

Radome Market worth \$6.23 billion by 2030, growing at a CAGR of 12.64% - Exclusive Report by 360iResearch

The Global Radome Market to grow from USD 2.40 billion in 2022 to USD 6.23 billion by 2030, at a CAGR of 12.64%.

PUNE, MAHARASHTRA, INDIA , December 6, 2023 /EINPresswire.com/ -- The "<u>Radome Market</u> by Offering (Product, Service), Band (C Band, K Band, Ka Band), Material, Structure, Application - Global Forecast 2023-2030" report has been added to 360iResearch.com's offering.

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A radome, short for radar dome, is a structural enclosure that protects radar equipment from the external environment while allowing electromagnetic signals to pass through with minimal interference. Radomes are commonly used in aviation, aerospace, and military applications to house radar antennas, ensuring that they operate effectively without being affected by weather conditions, wind, or aerodynamic factors. Technological advancements such as innovations in materials and design lead to lighter, more durable, and efficient radomes and increased demand in aerospace and defense with global defense expenditure on the rise, and investments in advanced radar systems and, by extension, radomes continue to climb which further increased the market growth. However, Advanced radome materials and manufacturing processes can be prohibitively expensive, limiting market growth. Designing radomes that provide optimal performance across all operating conditions remains complex, further hampering the market growth. Developing new composites or polymers that offer superior performance metrics at a lower cost and rising Investigation into more efficient manufacturing processes to reduce production time and cost. Increasing focus on environmentally friendly and sustainable manufacturing practices and materials to appeal to a more eco-conscious market further creates a lucrative market opportunity.

Offering: High adoption of radome accessories products to enhance the performance and maintenance of radomes

Accessories within the radome market may include supplementary components or features that enhance radomes' performance, installation, or maintenance. This can include mounting hardware, lightning protection systems, de-icing systems, and other accessories tailored to specific radome applications. Radome bodies are structural enclosures designed to protect radar equipment or communication antennas. They are made from materials that allow electromagnetic signals to pass through while protecting environmental factors. Service offerings in the radome space encompass a range of repair, maintenance, and overhaul (MRO) services and technical support, installation, and testing to ensure the radomes maintain their integrity and performance over time.

Material: Glass fiber providing signal transparency in radomes

Glass fiber and quartz are commonly used materials in manufacturing radomes. Glass fiber is a reinforced composite material made from fine strands of glass woven into a fabric or mat. It is known for its high strength-to-weight ratio, durability, and corrosion resistance. Glass fiber is transparent to RF signals, allowing radar waves to pass through without significant signal loss. This property makes it suitable for radomes where signal transparency is crucial for radar performance. Quartz is a crystalline mineral composed of silicon and oxygen, and in radome applications, quartz is often used in the form of quartz fabric or quartz composite materials. Quartz exhibits high transparency to RF signals, making it suitable for applications where minimal signal attenuation is critical. This property ensures that radar or communication signals can pass through the radome with minimal interference.

Application: Airborne radomes protect radar systems from atmospheric conditions Airborne radomes are critical components in aircraft, covering radar systems to protect them from atmospheric conditions without compromising radar signal integrity. Commercial and business aircraft may utilize radomes for different purposes, including housing radar systems, communication antennas, and other equipment. Radomes on narrow-body aircraft are designed to house radar systems and communication antennas. Radomes on regional transport aircraft serve similar purposes to those on narrow-body aircraft. Radomes are crucial in general aviation and military aircraft, protecting radar systems, communication antennas, and other sensitive equipment. Radomes in general aviation aircraft house weather radar systems, navigation antennas, and communication equipment. These radomes contribute to smaller aircraft's safety and navigation capabilities for personal, business, and recreational purposes. Radomes in military aircraft serve critical functions, including housing radar systems for surveillance, target acquisition, and navigation. Radomes on military transport aircraft house weather radar,

navigation equipment, and communication antennas. Unmanned aerial vehicles, particularly those with specific capabilities such as high-altitude long-endurance, medium-altitude longendurance, and unmanned combat aerial vehicles, often incorporate radomes to protect critical electronic components, antennas, and sensors. Ground-based radomes protect radar systems situated on the earth's surface. They are key in maintaining continuous communication and surveillance operations, providing weather data, and supporting air traffic management. Radomes in air defense systems are crucial for protecting radar equipment for surveillance, target acquisition, and tracking. Radomes on ground vehicles, such as military vehicles or mobile radar systems, protect radar and communication equipment for situational awareness, target tracking, and communication in mobile scenarios. Shipboard radomes are used on watercraft to house and protect marine radar systems from harsh maritime environments. Radomes on commercial ships protect radar and communication systems, contributing to navigation, collision avoidance, and communication with other vessels and coastal authorities. Radomes on bulk carriers facilitate navigation, collision avoidance, and communication, ensuring safe and efficient transportation. Radomes on container ships are essential for navigation, collision avoidance, and communication with port authorities and other vessels. Military ships, including amphibious warfare ships, class destroyers, frigates, and submarines, utilize radomes for various applications such as navigation, communication, surveillance, and electronic warfare.

