

5g mmWave Technology Market Technological Trends and Opportunities by 2032 | Industry Growth Dynamics

The market is driven by enhanced network efficiency and capacity, the facilitation of advanced edge computing, innovative applications across diverse sectors

WILMINGTON, DELAWARE , UNITED STATES, March 27, 2024 /EINPresswire.com/ -- According to a new report published by Allied Market Research, titled, "[the 5g mmwave technology market](#)" was valued at \$2.6 billion in 2022, and is estimated to reach \$10.1 billion by 2032, growing at a CAGR of 14.7% from 2023 to 2032. North America was the highest revenue contributor, accounting in 2022, and is estimated to reach \$3,215.14 million by 2032, with a CAGR of 15.25%.

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The 5G mmWave technology market is experiencing robust growth driven primarily by the escalating demand for high-speed data services and enhanced network capacity”

Allied Market Research

5G millimeter wave technology is a cutting-edge component of the fifth-generation mobile network, leveraging the previously underutilized millimeter wave

portion of the electromagnetic spectrum, typically ranging between 24 GHz and 100 GHz. This leap into higher frequencies is a significant departure from the sub-6 GHz spectrum used in earlier cellular networks. The primary advantage of mmWave is its capacity for extremely high data transfer rates, potentially enabling gigabit-speed internet connectivity. This makes it ideal for bandwidth-intensive applications such as high-definition video streaming, augmented and virtual reality, and advanced IoT deployments.

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The expanded bandwidth offered by 5G mmWave technology is a key factor driving its market growth, especially as it meets the high-data requirements of modern applications. This technology operates in high-frequency millimeter wave bands, which are capable of supporting much larger bandwidths compared to the lower frequency bands used in previous generations like 4G. This increase in bandwidth means that more data can be transmitted simultaneously, a critical feature for applications that demand high data rates, such as HD video streaming, virtual reality, and augmented reality. The ability of 5G mmWave to handle these data-intensive

applications without lag or delay not only enhances user experience but also opens up new possibilities in various sectors, including entertainment, telemedicine, and industrial automation. Consequently, the promise of delivering high-speed, high-capacity connectivity is positioning 5G mmWave as a transformative technology in the wireless communication landscape.

However, the substantial infrastructure costs associated with deploying 5G mmWave technology represent a notable restraint in its market. To achieve effective mmWave coverage, a dense network of small cells is required, which can be both costly and logistically challenging, especially in urban areas. These small cells, which are essential for compensating for mmWave's limited range and penetration capabilities, need to be installed in significantly higher numbers compared to the cell towers used in traditional cellular networks. This leads to increased capital expenditure for network providers, as they must invest in not only the cells themselves but also the associated infrastructure, including site acquisition, backhaul connections, and maintenance.

Additionally, in densely populated urban areas, the logistical challenges of installing and integrating these cells into the existing cityscape can be considerable. These factors combined make the deployment of 5G mmWave technology a complex and expensive endeavor, potentially hindering its rapid deployment and widespread adoption.

Moreover, the introduction of 5G mmWave technology creates substantial opportunities for emerging technologies such as augmented reality (AR), virtual reality (VR), and ultra-HD video streaming. These technologies, which demand high bandwidth and ultra-fast speed for optimal performance, stand to benefit immensely from the capabilities of 5G mmWave. The high bandwidth allows for more data-intensive content to be transmitted without lag, making experiences in AR and VR more immersive and realistic. Similarly, ultra-HD video streaming, which requires substantial data transfer at high speeds, can be delivered more efficiently and reliably. This alignment with emerging technologies not only enhances user experiences but also drives innovation in these fields. Developers and creators can push the boundaries of what's possible in AR, VR, and streaming services, knowing that the network infrastructure can support their advanced requirements. Thus, 5G mmWave technology is not just a step forward in telecommunications; it's a catalyst for a new wave of technological advancements and experiences, presenting a significant opportunity in the 5G market.

