



ALIGO MODE CLEANER MIRROR #3 SUBSTRATE, COATED

AUTHOR:	CHECKED:	DATE	APPROVALS		
			DCN NO.	REV	DATE
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Applicable Documents

- D070093-00-D ALIGO Mode Cleaner Mirror #3 Substrate
- D070085-00-D ALIGO Mode Cleaner Mirror #3 Blank

Requirements

Physical Configuration

Fabricate from D070093-00-D ALIGO Mode Cleaner Mirror #3 Substrate
Arrow points in the direction of the highly reflective surface.

Surface 1: HR coating

- Coating Centered at 1064 nm
- Angle of Incidence 44.63 degrees, S polarization
- Transmission 6000 ppm +/- 100 ppm
- Coating surface uniformity 1 nm rms – central 40 mm
10 nm p-v over 140 mm
- Coating transmission uniformity $\Delta R/R < 10^{-4}$ over central 40 mm (fractional change in the reflectivity)
 $\Delta R/R < 10^{-3}$ over central 140 mm
- Scatter < 10 ppm over central 40 mm
- Absorption < 0.5 ppm
- Zero surface electrical field

Surface 2: AR coating

- Coating Centered at 1064 nm
- Angle of Incidence 41.13 degrees, S polarization
- Reflection < 300 ppm
- Coating surface uniformity 1 nm rms – central 100 mm
10 nm p-v over 140 mm
- Coating transmission uniformity $\Delta R/R < 10^{-4}$ over central 100 mm (fractional change in the reflectivity)
 $\Delta R/R < 10^{-3}$ over central 140 mm
- Scatter < 10 ppm over central 100 mm
- Absorption < 0.5 ppm
- Zero surface electrical field



LIGO

LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

COMPONENT SPECIFICATION

E070087 -00- D

Drawing No Rev. Group

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Surface Quality

To comply with Advanced LIGO Component Specification E070080-00-D, ALIGO SUBSTRATE MODE CLEANER MIRROR #3 (Page 2): "Scratches and Point Defects".

Coating to resist abrasion test per MIL-M-13508C

NOTE:

Coating manufacturer to provide:

1. One (1 in.) witness plate from each coating run
2. Spectrophotometer graphs of Reflectance and Transmittance of HR coating