

South & Central America Terahertz Technology Market Size and Forecast (2021-2031), Regional Share, Trend, and Growth Opportunity Analysis Report Coverage: By Component (Terahertz Detectors and Terahertz Sources), Type (Terahertz Imaging Systems, Terahertz Spectroscopy Systems, and Terahertz Communication Systems), and Application (Industrial, Medical and Healthcare, Defense and Security, Semiconductor, Food and Agriculture, and Other Applications)

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Abstracts

The terahertz technology market in South and Central America is poised for significant growth, with projections indicating that it will reach approximately US\$ 56.44 million by 2031, up from US\$ 19.83 million in 2024. This growth trajectory reflects a compound annual growth rate (CAGR) of 16.2% from 2025 to 2031, driven by increasing applications across various sectors such as healthcare, security, and astronomy.

Executive Summary and Market Analysis

The adoption of terahertz technology in South and Central America is on the rise, with a notable increase in its applications in medical imaging, non-destructive testing, and research. Currently, the demand for this technology is moderate, but its potential is vast, particularly in the realm of diagnostics and cancer detection. A significant development in this field is Brazil's Solar-T, an advanced device designed to measure solar flares using terahertz technology. Additionally, the sun-THz photometric telescope was scheduled for launch to the International Space Station (ISS) in 2022, aimed at providing consistent and precise measurements of solar activity. This initiative

underscores the region's commitment to advancing terahertz applications, especially in space research and astronomy, thereby enhancing its role in global scientific progress.

Strategic Insights

Market Segmentation Analysis

The South and Central America terahertz technology market can be segmented based on components, types, and applications:

By Component: The market is divided into terahertz detectors and terahertz sources. In 2024, the terahertz detectors segment held a larger market share, indicating a strong demand for detection technologies.

By Type: The market is categorized into terahertz imaging systems, terahertz spectroscopy systems, and terahertz communication systems. The terahertz imaging systems segment was the largest in 2024, reflecting its critical role in various applications.

By Application: The applications of terahertz technology include industrial, medical and healthcare, defense and security, semiconductor, food and agriculture, among others. The industrial segment dominated the market in 2024, showcasing the technology's utility in industrial processes.

Market Report Scope

The terahertz technology market is particularly relevant in contexts where traditional ionizing radiation methods, such as X-rays, pose risks to biological agents. Terahertz imaging technology offers a safer alternative, especially in the food industry. For instance, food manufacturers can utilize terahertz scanners to ensure that products are correctly packaged without the need for X-ray machines. These scanners can effectively see through various packaging materials, including cardboard and polyethylene, allowing for the detection of foreign objects like insects or contaminants without compromising food safety.

TeraSense Group's THz imaging systems exemplify this capability, as they can identify common pests through multiple layers of packaging, even when the total thickness

exceeds 20 mm. Furthermore, these systems can detect harmful mycotoxin fungi in agricultural products, which is crucial for food safety and public health. The increasing application of terahertz technology in the food sector is expected to drive substantial growth in the market during the forecast period.

Country Insights

The terahertz technology market in South and Central America is primarily represented by Brazil, Argentina, and other countries in the region, with Brazil holding the largest market share in 2024. The development of 5G technology in Brazil is a significant factor contributing to the demand for terahertz technology. As telecom companies invest in upgrading their infrastructure, the need for higher bandwidth is becoming increasingly apparent. In May 2023, Brazil's Ministry of Science, Technology, and Innovation (MCTI) announced the establishment of three Embrapii Competence Centers focused on frontier technologies, including 5G and 6G. This initiative, backed by a commitment of US\$ 31.4 million, aims to foster research and innovation in emerging technologies, positioning Brazil to leverage the benefits of terahertz technology.

The transition from 5G, which operates at gigahertz frequencies, to 6G, which is expected to utilize terahertz frequencies, indicates a significant shift in telecommunications that will further enhance the terahertz technology market in Brazil.

Company Profiles

Key players in the South and Central America terahertz technology market include NTT Electric Co., Advantest Corporation, H?BNER GmbH & Co KG, Luna Innovations Inc., Menlo Systems GmbH, Microtech Instrument Inc., Terasense Group Inc., Teraview Limited, and Toptica Photonics AG. These companies are actively pursuing strategies such as expansion, product innovation, and mergers and acquisitions to enhance their market presence and deliver cutting-edge products to consumers.

In conclusion, the South and Central America terahertz technology market is set for robust growth, driven by advancements in various sectors and the increasing recognition of terahertz technology's potential benefits.

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