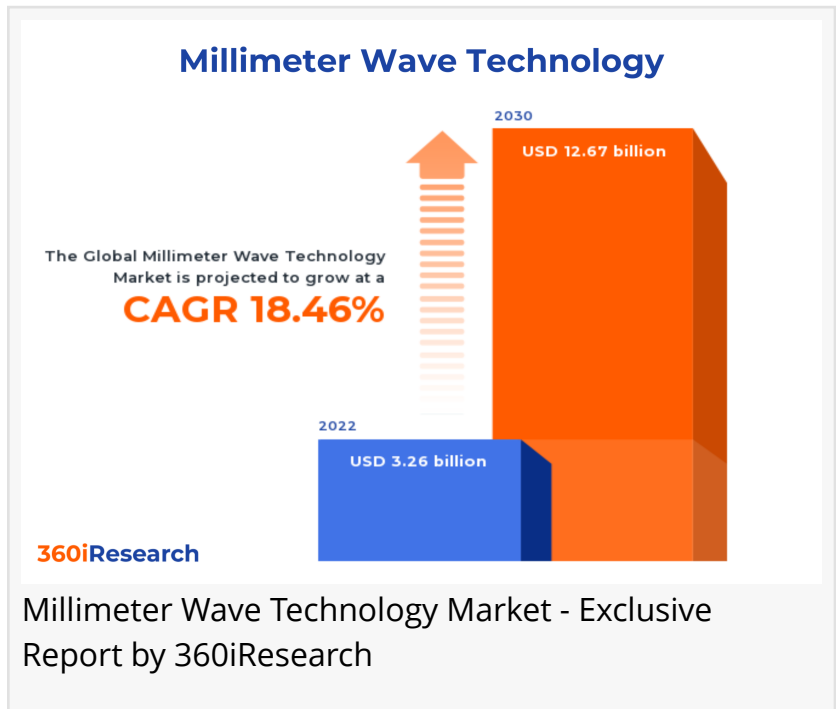


Millimeter Wave Technology Market worth \$12.67 billion by 2030 - Exclusive Report by 360iResearch

The Global Millimeter Wave Technology Market to grow from USD 3.26 billion in 2022 to USD 12.67 billion by 2030, at a CAGR of 18.46%.

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EINPresswire.com/ -- The "[Millimeter Wave Technology Market](#) by System (Radar & Satellite Communication Systems, Scanner Systems, Telecommunication Equipment), Product (Antennas & Transceiver, Communication & Networking, Frequency Sources & Related), Frequency Band, License Type, Component, Application - Global Forecast 2023-2030" report has been added to 360iResearch.com's offering.



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Millimeter wave technology (mmWave) represents a class of wireless communication that operates in the extremely high-frequency range of the electromagnetic spectrum, specifically between 30 and 300 gigahertz (GHz). Millimeter wave technology is gaining significant traction for its potential to revolutionize various industries, including telecommunications, imaging, healthcare, automotive, and defense. The global push towards 5G deployment acts as a significant driver for this market's expansion. Rising demand for ADAS features in automobiles propels the adoption of millimeter wave radar systems. Government emphasis on enhancing security measures also contributes to increased demand for millimeter wave based security

solutions. However, high attenuation rates due to adverse weather conditions and short-range capabilities of millimeter waves limit their widespread adoption. Market players are working on advancements in antenna design and materials science to improve signal propagation characteristics while minimizing energy loss. They are also developing new modulation schemes and channel coding techniques that can help optimize data transmission efficiency.

Application: Vital utility of mmWave technology in military applications for missile guidance systems & drone surveillance

Millimeter wave technology has emerged as a critical component in automotive applications as it enables radar-based sensors to provide precise distance measurements, object detection, and collision avoidance. The consumer application segment includes smartphones, tablets, wearables, and home automation systems that incorporate mmWave technology for high-speed data transfer and wireless connectivity. It also plays a crucial role in various industrial applications such as robotics, automation systems, security scanners, and material sensing equipment due to its ability to penetrate materials and deliver high-resolution imaging. In the medical field, mmWave is employed for imaging applications such as skin cancer detection or wound assessment due to its non-ionizing nature compared to X-rays or CT scans while providing higher resolution images than conventional ultrasound methods. mmWave technology is increasingly adopted in the defense sector for applications such as radar systems, satellite communication, missile guidance, and drone surveillance due to its ability to provide high-resolution data and operate under various weather conditions. As data usage continues to grow exponentially worldwide, telecom operators are adopting millimeter wave technology for high-speed wireless communication infrastructure such as 5G networks and Wi-Fi 6E deployments.

