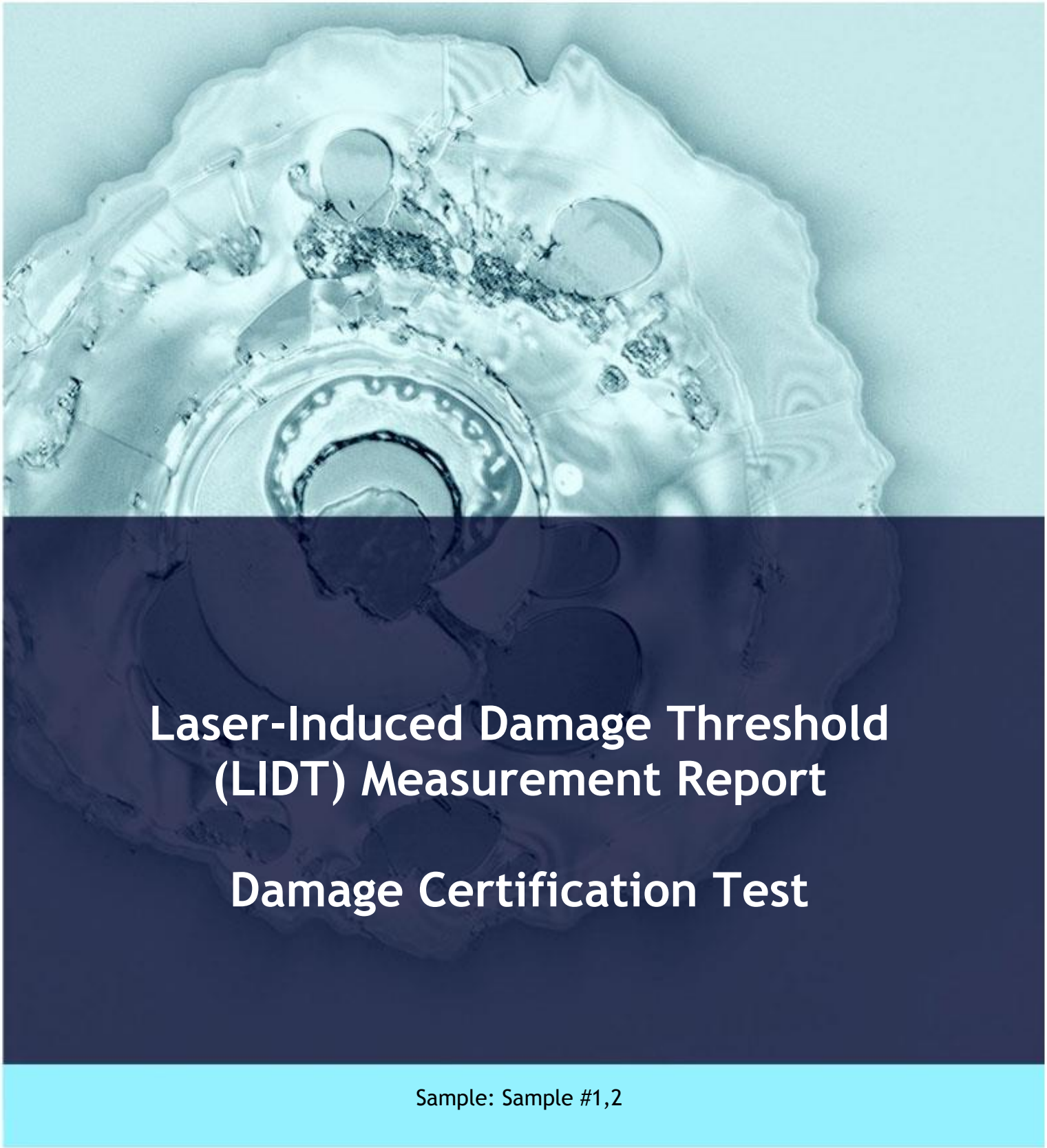

Laser-Induced Damage Threshold (LIDT) Measurement Report

Damage Certification Test

Sample: Sample #1,2

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LIDT Service

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Request from:

