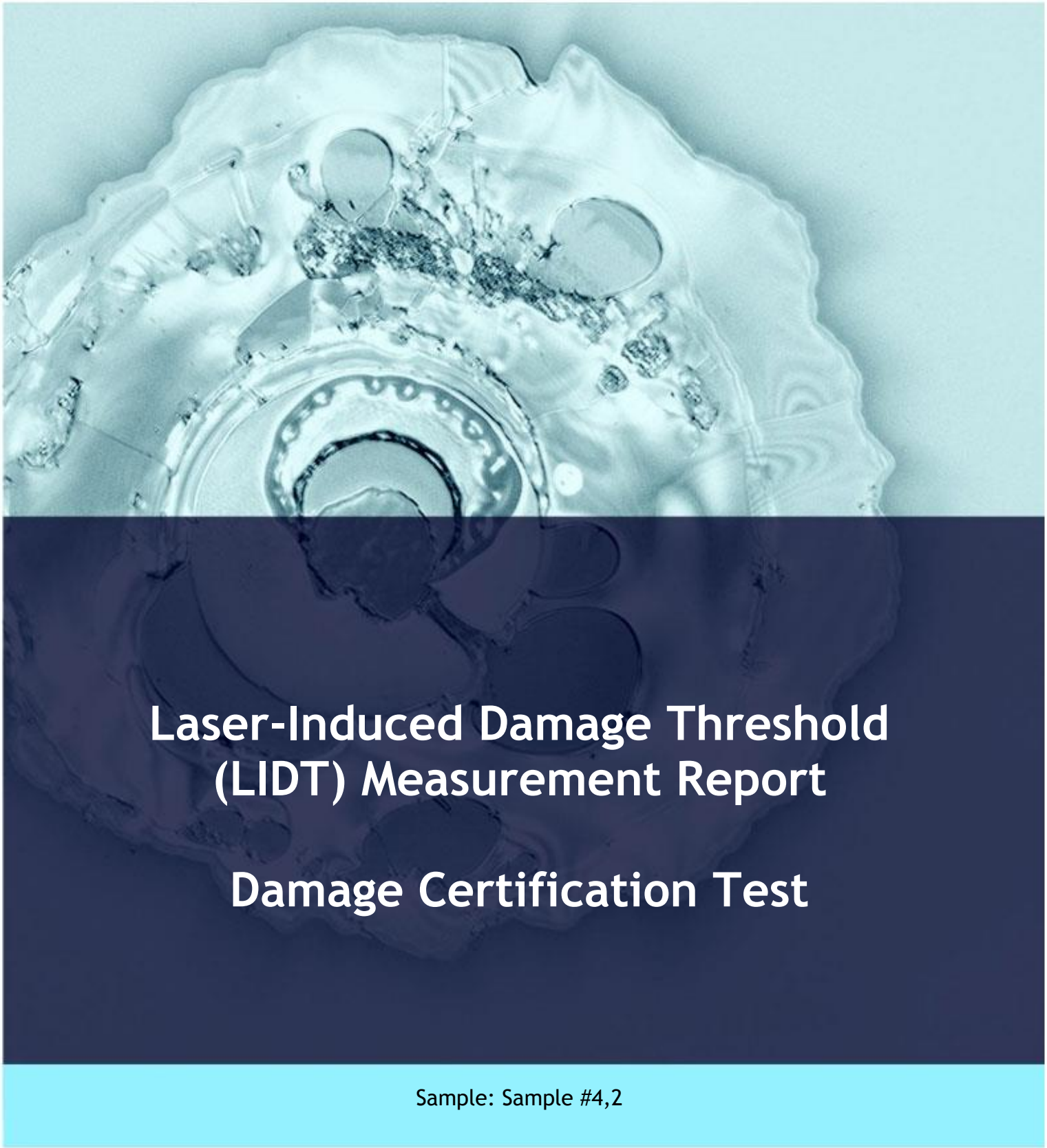


Laser-Induced Damage Threshold (LIDT) Measurement Report

Damage Certification Test

Sample: Sample #4,2

www.lidaris.com

LIDARIS
LIDT Service

LIDARIS
LIDT Service

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 / 2014-04-28

Specimen

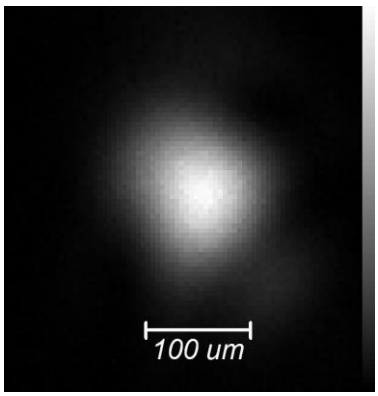
Name of sample:	Sample #4,2;
Type of specimen:	Glass, HR Dielectric Coating.
Storage, cleaning:	Plastic box, dust blow off by compressed air;

Test specification

Third harmonic of pulsed Nd:YAG InnoLas Laser: SpitLight Hybrid laser (λ = 355 nm, linear polarization, pulse duration 4.8 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:	355 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$_{(1/e^2)}$:	160.33 µm (average from 64 pulses);
Pulse duration:	4.8 ns;



