

Telecom Millimeter Wave Technology Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 – 2034

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Abstracts

The Global Telecom Millimeter Wave Technology Market reached USD 1.5 billion in 2024 and is on track to grow at an impressive CAGR of 26.2% between 2025 and 2034. Governments worldwide are accelerating efforts to roll out next-generation communication networks, enhancing digital infrastructure to support the growing demand for high-speed connectivity. The rapid adoption of 5G, which relies heavily on millimeter wave technology, continues to gain momentum as public and private sector partnerships drive strategic investments in telecommunications. These large-scale initiatives aim to ensure robust connectivity, reduce latency, and improve overall network performance.

Millimeter wave technology is revolutionizing broadband expansion, smart city development, and industrial automation, cementing its role in the future of global communications. Secure, high-speed connections are becoming an absolute necessity across industries, government institutions, and consumer applications, pushing demand for millimeter wave-enabled solutions. Telecom operators are prioritizing innovations that enhance connectivity while alleviating network congestion. As research and development efforts progress, new advancements in signal transmission, spectrum efficiency, and hardware miniaturization are expected to significantly enhance the capabilities of millimeter wave communication.

With the surging adoption of IoT, AI-driven applications, and cloud-based solutions, enterprises are actively integrating millimeter wave technology into their networks to ensure ultra-fast and stable connections. The technology is rapidly transforming mission-critical applications, including autonomous transportation, telemedicine, and defense communications, offering unparalleled data transfer speeds and reliability. This

transformation underscores the need for continued infrastructure upgrades and regulatory adaptations to support the widespread deployment of millimeter wave-enabled systems.

Market segmentation by frequency band includes below 60 GHz, 60-100 GHz, and above 100 GHz. The below 60 GHz segment accounted for 40% of the market share in 2024 and is expected to exceed USD 5 billion by 2034. This frequency band is widely favored for its affordability and broader accessibility compared to higher bands. Network operators find it more convenient to secure spectrum licenses for these frequencies, making deployment more cost-effective. Reduced regulatory challenges and lower operational costs further encourage telecom companies to integrate these bands into their networks.

The market is also categorized by licensing models, including fully/partly licensed and unlicensed spectrum. The fully/partly licensed segment dominated with a 68% share in 2024. Licensed spectrum offers network operators exclusive rights, ensuring interference-free operations and greater network capacity. These exclusive rights provide enhanced security and stability, allowing operators to deliver uninterrupted, high-speed services. The ability to secure dedicated frequency bands is crucial for mobile service providers aiming to optimize performance and minimize signal disruptions. With the increasing need for high-bandwidth applications such as augmented reality, virtual reality, and real-time data streaming, the demand for licensed spectrum is set to strengthen further.

The US telecom millimeter wave technology market held a commanding 40% share in 2024, driven by the widespread adoption of Fixed Wireless Access (FWA) solutions. These solutions are rapidly gaining traction as a viable alternative to traditional broadband, enabling telecom companies to expand connectivity without the need for costly fiber installations. Millimeter wave frequencies provide seamless wireless coverage with minimal access restrictions, making them an ideal choice for broadband expansion in urban and suburban areas.

Contents

CHAPTER 1 METHODOLOGY & SCOPE

- 1.1 Research design
 - 1.1.1 Research approach
 - 1.1.2 Data collection methods
- 1.2 Base estimates & calculations
 - 1.2.1 Base year calculation
 - 1.2.2 Key trends for market estimation
- 1.3 Forecast model
- 1.4 Primary research and validation
 - 1.4.1 Primary sources
 - 1.4.2 Data mining sources
- 1.5 Market scope & definition