ALTECHNA Co.Ltd.
Mokslininku st. 6A
LT-08412 Vilnius

Contact person: Remigijus Šliūpas

Testing institute:

Lidaris Ltd.
Saulėtekio al. 10,
LT-10223, Vilnius, Lithuania, EU

Tester/date: E. Pupka / 2014-05-02

Specimen

Name of sample: Sample #1,2;

Type of specimen: Glass, HR Dielectric Coating;

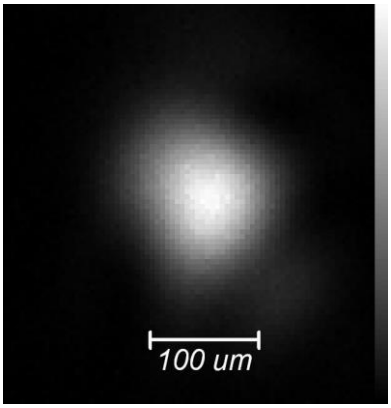
Storage, cleaning: Plastic box, dust blow off by compressed air;

Test specification

First harmonic of pulsed Nd:YAG InnoLas Laser: SpitLight Hybrid laser (λ = 1064 nm, linear polarization, pulse duration 7.4 ns), $\lambda/2$ plate combined with additional polarizer attenuator, online scattered light damage detection, offline inspection of damage detection using Nomarski microscopy (100x).

Laser parameters

Wavelength:	1064 nm;
Angle of incidence:	0 deg;
Polarisation state:	linear;
Pulse repetition frequency:	50 Hz;
Spatial beam profile in target plane:	TEM_{00};
Longitudinal beam profile:	Single mode (SLM);
Beam diameter in target plane$_{(1/e^2)}$:	182.1 µm (average from 64 pulses);
Pulse duration:	7.4 ns;



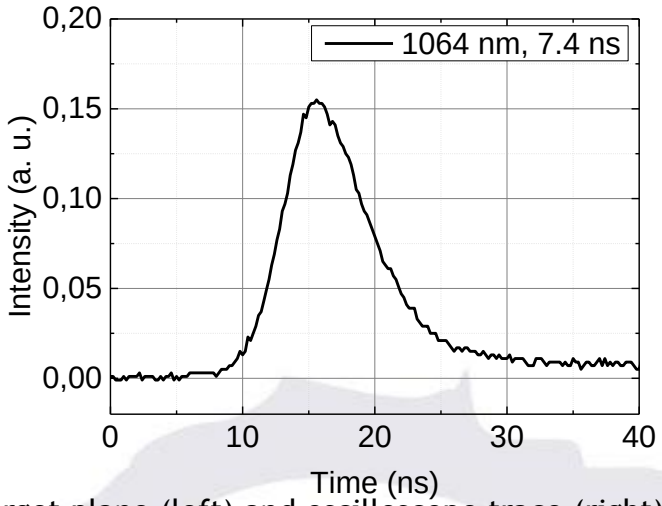


Fig. 1 Spatial beam profile in target plane (left) and oscilloscope trace (right)

Test procedure:	**S-on-1 test**
Number of sites per specimen:	496;
Arrangement of test sites:	Equally spaced;
Minimum distance between sites:	720 μm;
Damage detection:	Scattered light diode;
Storage of the specimen:	Optical paper, plastic box;
Test environment:	Industrial environment;
Cleaning:	Compressed air;
Definition of LIDT:	Nonlinear fit to 0% of damage probability;

LIDARIS Ltd.
Address: Saulėtekio Al., 10 LT-10223 Vilnius, Lithuania, EU
Company code: 302813532
VAT registration: LT100007025612
Bank account (IBAN): LT30 7300 0101 3207 8596
Bank: Swedbank AB
Phone: +370 609 09233
Email: info@lidaris.com
Skype: lidt-service
www.lidaris.com

