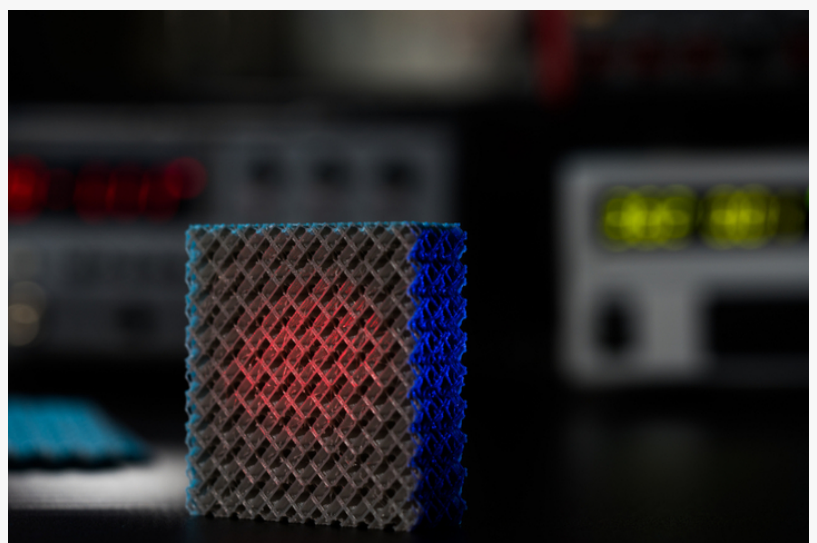


# Metamaterial Medium Market Expected To Witness a Sustainable Growth

*There is an increase in demand for metamaterial medium, especially in optics industry as an alternative of its conventional counterparts.*

WILMINGTON, DELAWARE, UNITED STATES, April 30, 2024

/EINPresswire.com/ -- The global [metamaterial medium market](#) is forecasted to reach \$1,387 million by 2022, with a notable compound annual growth rate (CAGR) of 39.7% from 2016 to 2022, according to a recent report from Allied Market Research. In 2015, North America dominated the market, accounting for over half of its share. Antennas led the market segment in 2015, while frequency selective surfaces are expected to experience the fastest growth during the analysis period.



Metamaterial Medium Market Growth

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Antenna is the largest application of metamaterial medium globally, due to its miniaturizing property for antenna modules and ability for tracking satellites across the globe."

*David Correa*

Metamaterial medium refers to a composite material with a designed, three-dimensional, and periodic cellular structure, intended to exhibit optimized combinations of multiple responses to specific stimuli, typically not naturally occurring. It possesses exceptional physical properties such as negative permeability and permittivity, often resembling an artificial medium with a negative refractive index. The most effective metamaterial mediums demonstrate zero permeability and permittivity, making

them suitable for manufacturing antennas to achieve high directivity. They offer super-resolution in the far-field, negative refraction of wavelengths, and enhanced spontaneous emission. Negative index metamaterial mediums, in particular, are efficient due to their structured macroscopic arrangement, synthesized from the bottom up, resulting in emergent properties

beyond their constituent components.

The demand for metamaterial medium is increasing, particularly in the optics industry, as an alternative to traditional materials. Furthermore, rising capital investments from both public and private sectors, coupled with a growing demand for materials with unique physical properties, are propelling overall market growth. However, insufficient research despite significant R&D investments and high initial manufacturing costs hinder market expansion.

Telecommunications represent the largest end-user sector for metamaterial medium globally, leveraging its capability to modify electromagnetic spectrum performance, unlocking capabilities not previously attainable in nature. The telecommunications market is expected to register a CAGR of 25.2% during 2016-2022.

Antennas are the largest application of metamaterial medium globally, owing to their property of miniaturization and ability to track satellites worldwide without physical repositioning.

Key findings from the market study include:

- Europe is projected to be the fastest-growing segment during the forecast period, with a CAGR of 45.7% from 2016 to 2022.
- As of 2015, only the antenna segment had commercialized products.
- Sensing is expected to be the fastest-growing segment once commercialization of products begins.
- Telecommunications are anticipated to lead the market, accounting for half of the market share by 2022.
- The antenna market is expected to grow at a CAGR of 17.7% during 2016-2022.
- The optics segment is expected to grow at the fastest rate during the analysis period.

In terms of market share, Asia-Pacific is expected to maintain its lead, growing at a CAGR of 43.3% during the forecast period, along with Europe. These regions collectively accounted for more than two-fifths of the global metamaterial medium market in 2014, a trend expected to persist due to the presence of key players and raw material suppliers, as well as increasing government efforts to enhance the sensing and telecommunications industry.

Major companies profiled in the report include Kymeta Corporation, Metamaterial Technologies Inc., Metamagnetics Inc., Jem Engineering LLC, Fractal Antenna Systems Inc., Applied EM Inc., Nanosonic Inc., Alps Electric Co. Ltd., Teraview Ltd., and Plasmonics Inc.

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David Correa  
Allied Market Research  
+1 503-894-6022

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