License Type: Growing adoption of fully licensed frequency millimeter wave (FLF-MMW) for highly secure and stable connections with minimal risk of interference

Fully licensed frequency millimeter wave (FLF-MMW) operates within a regulated frequency spectrum, ensuring minimal interference and optimal performance. This technology is ideal for industries requiring high data rates, low latency, and reliable communication, such as telecommunications, defense, transportation, and healthcare. Unlicensed Frequency Millimeter Wave (UFLF-MMW) utilizes an unregulated frequency spectrum without the need for licensing or regulatory compliance. Although this makes it more accessible to small businesses and residential applications requiring high-speed connectivity, UFLF-MMW is prone to interference from other devices in the same frequency range. While FLF-MMW is preferred by organizations needing highly secure and stable connections with minimal interference risk due to dedicated frequency spectrums, UFLF-MMW offers a more accessible solution without licensing or regulatory compliance concerns but may face potential interference issues.

System: Research & development in advancing telecommunication systems for 5G networks
Millimeter wave technology in radar and satellite communication systems has been rapidly advancing due to its high-frequency range, which offers improved resolution, large bandwidth, and low interference. These qualities make mmWave technology ideal for applications such as weather monitoring, defense surveillance, and satellite imaging. Millimeter wave technology has

transformed scanning systems by providing non-invasive security solutions with superior image quality. These systems are now widely used at airports and other public venues to ensure passenger safety without invasiveness or radiation risk associated with traditional X-ray machines. The emergence of 5G networks has significantly increased the need for millimeter wave technology in telecommunication equipment due to its ability to transmit large amounts of data at faster speeds while minimizing latency issues. The radar & satellite communication systems segment has witnessed substantial investments from defense organizations, while scanning systems have experienced increased demand for non-invasive security solutions in public settings.

Product: Significant application of antennas and transceivers in millimeter wave technology, enabling communication and data transfer

Antennas and transceivers play a vital role in enabling high-speed data transmission over millimeter waves. These components are essential for applications such as 5G networks and satellite communication systems due to their ability to support higher frequency bands. The communication and networking segment is driven by the increasing demand for high-speed data connectivity using millimeter wave technology. This product segment comprises oscillators and synthesizers that generate stable frequencies required for various applications such as radar systems and wireless communications devices using millimeter wave technology. Frequency sources and related products include oscillators and synthesizers that generate stable frequencies required for various applications such as radar systems and wireless communications devices using millimeter wave technology. Millimeter wave technology enables high-resolution imaging systems like security scanners, autonomous vehicle sensors, and medical diagnostic equipment. The interface segment pertains to various devices and components that facilitate seamless connectivity between different millimeter wave systems. These include connectors, cables, and adapters that ensure efficient signal transfer across diverse platforms. High power efficiency ensures reliable operation and extended battery life in millimeter wave devices, including smartphones, IoT sensors, and wireless communication networks. Radiofrequency (RF) components such as amplifiers, filters, switches, and modulators enable effective transmission and reception of signals using millimeter wave technology. Sensors and controls using millimeter wave technology offer increased accuracy and responsiveness for collision avoidance systems, industrial automation, and environmental monitoring applications.

Frequency Band: Increasing use of less than 57 GHz frequency band due to their large bandwidths and relatively lower path loss

The less than 57 GHz frequency band is widely used in commercial applications due to its comparatively lower propagation losses and higher penetration capabilities. This segment is ideal for high-speed wireless communication systems such as gigabit wireless access (GWA) networks and fixed wireless access services. On the other hand, the 57-95 GHz frequency band offers higher bandwidths and enables more advanced features, such as high-resolution imaging for military applications and security screening devices at airports. The highest frequency range of millimeter wave technology, spanning from 95 to 300 GHz, is primarily utilized in research and experimental applications. They offer ultra-high-speed data transmission rates and extremely

high-resolution sensing capabilities for specialized needs.

Component: Advancements in antennas and sensor technologies based on mmWave for improved communication and networking

High-speed wireless communications and efficient radar systems have propelled the demand for antennas and transceivers in mmWave technology. High-frequency signal generation is crucial for millimeter wave technologies to achieve spectral efficiency and precise modulation schemes. Interface components are essential for the seamless integration of millimeter wave technology with other systems and devices. Efficient power management is vital for the performance of wireless communication systems and devices utilizing millimeter wave technology. The rapid expansion of wireless communication networks requires advanced radio frequency (RF) components that can handle high-frequency signals at lower power consumption levels. Innovative RF solutions have been instrumental in driving the adoption of millimeter wave technologies across various industries. Millimeter wave sensors are gaining traction in applications such as collision avoidance systems in automobiles and industrial automation due to their ability to detect objects with high accuracy, even in adverse conditions.

