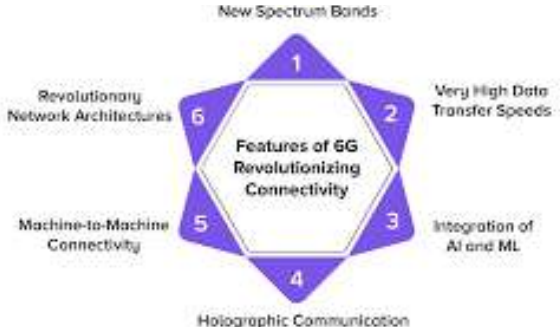
TESLA

LBS INSTITUTE OF TECHNOLOGY FOR WOMEN POOJAPURA, TRIVANDRUM
DEPARTMENT OF ELECTRONICS AND COMMUNICATION

S6, 2021 – 2025
JUNE – AUGUST EDITION

Context

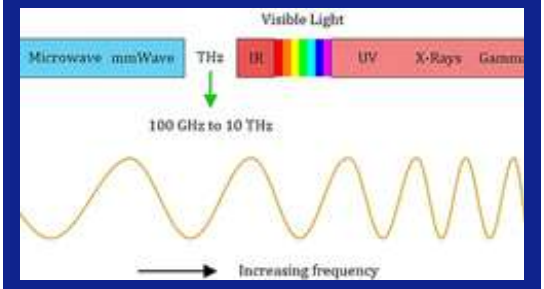


- KARTHIKA SUNIL
S6 ECE 2021 - 2025

Terahertz (THz) Technology for 6G Communications

While terahertz technologies can be rather complex, terahertz itself is simply a unit of frequency equal to 1 trillion hertz. When it comes to 6G terahertz, the terahertz band in the 6G network ranges from 0.1 to 10 THz. This THz range is a research area for future 6G communication. There are different specifications for the THz range. IEEE ITU defines this range from 0.3 up to 3 THz.

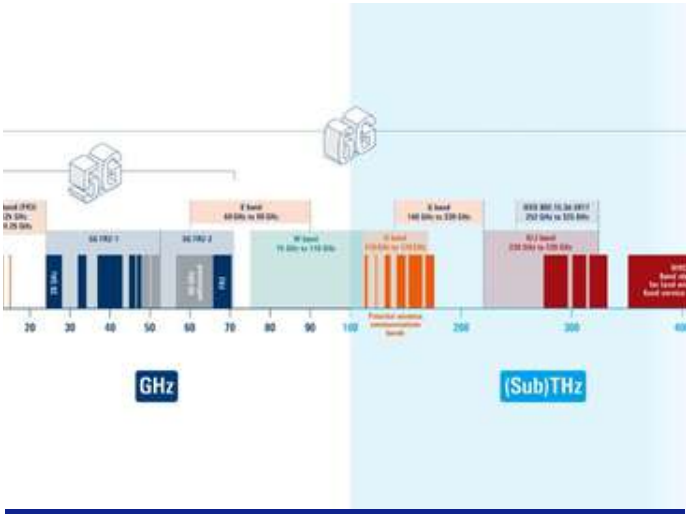
According to a new comprehensive report from The Insight Partners, In the past decade, there have been numerous breakthroughs in the development of this terahertz technology for commercialization in various applications.



What are terahertz waves?

Terahertz (THz) waves are electromagnetic waves located between microwaves and infrared light, which are used in different areas such as terahertz wireless communication.

Wavelengths are in the range of 0.03 mm to 3 mm. The THz region is a key research area for 6G because it offers broad contiguous frequency bands to meet the demand for high data transfer rates



The frequency spectrum range for 5G and future 6G applications

- **Terahertz Communication for a 6G Future**

In April 2024, NTT DOCOMO, INC.; NTT Corporation; NEC Corporation; and Fujitsu Limited together announced the development of a top-level wireless device to transmit data at ultra-high speeds of 100 Gbps in the sub-terahertz bands of 100 GHz and 300 GHz. All four companies have been jointly conducting R&D on sub-terahertz devices since 2021 in anticipation of the coming 6G era.

LBS ARCHIVES

INDUSTRIAL VISIT TO KERALA STARTUP MISSION

On August 22, 2024, the Innovation and Entrepreneurship Development Cell (IEDC) of LBS organized an enriching industrial visit to the Kerala. Startup Mission (KSUM). The visit provided students with valuable insights into the thriving startup ecosystem in Kerala, showcasing the innovative initiatives and resources available to budding entrepreneurs. At KSUM, students had the opportunity to interact with industry experts, learn about the various support systems for startups, and explore the cutting-edge technologies being developed by local startups. This visit was a great platform for aspiring entrepreneurs to gain firsthand knowledge and inspiration to pursue their own entrepreneurial journeys.

ROBOHIVE 2.0

RoboHive 2.0, Kerala's first Robowar workshop, was held on August 17th and 18th, 2024 by the robotics club, providing a hands-on learning experience for robotics enthusiasts. The event featured engaging sessions on 3D printing, where participants learned to design and create custom parts for robots. Additionally, attendees had the opportunity to build antbots, small, agile robots designed for specific tasks. A special session focused on Warbots and drones, showcasing the engineering and tactical aspects of creating robots for combat and surveillance applications. RoboHive 2.0 was an exciting platform for participants to enhance their robotics skills and explore the fascinating world of robotic warfare and drone technology.

VISION AND MISSION OF THE INSTITUTION

VISION OF THE INSTITUTE

To be a centre of academic Excellence empowering women in the technical domain.

MISSION OF THE INSTITUTE

Imparting value based technical education to young women transforming them to professionals excelling globally in academics, research and development and industry meeting social challenges

VISION OF THE DEPARTMENT

To become the centre of electronics communication and instrumentation and computer engineering to facilitate professional education and research keeping higher level of value systems

MISSION OF THE DEPARTMENT

M1:To transform young women to high quality engineers, entrepreneurs and researchers with ethical values.

M2:To contribute creative engineering solutions to industry by keeping pace with latest technological advancements

M3: To provide intellectual services to the society by application of electronics communication and instrumentation and computer engineering