Band: X Band provides a good trade-off between resolution and atmospheric attenuation The c band is widely used for satellite communication systems; the C Band is preferred for its minimal rain fade issues compared to higher frequency bands, making it suitable for fixed satellite services and some terrestrial wireless applications. The K Band is often employed in police radar equipment for speed limit enforcement and some satellite communication systems. It is not commonly used for ground-based communications due to its sensitivity to atmospheric conditions. The Ka-Band is popular for high-throughput satellite communications, allowing for higher bandwidths. It is also used in certain radar applications, including earth observation satellites. Due to its relatively smaller antenna size requirements, the Ku Band is extensively used for satellite TV broadcasting and on-the-move satellite communications in marine and aeronautical platforms. The L Band is ideal for mobile satellite services, GPS, and certain longrange radar applications due to its robustness to rain fade and its capacity to penetrate through foliage and other obstacles. S-Band is used for weather radar, surface ship radar, and communications satellites. It combines reasonable penetration and good resolution, balancing performance attributes. The Ultra High Frequency (UHF) and Very High Frequency (VHF) bands are primarily used for public broadcast, mobile radio, and some radar systems that require longrange detection capabilities. V, W, & G band These bands cover higher frequencies and are used in high-resolution radar and millimeter-wave communication systems. Due to their short wavelength, these bands are suitable for high-precision applications and are being explored for future 5G and beyond wireless communications. The X Band (8-12 GHz) is extensively used in radar applications such as maritime patrol, weather monitoring, and missile guidance. Its relatively high frequency allows for high-resolution imaging and good target discrimination.

Regional Insights:

The Americas has a significant landscape in the radome market due to the rising demand for radomes and is closely tied to the defense and aerospace sectors, with a substantial emphasis on technological innovation and product reliability. Customer purchasing behavior reflects a preference for high-quality, durable, and advanced radome solutions that withstand extreme conditions. Investment in the defense sector demonstrates the continuous pursuit of radome enhancement. In the EU, the radome market is regulated by stringent quality and safety standards that drive the need for high-performance materials and designs. EU customers generally prefer radome products that balance performance with environmental sustainability. The Middle East radome market is experiencing growth, particularly in civil aviation and military applications. The need for high-temperature performance strongly influences this region's purchasing behavior due to the harsh climatic conditions. Investments in infrastructure development across the continent have led to a demand for radomes that can provide reliable performance in diverse environmental conditions. The APAC region's market growth is propelled by its expanding aviation industry and growing military capabilities. The regional countries have witnessed significant investment in research and development for innovative radome materials and designs. The government's initiative to modernize its military has increased investment and joint ventures with local and foreign firms, further accelerating the region's market growth.

FPNV Positioning Matrix:

The FPNV Positioning Matrix is essential for assessing the Radome Market. It provides a comprehensive evaluation of vendors by examining key metrics within Business Strategy and Product Satisfaction, allowing users to make informed decisions based on their specific needs. This advanced analysis then organizes these vendors into four distinct quadrants, which represent varying levels of success: Forefront (F), Pathfinder (P), Niche (N), or Vital(V).

Market Share Analysis:

The Market Share Analysis offers an insightful look at the current state of vendors in the Radome Market. By comparing vendor contributions to overall revenue, customer base, and other key metrics, we can give companies a greater understanding of their performance and what they are up against when competing for market share. The analysis also sheds light on just how competitive any given sector is about accumulation, fragmentation dominance, and amalgamation traits over the base year period studied.

Key Company Profiles:

The report delves into recent significant developments in the Radome Market, highlighting leading vendors and their innovative profiles. These include Altair Engineering Inc., Antennas for Communications, Astronics Corporation, Cobham Limited, Corning Incorporated, CPI International Inc., Cuming Microwave Corporation, Garmin Ltd., General Dynamics Mission Systems, Inc., Infinite Technologies, Inc., JENOPTIK AG, Kineco Limited, Laird Technologies, Inc., Micris Ltd., Rebutor Electronics Pvt.Ltd., Royal Engineered Composites, Saint-Gobain S.A., Spectrum Antenna & Avionics Systems (P) Limited, Starwin Industries, Teledyne FLIR LLC, The NORDAM Group LLC, Toray Industries, Inc., Universal Plastics Group, Inc., Verdant Telemetry & Antenna Systems Pvt. Ltd., and Winncom Technologies Corp..

