Terahertz Radiation Systems: Technologies and Global Markets

Market Research Report | 2023-06-27 | 236 pages | BCC Research

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Report description:

Description

Report Scope:

In this report, the market has been segmented based on type, application, and geography. The report provides an overview of the global THz radiation systems market and analyzes market trends. Using 2022 as the base year, the report provides estimated market data for 2023-2028. Market values have been estimated based on the triangulation method using parameters such as total revenue of THz radiation systems providers, primary interview results, and secondary white paper information.

The report covers the market for THz radiation systems with regard to the end-user base across different regions. It also highlights major trends and challenges that affect the market and the vendor landscape. The report estimates the global market for THz radiation systems in 2022 and provides projections for the expected market size through 2028.

Report Includes:

- 55 tables and 80 additional tables
- Detailed overview and an up-to-date analysis of the global markets for terahertz (THz) radiation systems and related technologies
- Analyses of the global market trends, with market revenue data (sales figures) for 2022, estimates for 2023, forecasts for 2024 and 2026, and projections of compound annual growth rates (CAGRs) through 2028
- Discussion of the major growth drivers, industry-specific challenges, regulatory aspects, and technology advancements that will shape the market for terahertz radiation systems as a basis for projecting demand in the next few years (2023-2028)
- Estimation of the actual market size and revenue forecast for global THz radiation systems market, and corresponding market share analysis based on the type of technology, application, and region

- Assessment of the technological process that has been made toward bridging the terahertz gap and assessing the commercial potential of THz radiation devices over the analysis period
- Characterization and quantification of the market potential for each short-listed THz technology, by application, and identifying the main prerequisites (that are still under development) for commercial success
- Identification of THz applications that are most likely to achieve significant commercial sales by 2028
- Review of key patent grants on terahertz radiation systems and related technologies by each major category, and new and emerging developments in the global market
- Descriptive company profiles of the leading global players of the industry, including Advantest Corp., Bruker Corp., EMCORE Corp., Northrop Grumman Corp. and Thruvision Ltd.

Executive Summary

Summary:

BCC Research examines the way in which the THz radiation systems market is changing and how it has evolved. This analysis includes a detailed survey of new organizations in the market as well as existing organizations. At the industry level, BCC Research identifies, examines, describes, and provides global and regional market sizes for 2022 and forecasts demand from 2023 through 2028.

Terahertz (THz) radiation is a class of electromagnetic waves with frequencies between 0.3 and 3 THz, although some sources place the upper limit at 30 THz. THz radiation is also known as submillimeter radiation, THz waves, tremendously high frequency (THF), T-rays, T-waves, T-light, or simply THz. One THz is equivalent to 1,000 GHz or 1,012 Hz. The wavelengths of radiation in the THz range are 1 mm to 0.1 mm = 100 microns. THz technology is a young and developing field that has experienced significant scientific advancements and has the potential to develop applications ranging from airport passenger scanning to huge digital data transfers.

THz radiation devices for biomedical spectroscopy and imaging can produce and detect electromagnetic waves in pulsed or continuous wave (CW) forms. Numerous opportunities are presented by advancements in THz device technology, including the creation of THz pulse for spectroscopy applications using a NIR laser, submicron scale lithography, low loss waveguide circuits, and silicon micromachining, which is used for compact and integrated packing.

THz devices and systems can speed up the development of in vitro diagnostic medical devices (IVDs), which enable quick disease detection from sample specimens like body fluid, blood, or breath and are capable of quickly differentiating minute amounts of specimen, such as proteins, nucleic acids, or different metabolites, at the molecular level. THz radiation equipment is also widely utilized for imaging cancer tissues, since early cancer detection increases survival rates and lowers the dangers associated with difficult surgery combined with more advanced-stage cancer treatments.

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