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The 5G mmWave technology market size is witnessing a significant expansion, reflecting the growing interest and investments in 5G infrastructure. In-depth 5G mmWave technology market analysis indicates that the market is poised for substantial growth, driven by the escalating demand for high-speed data transmission and the increasing adoption of IoT devices. The 5G mmWave technology market growth is further propelled by technological innovations and supportive government policies, fostering a conducive environment for market expansion.

Additionally, current 5G mmWave technology market trends suggest a shift towards enhanced network performance and reliability, indicating a promising future for the sector as it continues to evolve in response to user needs and technological advancements.

The 5G mmWave technology market is analyzed by component, product, frequency band, application, and region.

Based on components, the antennas and transceiver components segment accounted for nearly one-fourth of the total revenue in the global 5G mmWave technology market in 2022, and it is expected to continue its dominant position throughout the forecast period, due to their critical role in enabling high-speed, high-frequency communications essential for the efficient performance of 5G networks. However, the communication and networking components segment is expected to experience the fastest CAGR of 17.31% from 2023 to 2032, primarily attributed to the increasing demand for advanced communication infrastructure to support the exponential growth in data traffic and the deployment of IoT and smart devices.

Based on product, the telecommunication equipment segment emerged as the market leader in the global 5G mmWave technology market in 2022, holding more than one-third of the market share. Simultaneously, the same segment is projected to witness the fastest CAGR of 16.55% from 2023 to 2032. This dominance can be attributed to the increasing global demand for high-speed internet and the rapid expansion of 5G infrastructure.

Based on frequency band, the 24–57 GHz segment emerged as the market leader in the global 5G mmWave technology market in 2022, holding nearly three-fifths of the market share. Simultaneously, the same segment is projected to witness the fastest CAGR of 15.36% from 2023 to 2032. This dominance can be attributed to its optimal balance between coverage, capacity, and speed, making it highly suitable for urban 5G deployments and various commercial applications.

Based on application, the mobile and telecom segment emerged as the market leader in the global 5G mmWave technology market in 2022, holding more than one-third of the market share. Simultaneously, the same segment is projected to witness the fastest CAGR of 16.27% from 2023 to 2032. This dominance can be attributed to the escalating global demand for higher data speeds and increased network capacity, driven by the widespread adoption of smartphones and the continuous growth of mobile data traffic.

Based on region, the global [5G mmWave technology market share](#) is analyzed across North America (the U.S., Canada, and Mexico), Europe (the UK, Germany, France, and rest of Europe), Asia-Pacific (China, Japan, India, South Korea, and rest of Asia-Pacific), Latin America (Brazil, Chile, Argentina), and Middle East & Africa (UAE, Saudi Arabia, Africa).

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The 5G mmWave technology market key players profiled in the report include Huawei Technologies Co., Ltd., Samsung Electronics Co., Ltd., Telefonaktiebolaget LM Ericsson, Nokia Corporation, Qualcomm Incorporated, MediaTek Inc., Keysight Technologies, Inc., NXP Semiconductors N.V., Skyworks Solutions, Inc., and Anritsu Corporation. The market players have adopted product launches and collaboration strategies to expand their foothold in the 5G mmWave technology industry.

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- By component, the antennas and transceiver components segment was the highest revenue contributor to the market, with \$631.44 million in 2022, and is estimated to reach \$2,772.69 million by 2032, with a CAGR of 16.09%.
- By product, the telecommunication equipment segment was the highest revenue contributor to the market, with \$892.24 million in 2022, and is estimated to reach \$4,078.29 million by 2032, with a CAGR of 16.55%.
- By frequency band, the 24–57 GHz segment was the highest revenue contributor to the market, with \$1,527.46 million in 2022, and is estimated to reach \$6,290.58 million by 2032, with a CAGR of 15.36%.
- By application, the mobile and telecom segment was the highest revenue contributor to the market, with \$886.81 million in 2022, and is estimated to reach \$3,953.79 million by 2032, with a CAGR of 16.27%.
- By region, North America was the highest revenue contributor, accounting for \$787.87 million in 2022, and is estimated to reach \$3,215.14 million by 2032, with a CAGR of 15.25%.

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