Regional Insights:

In the Americas, the United States and Canada observe a rising trend in mmWave technology development with a strong focus on 5G networks. Major companies are investing heavily in mmWave research to facilitate faster internet connectivity. They are working in collaboration with local operators and government bodies to develop tailored solutions catering to regional requirements. Europe has been proactive in promoting mmWave technology adoption through research & development activities backed by private and public investment. The European Telecommunications Standards Institute (ETSI) has been instrumental in establishing standards for mmWave applications, while individual EU nations have been conducting auctions to assign mmWave spectrum to operators. The Middle East's investments into smart cities and Industry 4.0 are driving demand for mmWave solutions to enable high-speed connectivity and support IoT devices in these environments. In Asia, countries such as China, Japan, and South Korea are actively exploring mmWave technology for advanced communication systems. These countries are investing in mmWave research as it prepares to launch its 5G networks and has formed partnerships with global players to advance its capabilities in this area.

FPNV Positioning Matrix:

The FPNV Positioning Matrix is essential for assessing the Millimeter Wave Technology 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 Millimeter Wave Technology 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 Millimeter Wave Technology Market, highlighting leading vendors and their innovative profiles. These include Analog Devices, Inc., Asahi Kasei Microdevices Corporation, Axxcss Wireless Solutions, Inc., bq microwave, Broadcom Inc., CableFree: Wireless Excellence, Cisco Systems, Inc., Dalian Ilabel Technology Co., Ltd., Denso Corporation, Deutsche Telekom AG, ELVA-1 Microwave Handelsbolag, Eravant, Farran Technology Ltd., Fujikura Ltd., Fujitsu Limited, HFCL Limited, Huawei Technologies Co., Ltd., Keysight Technologies, Inc., Kyocera Corporation, L3Harris Technologies, Inc., Marki Microwave, Inc., MaxLinear, Inc., Millimeter Wave Products, Millimeter Wave Systems, LLC, Mistral Solutions Pvt. Ltd., Mitsubishi Electric Corporation, Movandi Corporation, NEC Corporation, Nokia Corporation, Novelic LLC, NTT DATA Corporation, Nuctech Company Limited, NXP Semiconductors N.V., Qorvo, Inc., QUALCOMM Incorporated, Quantic MWD, QuinStar Technology, Inc., Samsung Electronics Co., Ltd., Siklu Communications, Ltd., SIKORA AG, Smiths Group PLC, Sumitomo Electric Industries, Ltd., Tamagawa Holdings Co., Ltd., Telefonaktiebolaget LM Ericsson, Terasense Group Inc., Texas Instruments Incorporated, Toray Industries, Inc., Vubiq Networks, Inc., and ZTE Corporation.

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Market Segmentation & Coverage:

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

Based on System, market is studied across Radar & Satellite Communication Systems, Scanner Systems, and Telecommunication Equipment. The Telecommunication Equipment commanded largest market share of 47.12% in 2022, followed by Radar & Satellite Communication Systems.

Based on Product, market is studied across Antennas & Transceiver, Communication & Networking, Frequency Sources & Related, Imaging Components, Interface, Power & Battery, RF & Radio, and Sensors & Controls. The Antennas & Transceiver commanded largest market share of 23.84% in 2022, followed by Communication & Networking.

Based on Frequency Band, market is studied across 57–95 GHz, 95–300 GHz, and Below 57 GHz.

The 57–95 GHz commanded largest market share of 44.13% in 2022, followed by 95–300 GHz.

Based on License Type, market is studied across Fully Licensed Frequency Millimeter Wave and Unlicensed Frequency Millimeter Wave. The Fully Licensed Frequency Millimeter Wave commanded largest market share of 77.14% in 2022, followed by Unlicensed Frequency Millimeter Wave.

Based on Component, market is studied across Amplifiers, Attenuators, Circulators, Couplers, Filters, Isolators, Mixers, and Shifters. The Amplifiers commanded largest market share of 26.53% in 2022, followed by Filters.

Based on Application, market is studied across Automotive, Consumer, Industrial, Medical, Military, Defense & Aerospace, and Telecom/Datacom. The Telecom/Datacom commanded largest market share of 28.21% in 2022, followed by Military, Defense & Aerospace.

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 Americas commanded largest market share of 38.89% in 2022, followed by Europe, Middle East & Africa.

Key Topics Covered:

1. Preface
2. Research Methodology
3. Executive Summary
4. Market Overview
5. Market Insights
6. Millimeter Wave Technology Market, by System
7. Millimeter Wave Technology Market, by Product
8. Millimeter Wave Technology Market, by Frequency Band
9. Millimeter Wave Technology Market, by License Type
10. Millimeter Wave Technology Market, by Component
11. Millimeter Wave Technology Market, by Application
12. Americas Millimeter Wave Technology Market
13. Asia-Pacific Millimeter Wave Technology Market
14. Europe, Middle East & Africa Millimeter Wave Technology Market
15. Competitive Landscape

16. Competitive Portfolio

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

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