

Global LCP Millimeter-Wave Antenna Module Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global LCP Millimeter-Wave Antenna Module market size was valued at US\$ 1005 million in 2025 and is forecast to a readjusted size of US\$ 1528 million by 2032 with a CAGR of 6.2% during review period.

LCP millimeter-wave antenna modules (LCP antennas) use liquid crystal polymer (LCP) thin films/copper-clad laminates as the dielectric and carrier to integrate millimeter-wave array antennas, feed lines, and RF interconnects onto a flexible or semi-flexible structure. They are then integrated with phased array/transceiver chip packages (such as AiP), offering advantages such as low dielectric loss, low moisture absorption, and dimensional stability. They are suitable for 5G/6G millimeter-wave terminals and small base stations.

In 2025, the global unit price of LCP millimeter-wave antenna modules was \$15 per unit, with sales of 65.1 million units and a global annual production capacity of approximately 68 million units. The industry profit margin was 20-25%.

Global Market Regional Landscape

North America: Driven by the communication chip ecosystem, operator pilots, and high-end terminals, emphasis is placed on array performance, beam consistency, and regulatory certification efficiency.

Europe: Prominent in automotive millimeter-wave radar, industrial interconnection, and high-reliability scenarios, with a focus on temperature resistance, lifespan, and supply

stability. Asia Pacific: Fastest growth, with China, Japan, and South Korea forming a dense industrial chain in materials, FCCL, module manufacturing, and terminal assembly; the focus of competition is "performance and yield at controllable costs." Emerging Markets: Millimeter-wave deployment is more cautious, but CPE/fixed wireless and private industry networks are driving structural opportunities.

Upstream and Downstream Industrial Chain

Key upstream elements include: LCP resin and film, copper foil and LCP-FCCL, low-loss adhesives/cover films, precision etching and electroplating chemicals, micro-hole/laser processing and testing fixtures, and RoHS/REACH and high-frequency material compliance verification systems. Typical downstream customers include: mobile phone and XR terminal brands, CPE/router and small cell manufacturers, automotive millimeter-wave radar and smart cockpit supply chains, industrial gateway and private network equipment manufacturers; as well as antenna module manufacturers, RF front-end and system integrators.

Real Procurement Logic

In the procurement process, the most common customer questions are not "Can it be done?", but rather: array performance is not up to par; temperature and humidity drift occurs; assembly tolerances lead to poor consistency; batch yield fluctuates, rework costs are high; short windows for new models and slow prototyping iterations. Therefore, the evaluation focus shifts to: material batch stability, process windows (lamination/drilling/copper plating/solder resist), closed-loop capabilities from simulation to prototype to mass production, and cross-team collaboration (antenna/structure/thermal/packaging/certification). Suppliers who can provide integrated services of "design rules + process package + rapid prototyping + mass production ramp-up" are more likely to be included in the long-term procurement list.

Technology Trends and Innovations

Lower Loss and Thinner Stacking: Materials and structures continue to be lightweight, targeting higher frequency bands and more compact spaces; Array and Packaging Synergy: Moving from "antenna manufacturing followed by assembly" to integrated design with AiP/packaging/heat dissipation; Automation and Testability: Online testing, calibration, and conformance management become key to scaling, with manufacturing evolving from "process experience" to "data-driven."

Policy and Compliance

Millimeter-wave terminals and base stations involve spectrum licensing and radio regulations (such as FCC/CE), 3GPP conformance, and EMC/RF exposure assessments; materials and manufacturing must meet RoHS/REACH, reliability, and traceability requirements. In more mature markets, "compliance and certification efficiency" are increasingly considered a supplier's core strength.

Future Outlook

As the vision of 6G, AI terminals, and automotive intelligence push connectivity towards higher frequencies, lower latency, and higher reliability, LCP millimeter-wave antenna modules will move from a supporting role to the forefront: they are not only a determining factor in performance limits but also a new tool for differentiation in complete systems, and the most challenging aspect of supply chain competition in terms of system capabilities. Whoever can integrate materials, design, manufacturing, testing, and compliance is more likely to gain definite incremental growth in the next wave of high-frequency trends.

This report is a detailed and comprehensive analysis for global LCP Millimeter-Wave Antenna Module market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global LCP Millimeter-Wave Antenna Module market size and forecasts, in consumption value (\$ Million), sales quantity (K Units), and average selling prices (US\$/Unit), 2021-2032

Global LCP Millimeter-Wave Antenna Module market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (K Units), and average selling prices (US\$/Unit), 2021-2032

Global LCP Millimeter-Wave Antenna Module market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (K Units), and average

selling prices (US\$/Unit), 2021-2032

Global LCP Millimeter-Wave Antenna Module market shares of main players, shipments in revenue (\$ Million), sales quantity (K Units), and ASP (US\$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for LCP Millimeter-Wave Antenna Module

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global LCP Millimeter-Wave Antenna Module market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Murata, Sunway, Luxshare Precision, Qualcomm, Fujikura, WNC?Wistron NeWeb?, Auden Techno, USI?Universal Scientific Industrial?, Amkor Technology, ASE Technology, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

LCP Millimeter-Wave Antenna Module market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Passive Array

Phase Array

Market segment by Antenna Array

1?N

2?N

4?N

Market segment by Frequency Bands

24–29 GHz

37–43 GHz

57–71 GHz

Market segment by Application

Smartphones

Cars

Others

Major players covered

Murata

Sunway

Luxshare Precision

Qualcomm

Fujikura

WNC?Wistron NeWeb?

Auden Techno

USI?Universal Scientific Industrial?

Amkor Technology

ASE Technology

TSMC

Panasonic

Taiflex

Zhen Ding Tech. Group

Avary

Market segment by region, regional analysis covers
North America (United States, Canada, and Mexico)
Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)
Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)
South America (Brazil, Argentina, Colombia, and Rest of South America)
Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe LCP Millimeter-Wave Antenna Module product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of LCP Millimeter-Wave Antenna Module, with price, sales quantity, revenue, and global market share of LCP Millimeter-Wave Antenna Module from 2021 to 2026.

Chapter 3, the LCP Millimeter-Wave Antenna Module competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the LCP Millimeter-Wave Antenna Module breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and LCP Millimeter-Wave Antenna Module market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of LCP Millimeter-Wave Antenna Module.

Chapter 14 and 15, to describe LCP Millimeter-Wave Antenna Module sales channel, distributors, customers, research findings and conclusion.

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