



**SPECIFICATION**

**MIRROR BLANK MATERIAL, AdLIGO RECYCLING MIRROR 2 (RM2)**

APPROVALS	DATE	REV	DCN NO.	BY	CHECK	DCC	DATE
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CHECKED: Dave Reitze							
APPROVED: GarilLynn Billingsley							
DCC RELEASE							

**Applicable Documents**

LIGO-D080052-B	AdLIGO Recycling Mirror 2 Blank
MIL-G-174-B	Glass, Optical

**Requirements**

Physical Dimensions	per LIGO- D080052-B AdLIGO Recycling Mirror 2 Blank
Clear Aperture	Central 140 mm
Serial Number	Blanks shall be serialized as RM2-XX, where XX increments starting at 01, as specified in LIGO- D080052-B AdLIGO Recycling Mirror 2 Blank
Material	Low Inclusion Fused Silica
Final shaping	Shaping shall be performed using a progression of grit size ending with a 320 or smaller grit tool.
Defect depth	Maximum on any surface or corner is less than 0.5 mm
Homogeneity	$\leq 3.0 \times 10^{-6}$ P-V in the clear aperture after subtracting tilt and power
Birefringence	$\leq 5$ nm/cm within the clear aperture
Bubble and Inclusion Cross section Within the clear aperture	Total $\leq 0.5 \text{ mm}^2/100\text{cm}^3$ Inclusions with a diameter of 80 $\mu\text{m}$ or less are not included in the total. No bubbles or inclusions within 5mm of the flat surfaces
Striae within the clear aperture	Class A according to MIL-G-174



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Table 1: Verification Matrix - Method and Frequency

Specification	Method	Frequency of Inspection	Data Delivered
Physical Dimensions	Measurement	100%	Diameter Thickness
Serial number	Visual Inspection	100%	Inspection Report included with Certification
Material	Process Control Material Certification	100%	Inspection Report included with Certification
Defect depth	Visual Inspection	100%	Hand sketch indicating location and dimensions
Homogeneity	Process Control Material Certification	100%	Inspection Report included with Certification
Birefringence	MIL-G-174 Section 4.4.5	100%	Inspection Report included with Certification
Inclusions	Visual Inspection	100%	Hand sketch indicating location and dimensions
Striae	MIL-G-174 Section 4.4.6, method 1 or 2 (in optical axis only)	100%	Inspection Report included with Certification

Notes:

1. Vendor should provide two copies of the Certificate of Conformance: one hard copy to travel with the material, and one copy sent to UF, either electronically, faxed or mailed.
2. Shipping instructions will be sent to the vendor in a separate document. Vendor will contact UF for authorization to proceed with material delivery.