



Article published on May 25th 2012 | [Business](#)

REPORT HIGHLIGHTS

BCC estimates the market for terahertz (THz) radiation devices totaled \$83.7 million in 2011. This market will grow to \$127 million in 2016. The diversification of the THz market is expected to accelerate after 2016, and the total market should reach \$570 million by 2021, a compounded annual growth rate (CAGR) of 35% from 2016 to 2021.

THz imaging devices (including the ALMA telescope) is the largest device segment throughout the period under review. It is expected to be nearly \$76 million by 2016 and will further reach \$248.3 million by the end of 2021, a CAGR of 26.8%.

Astronomy research is currently the largest single application of THz systems. It is estimated to be \$70 million in 2011, but this market is expected to fall to \$35 million by 2016 and will remain the same until 2021.

REPORT SCOPE

INTRODUCTION

STUDY BACKGROUND

Over the last hundred years or so, physicists and engineers have progressively learned to exploit new areas of the electromagnetic spectrum. Starting with visible light, they have developed technologies for generating and detecting radiation at both higher and lower frequencies.

Sandwiched between the optical on the short wavelength side and radio on the long wavelength extreme, the terahertz (THz) frequency range (also called the far infrared or submillimeter-wave region) has been the least explored and developed portion of the electromagnetic spectrum. The potential usefulness of THz radiation, with its ability to penetrate a wide range of nonconducting materials, has been known for a long time. The first images generated using THz radiation date from as far back as the 1960s. <http://www.bharatbook.com/market-research-reports/consumer-electronics-market-research-report/terahertz-radiation-systems-technologies-and-global-markets.html>

However, practical applications of THz radiation have been longer in coming, due to the so-called "terahertz gap." The terahertz gap refers to the technologies needed to generate, channel and detect THz radiation subject to real-world constraints such as size, cost and operating temperatures. Recent developments in THz radiation sources, detectors and waveguides have started to close the terahertz gap, opening up a range of potential applications in transportation security, medical imaging, nondestructive testing and other fields. Industry Analysis

STUDY GOALS AND OBJECTIVES

This report is an update of an earlier BCC Research report, published in 2008. The overall goals of this report include assessing the technological process that has been made toward bridging the terahertz gap and assessing the commercial potential of THz radiation devices over the next five to 10 years. Specific objectives include:

Identifying the THz applications that are most likely to achieve significant commercial sales by 2021.

Assessing any remaining barriers to their commercialization, and develop quantitative estimates of potential sales.

Analyzing promising THz applications in the context of user needs and competing technologies.

Developing quantitative market projections through 2021.

Identifying companies that are well positioned to profit from these trends.

INTENDED AUDIENCE

This report is intended especially for marketing executives, entrepreneurs, investors, venture capitalists and other readers with a need to know where the emerging market for THz radiation devices is headed over the next 10 years. Although the report is organized around specific technologies, it is largely nontechnical in nature and coverage. That is, it is concerned less with theory and jargon than with what works, how much of the latter the market is likely to purchase and at what price.

The report has not been written specifically for scientists and technologists. However, the report's findings concerning the market for their work, including the availability of government and corporate research funding for different technologies and applications, should interest them as well.

SCOPE AND FORMAT

The report addresses the emerging global market for THz radiation devices, including the classes of devices listed below.

Imaging devices.

Spectroscopes.

Other sensors.

Communications devices.

Computing devices.

The study format includes the following major elements:

Executive summary.

Definitions.

General properties of THz radiation.

Historical milestones in the development of THz radiation devices.

Emerging and developmental THz radiation technologies and applications that have the greatest commercial potential through 2016.

Detailed market estimates and projections for each technology and application during the period 2010 to 2016.

General assessment of expected market trends in the longer term (2016 to 2021).

Industry structure.

Patent analysis.

INFORMATION SOURCES AND METHODOLOGY

Projecting the market for emerging technologies, whose commercial potential has not yet been proven, is a challenging task. This is nowhere truer than the THz radiation field, which may help to explain why many analysts focus on supply-side technology assessments.

However, BCC's objective in this report is to provide not just a technology assessment but also an initial commercial assessment of the potential commercial market for THz devices. To accomplish this objective, BCC used a multiphase approach to identify the technologies with the greatest commercial potential and quantify the related markets.

In the first phase of the analysis, BCC identified a long list of THz technologies and applications, including those that are still under development. In the second phase, BCC eliminated those applications that appear to have little likelihood of making it into commercial use in the next five to 10 years, through a literature review and interviews with industry sources. The result of phase two was a short list of THz technologies with the greatest commercial potential over the time period covered by this report.

The third phase focused on quantifying the potential market for each short-listed THz technology, by application, and identifying the main prerequisites for commercial success. Phase three actually had two phases: 1) development of near- to midterm (2011 to 2016) projections and 2) development of longer-term (2016 to 2021) projections.

The development of such long-term projections is a departure from the usual BCC report format, necessitated by the long time frame for commercialization of many of the technologies analyzed in this report. Obviously, the projections for the out-years beyond 2016 are more tentative than the projections for 2011 to 2016.

The specific assumptions and approach BCC used to develop the projections (both near/midterm and long term) for each THz technology and application are documented in detail under the various segments addressed. This way, readers can see how the market estimates were developed and, if they so desire, test the impact on the final numbers of changing the underlying assumptions.

One of the approaches used by BCC deserves special mention here. Particularly in the case of THz applications that are still under development, BCC used the sales performance of non-THz application that share some of the same functions or other characteristics with the respective THz applications as a benchmark for assessing the latter's sales potential.

For more information kindly visit :

Terahertz Radiation Systems: Technologies and Global Markets

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Article Keywords:

Consumer Electronics, Terahertz Radiation, Technologies, Global, Market Research Reports

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