# BLANK MATERIAL, AdLIGO ETM MIRROR

| APPROVALS | DATE | REV | DCN NO. | BY | CHECK | DCC | DATE |
|---|---|---|---|---|---|---|---|
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| CHECKED: G Billingsley | **04/04/08** | **A** | | | | | |
| APPROVED: | | | | | | | |
| DCC RELEASE | | | | | | | |

## Applicable Documents

| | |
|---|---|
| LIGO-D080055-A | AdLIGO ETM Mirror Blank |
| MIL-G-174-B | Glass, Optical |

## Requirements

| | |
|---|---|
| Physical Dimensions | per LIGO- D080055-A AdLIGO ETM Mirror Blank |
| Clear Aperture | Central 200 mm |
| Serial Number | Blanks shall be serialized as ETMXX, where XX increments starting at 01 |
| 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 |
| Bubble and Inclusion Cross section Within the clear aperture | Total $\leq 0.5$ mm$^2$/100cm$^3$ Inclusions with a diameter of 80 μm or less are not included in the total. |

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| Specification | Method | Frequency of Inspection | Data Delivered |
|---|---|---|---|
| Physical Dimensions | Visual Inspection | 100% | Diameter<br>Thickness |
| Serial number | Visual Inspection | 100% | Inspection Report included with Certification |
| Material | Process Control<br>Material Certification | 100% | Inspection Report included with Certification |
| Defect depth | Visual Inspection | 100% | Hand sketch indicating location and dimensions |
| Homogeneity | Process Control<br>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 |

**Table 1: MEASUREMENT MATRIX: FREQUENCY AND METHOD**