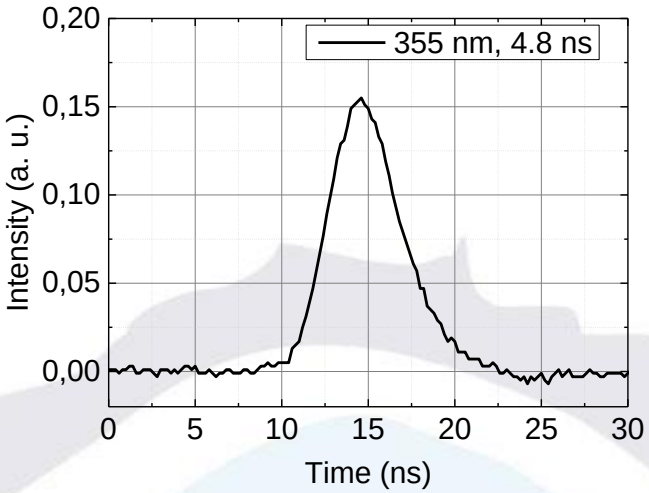


Fig 1 Spatial beam profile in target plane (left) and oscilloscope trace (right)

Test procedure: **S-on-1 test**

Number of sites per specimen:	428;
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
LIDT Service

Test result:

Table 1 Summarized LIDT's for **sample #4,2**;

Test mode	Threshold, J/cm2
1-on-1	6.0 ≤ 7.8 ≤ 8.5
1000-on-1	1.8 ≤ 3.4 ≤ 4.5

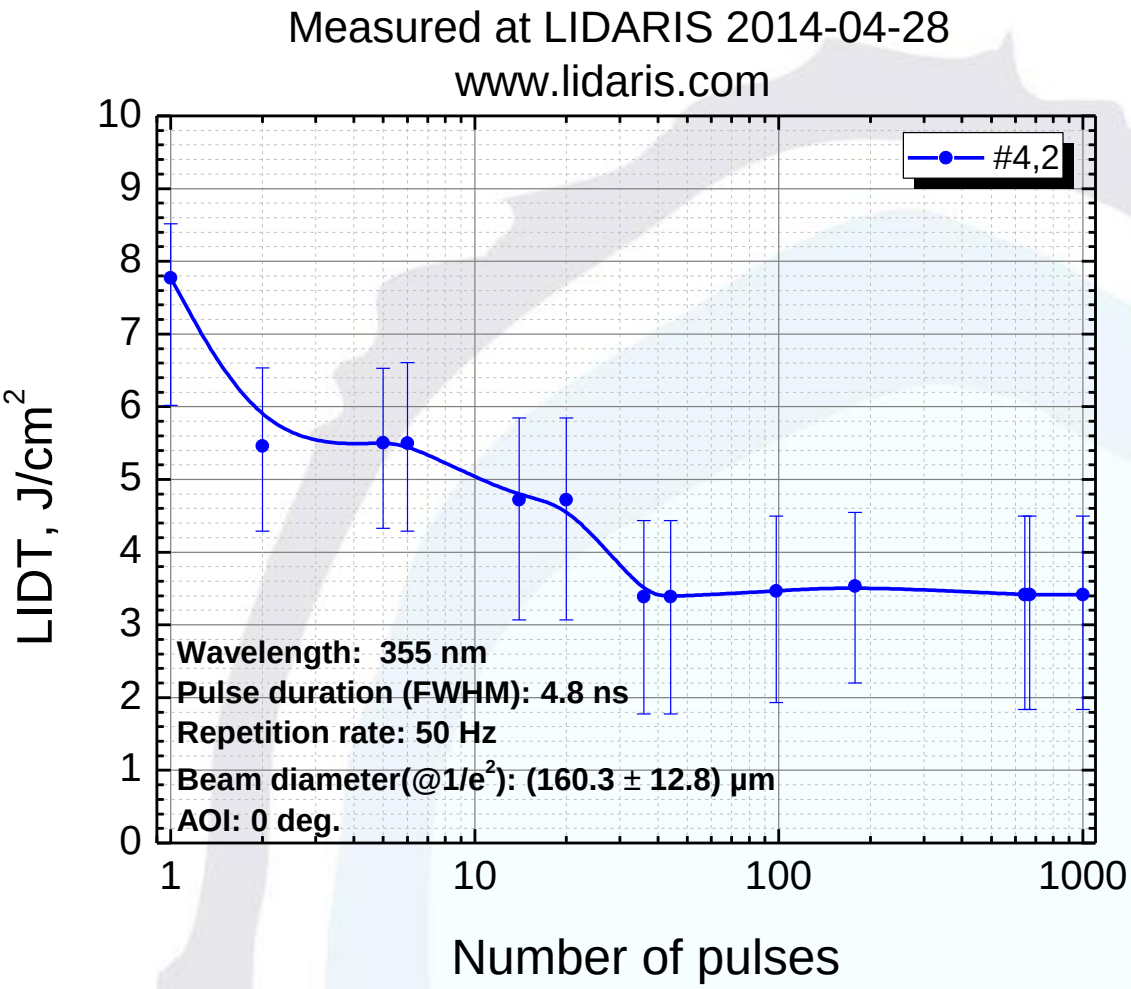


Fig. 2

Typical damage morphology:

