

Coherent Radar - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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Abstracts

The Coherent Radar Market size is estimated at USD 9.83 billion in 2024, and is expected to reach USD 15.21 billion by 2029, growing at a CAGR of 9.10% during the forecast period (2024-2029).

Coherent radar has various applications in the military. It can detect and track fast-moving and stealthy targets and provide high-resolution images of the terrain and objects of interest. The demand for coherent radar in the military is expected to grow in the coming years due to the rise in terrorism and geopolitical tensions in certain regions like the Middle East and Asia-Pacific. This factor has led to a rise in defense expenditure on modernizing surveillance technology, such as coherent radar, to detect any potential threat.

The rapid digitization of the battlefield has fostered the adoption of C4ISR systems to gain a tactical edge over hostile forces. These include the assimilation of data from various sources, including passive detection and monitoring through the use of coherent radars, thereby creating an opportunity for adopting these systems on the battlefield.

However, adopting advanced coherent radar systems is limited to technologically advanced countries. Hence, the diversion of procurement and R&D funds toward other sectors can deleteriously affect market growth. Despite this factor, the market is expected to grow positively during the forecast period due to the demand driven by rising geopolitical tensions and increasing defense expenditures in various economies worldwide.

Continuous advancements in radar technologies, such as the development of solid-state radar systems and the integration of artificial intelligence, are expected to drive the

growth of this market as these technological advancements enable improved performance and increased efficiency of radar systems.

Coherent Radar Market Trends

Airborne Coherent Radar Segment to Exhibit the Highest Growth Rate

Airborne coherent radar has various applications in the military, such as air and missile defense, intelligence, surveillance, and reconnaissance (ISR). Hence, various countries worldwide are significantly increasing their military spending in developing and procuring multirole and stealth fighter aircraft equipped with advanced EO/IR systems, early warning systems, and all-weather radar systems.

The growth of this segment is expected to increase due to rising military expenditure and various modernization efforts by major global powers. For instance, in 2022, the global military expenditure reached USD 2,240 billion, a growth of 6% from 2021. With this increased defense expenditure, various countries, such as the United States, France, Germany, Russia, the United Kingdom, and Japan, are currently working on the development of stealth fighter jet technology. For instance, in November 2022, France, Germany, and Spain signed an agreement to start the next phase of development of a new fighter jet under the Future Combat Air System program. The defense project is estimated to cost more than USD 103.4 billion. Under the program, these countries are expected to replace older fighter aircraft fleets such as the F-18 and Typhoon.

Similarly, in December 2023, the United Kingdom entered an agreement with Japan and Italy to create a next-generation stealth fighter as part of the future combat air program. The fighter is expected to have supersonic capabilities and be equipped with the latest technology in these military aircraft, such as coherent airborne radars.

Countries such as India, Israel, and Turkey are also investing in developing and procuring unmanned air vehicles to boost their ISR strength. For instance, in November 2023, India awarded a contract to IAI to procure six Hermes 900 unarmed drones to augment the country's surveillance capabilities. Overall, the adoption of stealth technology by the defense forces of several countries necessitates the integration of coherent radar systems on board the aircraft to silently monitor the target and penetrate enemy air defenses to neutralize them if the need arises. This is expected to drive the demand for this segment during the forecast period.

North America to Exhibit the Highest Growth Rate

The United States is an avid developer and user of sophisticated radar technologies such as coherent radar in North America. The demand for this market in the military is driven by the large military spending of the United States, which, in turn, supports the development and procurement of various radar technologies, including coherent radar technologies. For instance, in 2022, the US military defense expenditure rose to USD 877 billion, a growth of 9% compared to 2021. The increased investments toward technologically advanced weaponry are due to the growing threat to the country from the enhanced capabilities of China and Russia on the battlefield, and this factor is heavily driving the demand for coherent radar systems in the country.

With this increased defense spending, the United States is actively ordering huge military aircraft to enhance its defense capabilities, which is driving the demand for this market in the United States. For instance, as of December 2022, the US military had placed orders for around 2,000 F-35A/B/C aircraft variants. For these F-35s, Northrop Grumman provides its active electronically scanned array (AESA) radar, and these AESA radar systems involve numerous individual radiating elements, each with its own transmit and receive module. These modules work harmoniously to form a coherent radar beam to detect potential airborne threats.

North America is also home to leading defense technology firms that are constantly investing in developing advanced situational awareness enhancement systems. For instance, Raven Industries Inc. is one of the OEMs that provides its solutions in the coherent radar market with its HiPointer 100 coherent radar system solution. The company's HiPointer 100 increases persistent surveillance capabilities, enhances total situational awareness from a diverse set of manned and unmanned platforms with extremely low false alarms, and enables end users and decision-makers to achieve success in dynamic intelligence, surveillance, and reconnaissance (ISR) missions spanning land, sea, and air.

Coherent Radar Industry Overview

The coherent radar systems market is consolidated with leading players, such as HENSOLDT AG, RTX Corporation, BAE Systems PLC, Leonardo SpA, and Thales, accounting for a majority of the market share.

The stringent safety and regulatory policies in the defense segment are expected to restrict the entry of new players. With the growing implementation of stealth technologies in adversary aerial platforms and weapons, market players are focusing on the development of sophisticated radar systems that can effectively detect targets with lower radar cross-sections. To ensure long-term partnerships with end-user countries and easy integration with a broad spectrum of military assets, these companies are dedicating their resources to the development of cutting-edge radar technology.

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