Terahertz Technology Market by Type (Terahertz Imaging, Terahertz Spectroscopy, and Terahertz Communication Systems), Technology (Terahertz Source and Terahertz Detector), Application & Region - Analysis & Forecast to 2022

Description: “Increase in demand for terahertz technology-based products in the defense & homeland security and medical sectors and high adoption rate of these products for laboratory research applications are driving the growth of the global terahertz technology market”
The global terahertz technology market is expected to reach USD 489.8 million by 2022, growing at a CAGR of 31.83% between 2016 and 2022. The main drivers of the growth of this market include the increasing adoption of terahertz technology-based products for laboratory research applications in various universities & research firms globally and the growing demand for these products in various cancer treatment institutes & hospitals worldwide for more informative results.

“APAC is a major market for terahertz technology”
The commercialization of the applications of terahertz technology is in its introductory stages in the developing economies of APAC. However, countries such as China, India, and Japan are increasingly taking initiatives, such as heavy investments in R&D, to encourage the adoption of terahertz technology, which is expected to boost the demand for terahertz technology-based products in the region in the near future.

“The market for laboratory research applications is estimated to grow at the highest CAGR during the forecast period”
The market for laboratory research applications is expected to grow at the highest CAGR between 2016 and 2022; it held the largest share of the overall terahertz technology market in 2015. The continuous developments in the technology due to focused research carried out in various universities worldwide create more opportunities for the adoption of terahertz technology for various new applications such as food quality inspection. However, for such researches, there is a need for more precise products. This requirement proves to be the key driving factor for the growth of the market for laboratory research applications.

Breakdown of profile of primary participants:
- By Designation: C-Level - 10%, Director Level - 40%, and Others - 50%
- By Region: North America - 60%, Europe - 25%, APAC - 10%, and RoW - 5%
The increase in demand for terahertz technology-based products for processing applications in the food industry provides a huge opportunity for the terahertz technology market to grow. The use of THz technology facilitates the users with larger bandwidth and therefore higher transmission rate as compared to microwave communications, without any need to switch to a different set of hardware such as lasers for optical communications. Due to this property, the terahertz technology-based products can be used in satellite communication applications as well.

The terahertz technology market is dominated by players such as Advantest Corporation (Japan), TeraView (U.K.), Menlo Systems GmbH (Germany), Acal Plc (U.K.), and Microtech Instrument Inc. (U.S.) among others

Reasons to buy the report:
- This report includes the market statistics pertaining to type, application, and region along with their respective market size.
- The Porter's five forces framework has been utilized along with the value chain analysis to provide an in-depth insight into the global terahertz technology market.
- Major drivers, restraints, challenges, and opportunities for the terahertz technology market have been detailed in this report.
- Illustrative segmentation, analysis, and forecast for markets based on type, application, and region have been conducted to give an overall view of the global terahertz technology market.

Contents:
1 Introduction
1.1 Objectives of the Study
1.2 Market Definition
1.3 Study Scope
1.3.1 Markets Covered
1.3.2 Years Considered for the Study
1.4 Currency
1.5 Stakeholders

2 Research Methodology
2.1 Research Data
2.1.1 Secondary Data
2.1.1.1 Key Data From Secondary Sources
2.1.2 Primary Data
2.1.2.1 Key Data From Primary Sources
2.1.2.2 Breakdown of Primaries
2.2 Market Size Estimation
2.2.1 Bottom-Up Approach
2.2.2 Top-Down Approach
2.3 Market Breakdown & Data Triangulation
2.4 Research Assumptions and Limitations
2.4.1 Assumptions
2.4.2 Limitations

3 Executive Summary

4 Premium Insights - Terahertz Technology Market (Page No. - 30)
4.1 Terahertz Technology Market, 2016-2022 (USD Million)
4.2 Market in APAC to Exhibit Significant Growth During the Forecast Period
4.4 Market, By Type
4.5 Terahertz Communication Market, By Application

5 Market Overview
5.1 Introduction
5.2 Market Segmentation
5.2.1 Terahertz Technology Market, By Type
5.2.2 Market, By Application
5.2.3 Market: By Technology
5.2.4 Market, By Geography
5.3 Market Dynamics
5.3.1 Drivers
5.3.1.1 Increase in Demand From the Defense, Homeland Security, and Medical Sectors
5.3.1.2 Increase in the Usage of Terahertz Systems in Laboratory Research
5.3.2 Restraints
5.3.2.1 Slow Adoption Rate of Terahertz Technology Due to the Lack of Awareness
5.3.2.2 High Cost of R&D
5.3.3 Opportunities
5.3.3.1 Processing Applications of Terahertz Technology in the Food Industry
5.3.3.2 Use of Terahertz Technology for Satellite Communication and Computing
5.3.4 Challenges
5.3.4.1 Development of Efficient Terahertz Sources and Detectors for Accuracy and Reliability of Products