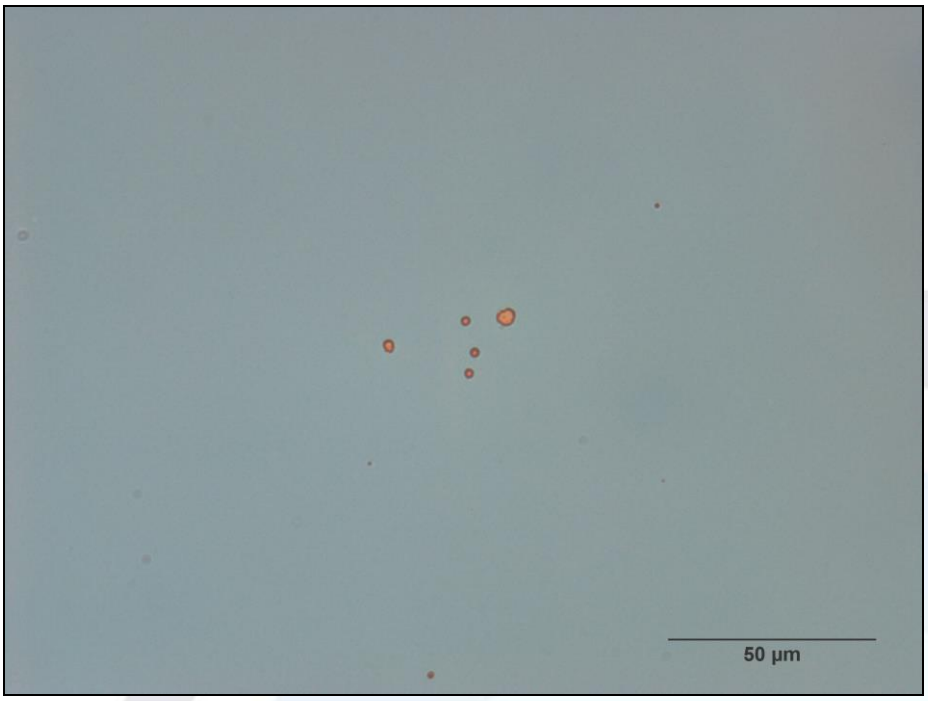


Fig. 3 Typical front surface damage morphology
(Energy density 7.61 J/cm^2, damage after 1 pulse)

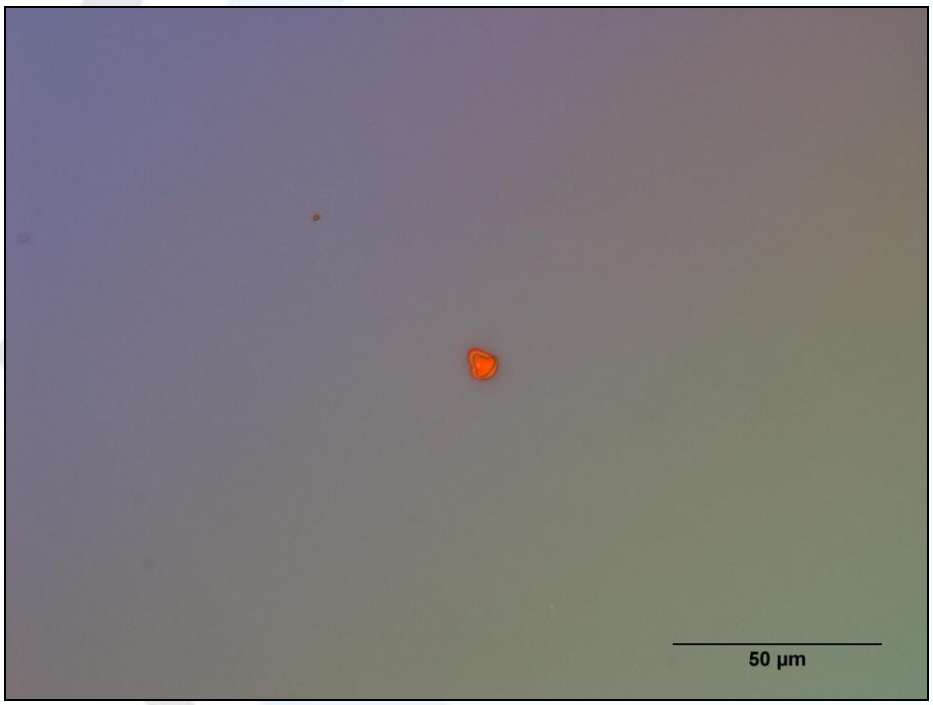


Fig. 4 Typical front surface damage morphology
(Energy density 3.70 J/cm^2, damage after 43 pulses)