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Market Segmentation & Coverage:

This research report categorizes the Radome Market in order to forecast the revenues and analyze trends in each of following sub-markets:

Based on Offering, market is studied across Product and Service. The Product is further studied across Accessories and Radome Body. The Service is projected to witness significant market share during forecast period.

Based on Band, market is studied across C Band, K Band, Ka Band, Ku Band, L Band, S Band, Uhf/Vhf Band, V,W,& G Band, and X Band. The Ka Band is projected to witness significant market share during forecast period.

Based on Material, market is studied across Glass Fiber and Quartz. The Glass Fiber is projected to witness significant market share during forecast period.

Based on Structure, market is studied across Dielectric Space Frame, Metal Space Frame, Sandwich, and Solid Laminate. The Sandwich is projected to witness significant market share during forecast period.

Based on Application, market is studied across Airborne Radome, Ground Based Radome, and Shipboard Radome. The Airborne Radome is further studied across Commercial & Business Aircraft, General Aviation, Military Aircraft, and Unmanned Aerial Vehicles. The Commercial & Business Aircraft is further studied across Narrow-Body Aircraft, Regional Transport Aircraft, Very Large Aircraft, and Wide-Body Aircraft. The Military Aircraft is further studied across Fighter Jets and Transport Aircraft. The Unmanned Aerial Vehicles is further studied across High-Altitude Long-Endurance, Medium-Altitude Long-Endurance, and Unmanned Combat Aerial Vehicle. The Ground Based Radome is further studied across Air Defense Radomes, Air Traffic Control, Ground Vehicles, and Telecom Towers. The Shipboard Radome is further studied across Commercial Ships and Military Ships. The Commercial Ships is further studied across Bulk Carriers, Chemical Tankers, Container Ships, LPG or LNG, Oil Tankers, and Passenger Ships. The Military Ships is further studied across Amphibious Warfare Ships, Class Destroyers, Frigates, and Submarine. The Airborne Radome is projected to witness significant market share during forecast period. Based on Region, market is studied across Americas, Asia-Pacific, and Europe, Middle East & Africa. The Americas is further studied across Argentina, Brazil, Canada, Mexico, and United States. The United States is further studied across California, Florida, Illinois, New York, Ohio, Pennsylvania, and Texas. The Asia-Pacific is further studied across Australia, China, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam. The Europe, Middle East & Africa is further studied across Denmark, Egypt, Finland, France, Germany, Israel, Italy, Netherlands, Nigeria, Norway, Poland, Qatar, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, and United Kingdom. The Europe, Middle East & Africa commanded largest market share of 40.01% in 2022, followed by Americas.

Key Topics Covered:

- 1. Preface
- 2. Research Methodology
- 3. Executive Summary
- 4. Market Overview
- 5. Market Insights
- 6. Radome Market, by Offering
- 7. Radome Market, by Band
- 8. Radome Market, by Material
- 9. Radome Market, by Structure
- 10. Radome Market, by Application
- 11. Americas Radome Market
- 12. Asia-Pacific Radome Market
- 13. Europe, Middle East & Africa Radome Market
- 14. Competitive Landscape
- 15. Competitive Portfolio
- 16. Appendix

The report provides insights on the following pointers:

1. Market Penetration: Provides comprehensive information on the market offered by the key players

2. Market Development: Provides in-depth information about lucrative emerging markets and analyzes penetration across mature segments of the markets

3. Market Diversification: Provides detailed information about new product launches, untapped geographies, recent developments, and investments

4. Competitive Assessment & Intelligence: Provides an exhaustive assessment of market shares, strategies, products, certification, regulatory approvals, patent landscape, and manufacturing capabilities of the leading players

5. Product Development & Innovation: Provides intelligent insights on future technologies, R&D activities, and breakthrough product developments

The report answers questions such as:

- 1. What is the market size and forecast of the Radome Market?
- 2. Which are the products/segments/applications/areas to invest in over the forecast period in the Radome Market?
- 3. What is the competitive strategic window for opportunities in the Radome Market?
- 4. What are the technology trends and regulatory frameworks in the Radome Market?
- 5. What is the market share of the leading vendors in the Radome Market?
- 6. What modes and strategic moves are considered suitable for entering the Radome Market?

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