6 Industry Trends
6.1 Introduction
6.2 Value Chain Analysis
6.3 Porter's Five Forces Analysis
6.3.1 Threat of New Entrants
6.3.2 Threat of Substitutes
6.3.3 Bargaining Power of Buyers
6.3.4 Bargaining Power of Suppliers
6.3.5 Degree of Competition

7 Terahertz Technology Market, By Type
7.1 Introduction
7.2 Terahertz Imaging
7.2.1 Active Terahertz Imaging Systems
7.2.2 Passive Terahertz Imaging Systems
7.3 Terahertz Spectroscopy
7.3.1 Terahertz Time Domain Spectroscopy
7.3.2 Terahertz Frequency Domain Spectroscopy
7.4 Terahertz Communication Systems
7.4.1 Antennas
7.4.2 Emitters
7.4.3 Modulators

8 Terahertz Technology Market, By Application
8.1 Introduction
8.2 Terahertz Imaging & Spectroscopy Applications
8.2.1 Laboratory Research
8.2.1.1 Material Characterization
8.2.1.2 Biochemistry
8.2.1.3 Plasma Diagnostics
8.2.2 Medical & Healthcare
8.2.2.1 Oncology
8.2.2.2 Dentistry
8.2.2.3 Dermatology
8.2.2.4 Tomography
8.2.3 Military and Homeland Security
8.2.3.1 Passenger Screening
8.2.3.2 Landmine and Improvised Explosive Device Detection
8.2.4 Industrial Non-Destructive Testing (NDT)
8.2.4.1 Aerospace
8.2.4.2 Semiconductor and Electronics
8.2.4.3 Pharmaceutical
8.3 Terahertz Communication Systems Applications
8.3.1 Satellite Communication
8.3.2 Tactical/Military Communication
8.3.3 Outdoor/Indoor Wireless Communication

9 Terahertz Technology: Sources and Detectors
9.1 Introduction
9.2 Thz Source
9.2.1 Quantum-Cascade Laser (QCL)
9.2.2 Frequency Multiplier
9.2.3 Globar
9.2.4 Photoconductive Antenna (PCA)
9.2.5 Stimulated Terahertz Amplified Radiation (STAR)
9.3 Detector
9.3.1 Schottky Diode
9.3.2 High Electron Mobility Transistor (HEMT)
9.3.3 Nanowire
9.3.4 Pyroelectric Detector
9.3.5 Golay Cell
9.3.6 Bolometer and Superconductive Hot-Spot Air-Bridge Bolometer (SHAB)

10 Terahertz Technology Market, By Region
10.1 Introduction
10.2 North America
10.2.1 U.S.
10.2.2 Canada
10.2.3 Mexico
10.3 Europe
10.3.1 U.K.
10.3.2 Germany
10.3.3 France
10.3.4 Italy
10.3.5 Spain
10.3.6 Rest of Europe
10.4 APAC
10.4.1 China
10.4.2 Japan  
10.4.3 India  
10.4.4 South Korea  
10.4.5 Rest of APAC  
10.5 RoW  
10.5.1 South America  
10.5.2 Middle East and Africa  

11 Competitive Landscape  
11.1 Overview  
11.3 Competitive Situation and Trends  
11.3.1 New Product Launches  
11.3.2 Partnerships & Collaborations  
11.3.3 Contracts & Agreements  
11.3.4 Mergers & Acquisitions  
11.3.5 Expansions  

12 Company Profiles  
(Overview, Products and Services, Financials, Strategy & Development)*  
12.1 Introduction  
12.2 Advantest Corporation  
12.3 Teraview  
12.4 Menlo Systems GmbH  
12.5 ACAL PLC  
12.6 Microtech Instrument Inc.  
12.7 Digital Barriers PLC  
12.8 Traycer  
12.9 QMC Instruments Ltd.  
12.10 Gentec Electro-Optics  
12.11 Del Mar Photonics, Inc.  
12.12 Terasense  
12.13 Toptica Photonics AG  
12.14 Insight Product Co.  
12.15 Advanced Photonix, Inc.  

*Details on Overview, Products and Services, Financials, Strategy & Development Might Not Be Captured in Case of Unlisted Companies.  