Test result:

Table 1 Summarized LIDT's for **sample #1,2**;

Test mode	Threshold, J/cm2
1-on-1	13.4 ≤ 17.7 ≤ 21.8
1000-on-1	11.9 ≤ 15.8 ≤ 19.4

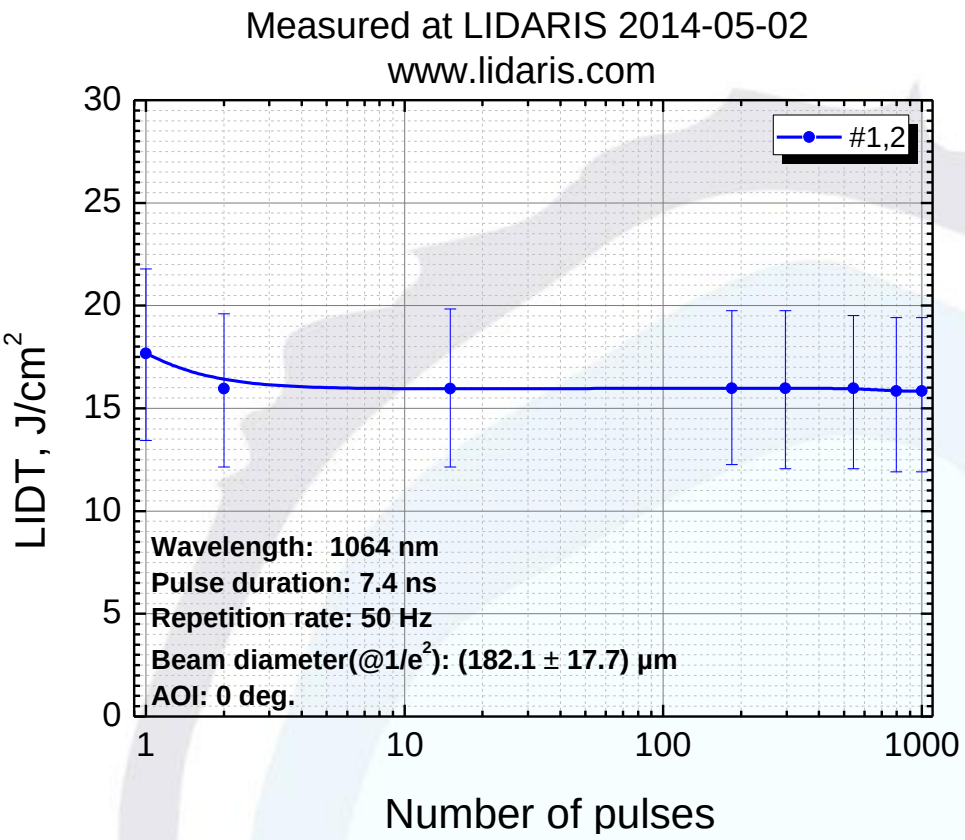


Fig. 2

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Typical damage morphology:

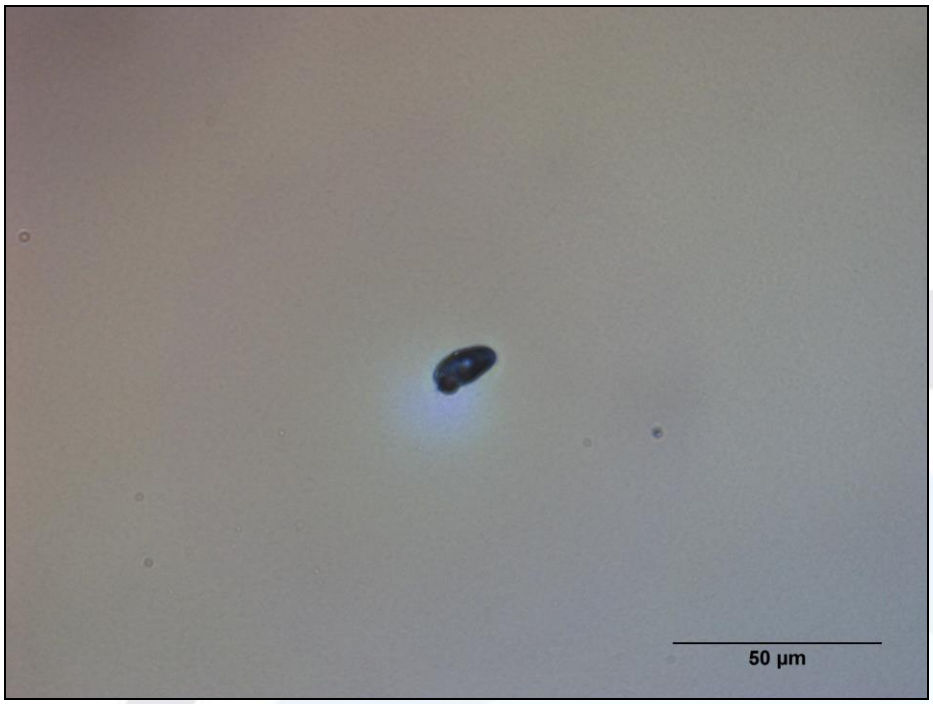

Fig. 3 Typical front surface damage morphology
(Energy density 17.7 J/cm^2, damage after 1 pulse)

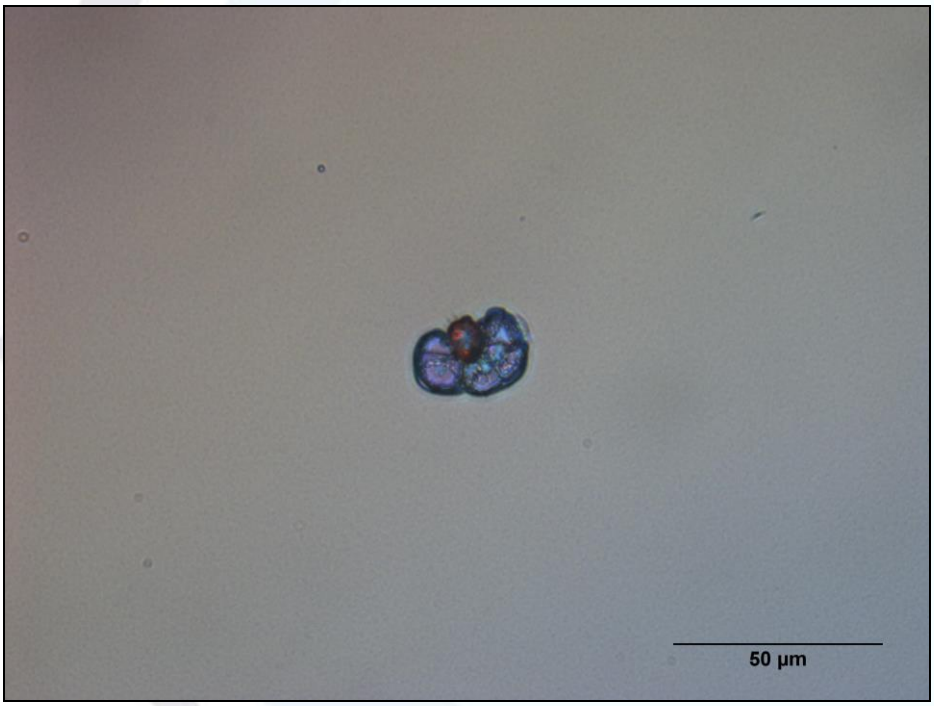

Fig. 4 Typical front surface damage morphology
(Energy density 17.73 J/cm^2, damage after 18 pulses)