

T-SPEC: Terahertz Time-Domain Spectrometer

Product overview

If the customer is familiar with the principles of THz time-domain spectrometers and has a femto-second laser, the NLS's Terahertz Time-Domain Spectrometer, T-SPEC, is the best choice. We provide spectrometers for pulse lasers with 780 nm wavelength with the following parameters:

- Pulse duration: < 100 fs
- Repetition rate: 50 - 100 MHz
- Average optical power: 100mW (free space antennas).

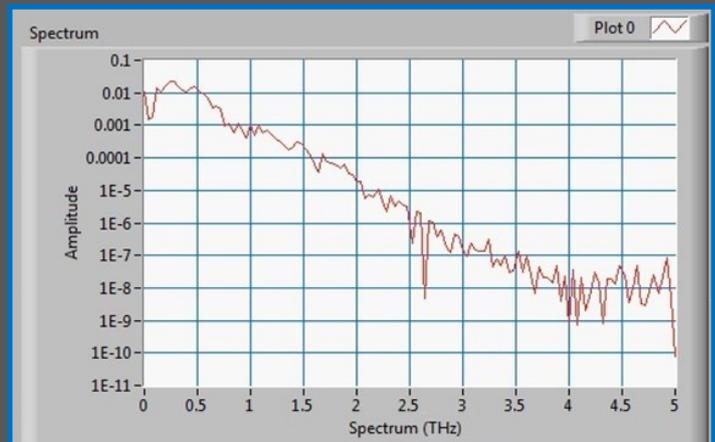
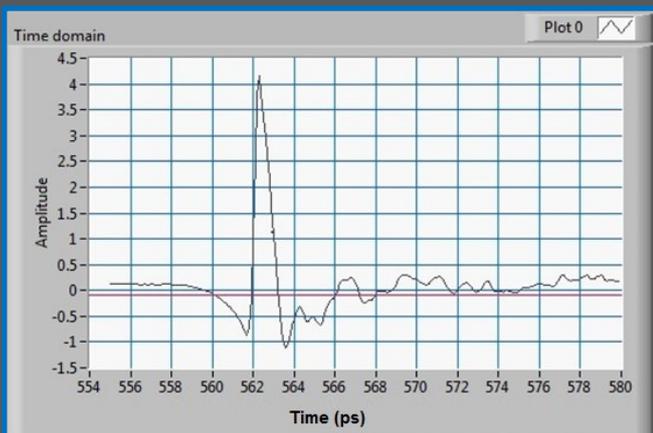
The T-SPEC is capable to generate terahertz waves with a bandwidth more than 2.5THz. The THz waves, are generated and detected by photo-conductive antennas. The linear time delay stage and the data acquisition system are controlled using the T-SPEC software package that is included on a USB flash drive or can be installed on a separate laptop.



Applications

- Identification of different materials through molecular spectroscopy
- Terahertz Imaging
- Study of mobility and carriers life time in semiconductor materials
- Characterization of the complex refractive index of dielectrics
- Quality control in the pharmaceutical industry
- Metamaterials study
- Diagnosis of cancerous cells
- Small thicknesses measurement
- Non-destructive testing in various industries
- Chemical identification and analysis

System specifications	
Frequency range	0.1 THz up to 2.5 THz
Dynamic range	> 30 dB at 0.5 THz
Frequency resolution	> 2GHz
Measurement time	10s (40ps scanning range)
THz beam diameter	collimated: 25 mm focused: ~ 2 mm @ 1 THz
Physical dimensions (L × W × H)	
Dimensions	60 cm × 70 cm × 25 cm
Weight	80kg
Environmental and utility specifications	
Operating temperature	23 – 28°C
Voltage	single-phase; 220VAC; 50Hz
Power consumption	< 300W



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