13 Appendix  
13.1 Discussion Guide  
13.2 Knowledge Store: Marketsandmarkets’ Subscription Portal  
13.3 Introducing RT: Real-Time Market Intelligence  
13.4 Available Customizations  
13.5 Related Reports  

List of Tables  
Table 1 Increased Demand From Defense, Homeland Security, and Medical Sectors Contributing to the Growth of the Terahertz Technology Market  
Table 2 Slow Adoption Rate of Terahertz Technology Due to the Lack of Awareness  
Table 3 Use of Terahertz Technology for Satellite Communication and Computing  
Table 4 Development of Efficient Terahertz Sources and Detectors for Accuracy and Reliability of Products  
Table 5 Terahertz Technology Market Size, By Type, 2014-2022 (USD Million)  
Table 6 Market for Imaging and Spectroscopy, By Application, 2014-2022 (USD Million)  
Table 7 Market for Communication, By Application, 2014-2022 (USD Million)  
Table 8 Market for Imaging and Spectroscopy, By Application, 2014-2022 (USD Thousand)  
Table 9 Market for Laboratory Research, By Region, 2014-2022 (USD Thousand)  
Table 10 Market for Laboratory Research in North America, By Country, 2014-2022 (USD Thousand)  
Table 11 Terahertz Technology Market for Laboratory Research in Europe, By Country, 2014-2022 (USD Thousand)
### List of Figures

**Figure 1** Terahertz Technology: Markets Covered  
**Figure 2** Years Considered for the Study  
**Figure 3** Research Design: Terahertz Technology Market  
**Figure 4** Market Size Estimation Methodology: Bottom-Up Approach  
**Figure 5** Market Size Estimation Methodology: Top-Down Approach  
**Figure 6** Data Triangulation  
**Figure 7** Limitations of the Research Study  
**Figure 8** Terahertz Communication to Exhibit the Highest Growth Rate During the Forecast Period  
**Figure 9** Laboratory Research Applications to Grow at the Highest CAGR During the Forecasted Period  
**Figure 10** North America Expected to Hold the Largest Share of the Terahertz Technology Market in 2016  
**Figure 11** Attractive Market Opportunities for the Market  
**Figure 12** U.S. to Account for the Major Share of the Terahertz Technology Market in 2016  
**Figure 13** Terahertz Imaging to Hold the Major Share of the Global Market in 2016  
**Figure 14** Terahertz Communication to Grow at the Highest CAGR During the Forecast Period  
**Figure 15** Satellite Communication Expected to Grow at the Highest CAGR Between 2016 and 2022  
**Figure 16** Segmentation of Market on the Basis of Geography  
**Figure 17** Increase in Demand From Various Sectors Expected to Propel Market Growth During the Forecast Period  
**Figure 18** Value Chain Analysis (2015): Major Value Added During the R&D and Manufacturing Phases  
**Figure 19** Porter's Five Forces Analysis: 2015  
**Figure 20** Porter's Five Forces: Impact Analysis  
**Figure 21** Threat of New Entrants is Expected to Have Medium Impact  
**Figure 22** Threat of Substitutes is Expected to Have High Impact  
**Figure 23** Bargaining Power of Buyers is Expected to Have Medium Impact  
**Figure 24** Bargaining Power of Suppliers is Expected to Have High Impact  
**Figure 25** Degree of Competition is Expected to Have Medium Impact  
**Figure 26** Terahertz Communication Technology Market to Grow at A Highest CAGR in the Forecast Period  
**Figure 27** Laboratory Research to Hold the Largest Share of the Market for Imaging and Spectroscopy During the Forecast Period  
**Figure 28** Terahertz Technology Market for Laboratory Research in India Expected to Grow at the Highest CAGR During the Forecast Period  
**Figure 29** Market for Medical & Healthcare Applications in North America to Hold the Largest Share During the Forecast Period, (USD Thousand)  
**Figure 30** China to Hold Largest Share of the Market for Medical & Healthcare Applications in APAC During the Forecast Period  
**Figure 31** Terahertz Technology Market for Military & Homeland Security in APAC Market Expected to Grow at the Highest CAGR During the Forecast Period
Figure 32 Market for Military & Homeland Security in India Expected to Grow at the Highest CAGR During the Forecast Period
Figure 33 North America to Hold the Largest Share of the Market During the Forecast Period
Figure 34 Market for Industrial Ndt in the Rest of Europe Expected to Grow at the Highest CAGR During the Forecast Period
Figure 35 Satellite Communication to Hold the Largest Share of the Market for Communication During the Forecast Period
Figure 36 Market for Satellite Communication in Italy Market Expected to Grow at the Highest CAGR During the Forecast Period
Figure 37 North America to Hold the Largest Share of the Market for Tactical/Military Communication During the Forecast Period
Figure 38 North America to Hold the Largest Share of the Market for Indoor/Outdoor Wireless Communication During the Forecast Period
Figure 39 State Transition of Electron in Conventional Semiconductor Lasers
Figure 40 Quantum-Cascade Electron Transition Structure
Figure 41 Working Principle of Photoconductive Antenna (Pca)
Figure 42 Golay Cell Construction
Figure 43 APAC Expected to Grow at the Highest CAGR During the Forecast Period
Figure 44 North America to Hold the Largest Share of the Market During the Forecast Period
Figure 45 North America: Terahertz Technology Market Snapshot
Figure 46 Laboratory Research to Hold the Largest Share of the Terahertz Technology Market for Imaging and Spectroscopy in North America During the Forecast Period
Figure 47 Europe: Market Snapshot
Figure 48 Market for Imaging and Spectroscopy in the U.K. for Medical & Healthcare Expected to Grow at the Highest CAGR During the Forecast Period
Figure 49 Laboratory Research to Hold the Largest Share of the Market for Imaging and Spectroscopy in Spain During the Forecast Period
Figure 50 APAC: Terahertz Technology Market Snapshot
Figure 51 Laboratory Research to Hold the Largest Share of the Market for Imaging and Spectroscopy in China During the Forecast Period
Figure 52 Market for Imaging and Spectroscopy for Medical and Healthcare Applications in India Expected to Grow at the Highest CAGR During the Forecast Period
Figure 53 Laboratory Research to Hold the Largest Share of the Market for Imaging and Spectroscopy in RoW During the Forecast Period
Figure 54 Terahertz Technology Market Players Adopted New Product Launches as A Key Strategy for Business Expansion: 2012-2016
Figure 55 Market Witnessed A Significant Growth Between 2012 and 2015
Figure 56 New Product Launches Was the Key Growth Strategy Adopted Between 2012 and 2015
Figure 57 Geographic Revenue Mix
Figure 58 Advantest Corporation: Company Snapshot
Figure 59 Advantest Corporation: SWOT Analysis
Figure 60 Teraview: SWOT Analysis
Figure 61 Menlo Systems GmbH: SWOT Analysis
Figure 62 ACAL PLC: Company Snapshot
Figure 63 ACAL PLC: SWOT Analysis
Figure 64 Microtech Instruments Inc.: SWOT Analysis
Figure 65 Digital Barriers PLC: Company Snapshot

