



**ALIGO INPUT MODE CLEANER MIRROR #3 SUBSTRATE, COATED**

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

- D070093-01-D ALIGO Input Mode Cleaner Mirror #3 Substrate
- D070085-01-D ALIGO Input Mode Cleaner Mirror #3 Blank

**Requirements**

**Physical Configuration**

Fabricate from D070093-01-D ALIGO Input 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 44.53 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 < 22 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 48.35 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 < 22 ppm over central 100 mm
- Absorption < 0.5 ppm
- Zero surface electrical field



**LIGO**

LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

**COMPONENT SPECIFICATION**

E070087 -01- D

Drawing No Rev. Group

Sheet 2 of 2

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COATED**

**Surface Quality**

To comply with Advanced LIGO Component Specification E070080-01-D, ALIGO SUBSTRATE Input 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