

# LSC Six-Month Progress Report

**LIGO-M020165-00**

**Organization** Institute of Applied Physics (IAP) Russian Academy of Sciences at Nizhny Novgorod  
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8-a

First surface map of 25cm diameter optics was obtained. Optimization of in situ (in vacuum chamber) surface quality measurements was carried out. First surface map under heating by CO<sub>2</sub> laser in vacuum was obtained by means of this technique.

8-b

Optimization of housing design of high power Faraday isolator, which will be used as a prototype for Advanced LIGO. Preliminary estimations of isolation ratio of different Faraday isolator designs at the unlocked IFO are made.

8-c

Bulk (by Nd laser) and surface (by CO<sub>2</sub> laser) heat deposition are implemented simultaneously in optics placed inside the vacuum chamber. Induced phase distortions were measured by means of linear Hartman sensor and phase modulator interferometer simultaneously with good coincide.