creates the high-frequency electromagnetic energy that an antenna radiates to identify and position targets. The market for these essential devices is principally supported by rising national defense expenditures driven by geopolitical volatility, the extensive modernization of aging air traffic control systems, and the increasing inclusion of sensor technology in autonomous vehicles. These core security and economic requirements serve as the fundamental catalysts for expansion, operating independently of technological advancements like the transition to solid-state amplification.

Nevertheless, the market faces a substantial obstacle in the form of radio frequency spectrum congestion, which restricts the bandwidth necessary for operating new high-power radar systems in crowded areas. Highlighting the robust demand within the aviation industry, a major consumer of these technologies, the General Aviation Manufacturers Association reported that the value of global airplane deliveries rose by 14.3 percent in 2024, totaling $26.7 billion. This increase in hardware shipments

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demonstrates a continuing need for sophisticated avionics and radar sub-systems.

Market Driver

The upward trend in global defense spending acts as a major driver for the radar transmitter sector, as nations aggressively modernize their missile defense and surveillance capabilities, necessitating the purchase of high-power transmission units. This level of investment is substantial; the Stockholm International Peace Research Institute (SIPRI) reported in April 2024 that total global military spending hit $2,443 billion in 2023, reflecting a 6.8 percent real-term increase. Such funding facilitates the rollout of modern AESA radars that utilize advanced solid-state transmitters, while strong commercial aviation demand further bolsters the market. In this vein, the International Air Transport Association noted in October 2024 that global air cargo demand increased by 11.4 percent year-on-year in August, highlighting the persistent necessity for dependable air traffic control infrastructure.

Concurrently, strict government regulations regarding vehicle safety are transforming the market by mandating the widespread implementation of radar-based Advanced Driver Assistance Systems (ADAS). As regulatory authorities establish collision avoidance technologies as standard features, automakers are forced to incorporate radar sensors across all vehicle types. A significant milestone was reached when, according to the National Highway Traffic Safety Administration, a final rule was issued in April 2024 requiring automatic emergency braking to be standard on all new passenger cars and light trucks by September 2029. This regulatory imperative guarantees high-volume demand for compact transmitters operating in the 77 GHz band, positioning the automotive industry as a vital revenue source driven by essential safety compliance.

Market Challenge

The congestion of the radio frequency spectrum presents a major barrier to the Global Radar Transmitter Market's expansion by physically limiting the bandwidth available for high-power operations. As commercial telecommunications networks grow, they increasingly infringe upon frequency bands historically allocated for radar use, specifically within the defense and aviation sectors. This overcrowding compels manufacturers to design intricate, frequency-agile transmitters to prevent signal degradation, a process that inevitably increases production costs and lengthens development timelines. Additionally, in densely populated areas, regulators frequently

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delay or reject permits for new radar installations to avoid interfering with consumer networks, leading directly to stalled projects and reduced procurement volumes.

The gravity of this operational difficulty is highlighted by the increasing frequency of signal conflicts in the aviation sector, a key end-user. Data from the International Air Transport Association in 2024 indicates that reports of radio frequency interference affecting airborne tracking and navigation systems jumped by over 200 percent compared to 2021 levels. This dramatic increase in interference cases demonstrates the severe lack of clean spectrum, fostering a volatile climate that deters stakeholders from funding new radar transmitter infrastructure due to fears regarding operational continuity and reliability.

Market Trends

The widespread integration of Gallium Nitride (GaN) semiconductor technology is radically transforming the Global Radar Transmitter Market by substituting legacy vacuum electron devices with highly efficient solid-state components. This shift in materials enables manufacturers to attain vastly superior thermal management and power density capabilities, facilitating the creation of compact, long-range sensors that sustain performance in challenged electromagnetic settings. The magnitude of this transition is reflected in significant defense contracts; for instance, RTX announced in September 2025 that it had secured a $1.7 billion contract to supply GaN-powered Lower Tier Air and Missile Defense Sensors to Poland and the U.S. Army, confirming the technology's prevalence in modern interceptor support.

At the same time, the industry is decisively moving toward Active Electronically Scanned Array (AESA) architectures, transitioning from mechanically steered units to digital, software-defined beamforming. These versatile transmitters offer the agility needed to simultaneously track various high-speed threats, such as hypersonic missiles and drones, by modulating waveforms via software rather than hardware. This architectural progression is generating significant contract activity throughout Europe; as reported by Defense Express in November 2025, Hensoldt revealed a ?340 million contract in July 2025 for radars including the AESA-based TRML-4D, highlighting the essential dependence on this technology for multi-layered air defense networks.

Key Market Players

Honeywell International Inc.

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Siemens AG

Emerson Electric Co.

ABB Ltd.

Schneider Electric SE

Yokogawa Electric Corporation

Endress+Hauser Group Services AG

Rockwell Automation, Inc.

General Electric Company

VEGA Grieshaber KG

Report Scope

In this report, the Global Radar Transmitter Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Radar Transmitter Market, By Range

C and X Band

K Band

W Band

others

Radar Transmitter Market, By Type

Contact Type

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- Non-Contact Type

Radar Transmitter Market, By Industrial Verticals

- Military & Defense
- Oil & Gas
- Chemical
- Mining
- Water Waste Treatment
- Telecommunication
- Food & Beverages
- others

Radar Transmitter Market, By Region

- North America
  - United States
  - Canada
  - Mexico
- Europe
  - France
  - United Kingdom
  - Italy
  - Germany

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- Spain
- Asia Pacific
  - China
  - India
  - Japan
  - Australia
  - South Korea
- South America
  - Brazil
  - Argentina
  - Colombia
- Middle East & Africa
  - South Africa
  - Saudi Arabia
  - UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Radar Transmitter Market.

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Global Radar Transmitter Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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