LASER-INDUCED DAMAGE THRESHOLD

HiLASE offers LIDT (Laser Induced Damage Threshold) services, thanks to unique laser sources under a new testing regime with big top-hat spot and high energy. The testing is conducted in our first-class LIDT laboratory that has received the ISO 9001 CERTIFICATE.

Benefits

- Test accurate damage threshold limits of various optical components and materials
- Support the development of high-power optical components
- Identify production defects of optical elements
- Test large size optical elements
- Provide processing window values for laser material processing

Can be used to test:

- dielectric, amorphous or crystalline materials,
- metals,
- ceramics,
- various exotic compounds and alloys.

HiLASE Services

- Types of measurement: ISO-standardised 1-on-1 and S-on-1 or custom raster-scan and ramp
- ISO class 7 clean laboratory allows measurements with unbeatable precisions
- ISO-certified or custom-designed tests with results delivered on ISO-compliant protocols
- Samples mounting: high-precision vacuum-compatible motorised micrometric stages with a cryo-cooled sample holder
- Advanced on-site and ex-post samples monitoring and analysis: 1k fps 1.3 Mpix camera, beam profilers, confocal microscope

HiLASE Equipment

Picosecond pulsed laser	@1030 nm, <1.8 ps, 1 kHz rep. rate, up to 100 mJ energy in pulse
Nanosecond pulsed laser (Bivoj laser)	@ 1030 nm, 10 ns, 10 Hz rep. rate, up to 10 J energy in pulse
Experimental chamber	Testing at vacuum down to 10^{-3} mBar or in the presence of non-corrosive gas pressured up to 1.4 Bar
Spot size range	From 0.4 mm to 15 mm
Sample surface area	Up to 100 x 100 mm^2
Available weight of samples	Up to 1.5 kg
Beams	Up to 15 mm spot diameter Gaussian beam, 3x3 mm^2 top-hat beam,
Wavelength	1030 / 515 / 343 nm
Pulse duration	10 ns / 1.8 ps

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- **Extensive R&D capabilities to develop and apply LIDT testing**
- **State-of-the-art pulsed laser systems with unprecedented intensities**
- **Capability to perform LIDT at truly edge conditions**
- **ISO certified laboratory**

Areas of Application

HIGH-POWER OPTICAL COMPONENTS DEVELOPMENT

DEFECTS IDENTIFICATION

LARGE SCALE OPTICS TESTING

MATERIAL ANALYSIS

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