

Description of Additional Supplementary Information

Supplementary Video 1.

Thermal video capture of the LIDT test on a diamond mirror using a $\lambda=1070$ nm continuous wave laser, focused to a $750\ \mu\text{m}$ ($1/e^2$) diameter spot using 500 W of power, exposure for 30 s. Video speed at 0.5x to highlight the thermal evolution. The hot spot is directly below the number “1” label.

Supplementary Video 2.

Thermal video capture of the LIDT test on a diamond mirror using a $\lambda=1070$ nm continuous wave laser, focused to a $750\ \mu\text{m}$ ($1/e^2$) diameter spot using 2.5 kW of power, exposure for 30 s. Video speed at 0.5x to highlight the thermal evolution. The hot spot is directly below the number “1” label.

Supplementary Video 3.

Thermal video capture of the LIDT test on a diamond mirror using a $\lambda=1070$ nm continuous wave laser, focused to a $750\ \mu\text{m}$ ($1/e^2$) diameter spot using 5 kW of power, exposure for 30 s. Video speed at 0.5x to highlight the thermal evolution. The hot spot is directly below the number “1” label.

Supplementary Video 4.

Thermal video capture of the LIDT test on a diamond mirror using a $\lambda=1070$ nm continuous wave laser, focused to a $750\ \mu\text{m}$ ($1/e^2$) diameter spot using 7.5 kW of power, exposure for 30 s. Video speed at 0.5x to highlight the thermal evolution. The hot spot is directly below the number “1” label.

Supplementary Video 5.

Thermal video capture of the LIDT test on a diamond mirror using a $\lambda=1070$ nm continuous wave laser, focused to a $750\ \mu\text{m}$ ($1/e^2$) diameter spot using 10 kW of power, exposure for 30 s. Video speed at 0.5x to highlight the thermal evolution. The hot spot is directly below the number “1” label.

Supplementary Video 6.

Video capture of the LIDT test on a diamond mirror using a $\lambda=1070$ nm continuous wave laser, focused to a $750\ \mu\text{m}$ ($1/e^2$) diameter spot using 10 kW of power. Video helps illustrate the power leaking through the diamond and being absorbed by the water-cooled stage which begins to glow. The diamond is held between two copper clamps, with the etched section of the diamond (i.e. the mirror) appearing grey in colour.

Supplementary Video 7.

Thermal video capture of the LIDT test on a dielectric mirror using a $\lambda=1070$ nm continuous wave laser, focused to a $750 \mu\text{m}$ ($1/e^2$) diameter spot using 10 kW of power, exposure for 30 s. Laser damage occurs at approximately 10 s of exposure. Video speed at 0.5x to highlight the thermal evolution. The hot spot is directly below the number "1" label.