Ordering:

Order Online - http://www.researchandmarkets.com/reports/3707163/

Order by Fax - using the form below

Order by Post - print the order form below and send to

Research and Markets,
Guinness Centre,
Taylors Lane,
Dublin 8,
Ireland.
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct and select the format(s) you require.

| Product Name: | Terahertz Technology Market by Type (Terahertz Imaging, Terahertz Spectroscopy, and Terahertz Communication Systems), Technology (Terahertz Source and Terahertz Detector), Application & Region - Analysis & Forecast to 2022 |
| Web Address: | http://www.researchandmarkets.com/reports/3707163/ |
| Office Code: | SCH3H81V |

Product Formats
Please select the product formats and quantity you require:

<table>
<thead>
<tr>
<th>Quantity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic (PDF) - Single User:</td>
<td>☐</td>
<td>USD 5650</td>
</tr>
<tr>
<td>Electronic (PDF) - 1 - 5 Users:</td>
<td>☐</td>
<td>USD 6650</td>
</tr>
<tr>
<td>Electronic (PDF) - Site License:</td>
<td>☐</td>
<td>USD 8150</td>
</tr>
<tr>
<td>Electronic (PDF) - Enterprisewide:</td>
<td>☐</td>
<td>USD 10000</td>
</tr>
</tbody>
</table>

Contact Information
Please enter all the information below in BLOCK CAPITALS

<table>
<thead>
<tr>
<th>Title:</th>
<th>Mr ☐</th>
<th>Mrs ☐</th>
<th>Dr ☐</th>
<th>Miss ☐</th>
<th>Ms ☐</th>
<th>Prof ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email Address: *</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Title:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postal / Zip Code:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fax Number:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:
Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer: Please transfer funds to:
Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank,
27-35 Main Street,
Blackrock,
Co. Dublin,
Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: ________________________________

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:
(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World