CHAPTER 2 EXECUTIVE SUMMARY

- 2.1 Industry 360° synopsis, 2021 - 2034

CHAPTER 3 INDUSTRY INSIGHTS

- 3.1 Industry ecosystem analysis
 - 3.1.1 Component providers
 - 3.1.2 Service providers
 - 3.1.3 Technology providers
 - 3.1.4 End customers
- 3.2 Supplier landscape
- 3.3 Profit margin analysis
- 3.4 Technology & innovation landscape
- 3.5 Patent analysis
- 3.6 Key news & initiatives
- 3.7 Regulatory landscape
- 3.8 Parent and child market analysis
- 3.9 Impact forces
 - 3.9.1 Growth drivers
 - 3.9.1.1 Increasing data traffic and connectivity needs
 - 3.9.1.2 Government investments in digital infrastructure
 - 3.9.1.3 Rise in smart city and IoT applications

- 3.9.1.4 Rapid 5G network deployment
- 3.9.2 Industry pitfalls & challenges
 - 3.9.2.1 Complex integration with existing telecom infrastructure
 - 3.9.2.2 High infrastructure costs
- 3.10 Growth potential analysis
- 3.11 Porter's analysis
- 3.12 PESTEL analysis

CHAPTER 4 COMPETITIVE LANDSCAPE, 2024

- 4.1 Introduction
- 4.2 Company market share analysis
- 4.3 Competitive positioning matrix
- 4.4 Strategic outlook matrix

CHAPTER 5 MARKET ESTIMATES & FORECAST, BY COMPONENT, 2021 - 2034 (\$BN)

- 5.1 Key trends
- 5.2 Antennas & transceivers
- 5.3 Communication equipment
- 5.4 Processing units
- 5.5 Frequency sources
- 5.6 Others

CHAPTER 6 MARKET ESTIMATES & FORECAST, BY FREQUENCY, 2021 - 2034 (\$BN)

- 6.1 Key trends
- 6.2 Below 60 GHz
- 6.3 60-100 GHz
- 6.4 Above 100 GHz

CHAPTER 7 MARKET ESTIMATES & FORECAST, BY LICENSING MODEL, 2021 - 2034 (\$BN)

- 7.1 Key trends
- 7.2 Fully/partly licensed
- 7.3 Unlicensed

CHAPTER 8 MARKET ESTIMATES & FORECAST, BY END USE, 2021 - 2034 (\$BN)

- 8.1 Key trends
- 8.2 Telecom providers
- 8.3 Government and defense
- 8.4 Enterprises
- 8.5 Others

CHAPTER 9 MARKET ESTIMATES & FORECAST, BY REGION, 2021 - 2034 (\$BN)

- 9.1 North America
 - 9.1.1 U.S.
 - 9.1.2 Canada
- 9.2 Europe
 - 9.2.1 UK
 - 9.2.2 Germany
 - 9.2.3 France
 - 9.2.4 Italy
 - 9.2.5 Spain
 - 9.2.6 Russia
 - 9.2.7 Nordics
- 9.3 Asia Pacific
 - 9.3.1 China
 - 9.3.2 India
 - 9.3.3 Japan
 - 9.3.4 Australia
 - 9.3.5 South Korea
 - 9.3.6 Southeast Asia
- 9.4 Latin America
 - 9.4.1 Brazil
 - 9.4.2 Mexico
 - 9.4.3 Argentina
- 9.5 MEA
 - 9.5.1 UAE
 - 9.5.2 South Africa
 - 9.5.3 Saudi Arabia

CHAPTER 10 COMPANY PROFILES

- 10.1 Analog Devices
- 10.2 Anokiwave
- 10.3 AT&T
- 10.4 Broadcom
- 10.5 Ciena
- 10.6 Ericsson
- 10.7 Huawei
- 10.8 Keysight
- 10.9 L3Harris
- 10.10 MediaTek
- 10.11 Millimeter Wave Products
- 10.12 NEC
- 10.13 Nokia
- 10.14 Qorvo
- 10.15 Qualcomm
- 10.16 Samsung
- 10.17 Siklu Communication
- 10.18 Skyworks
- 10.19 Verizon
- 10.20 ZTE

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