

CONTINUOUS WAVE TERAHERTZ EMITTER AND DETECTOR MODULES

AT A GLANCE

- Photomixers for 1.5 μm optical wavelength
- Emitted THz power confirmed

by 



Features

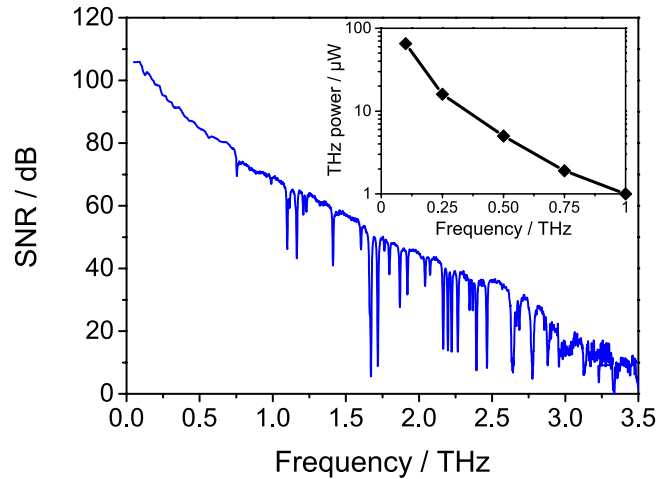
- Up to 65 μW THz power
- Photodiode based emitter
- Photoconductive receiver
- Robust housing and fiber coupling

Applications

- High-resolution terahertz spectroscopy
- Combustion analysis
- Non-destructive testing

Technical Background

The photoconductive generation of continuous wave (cw) terahertz radiation converts the beat frequency of two lasers into an electrical THz signal. The frequency resolution of cw THz systems is only limited by the line-width of the lasers. Preferred applications for continuous wave THz radiation are high resolution spectroscopy and imaging as well as precise monitoring of particular spectral lines. HHI's THz modules utilize mature telecom technology and thus allow benefiting from THz technologies within industrial applications and environments.



Performance of HHI's cw THz modules for an integration time of 300 ms and operation conditions as given in the specifications.

Specifications

- Optical wavelength 1.5 µm
- Optical power 30 mW
- Bias voltage -1.5 V
- Spectral range 0.1 - 3.5 THz
- Dynamic range > 90 dB @ 100 GHz (typ. 100 dB)
> 60 dB @ 1 THz (typ. 65 dB)
> 40 dB @ 2 THz (typ. 45 dB)
- Measuring head diameter 25 mm

The Fraunhofer HHI

One of the prime research and development foci of the Fraunhofer Heinrich Hertz Institute lies in photonic networks, components and systems and their application in fields such as digital media.

Contact

Dr. Joachim Giesekus
Photonic Components
Fraunhofer Heinrich Hertz Institute
Einsteinufer 37 | 10587 Berlin | Germany
Phone +49 30 31002-425
joachim.giesekus@hhi.fraunhofer.de