



COMPONENT SPECIFICATION

TITLE MIRROR BLANK MATERIAL, END TEST MASS, 40M

APPROVALS:	DATE	REV	DCN NO	BY	CHK	DCC	DATE
DRAWN: G. Billingsley	09-09-00		D000312-00-D	n/a	n/a	n/a	n/a
CHECKED:							
APPROVED:							
DCC RELEASE:							

Applicable Documents

- LIGO-D000267-A End Test Mass Blank, 40M
- MIL-G-174-B Glass, Optical

Requirements

- Physical Dimensions per LIGO-D000267-A End Test Mass Blank, 40M
- Clear Aperture Central 50 mm
- Serial Number Blanks shall be serialized as EMBXX, where XX increments starting at 01
- Material Fused Silica
- Final shaping Shaping shall be performed using a progression of grit size ending with a 320 or smaller grit wheel.
- Defect depth Maximum on any surface or corner is less than 0.5 mm
- Homogeneity $\leq 1 \times 10^{-6}$ peak to valley at $\lambda = 632.8$ nm, within the clear aperture
- Birefringence ≤ 1 nm/cm within the clear aperture
- Bubble and Inclusion Cross section Total clear aperture ≤ 0.03 mm²/100cm³ of Glass
 Inclusions with a diameter of .06 mm or less are disregarded
 Maximum inclusion diameter - ≤ 0.1 mm
- Striae Grade A according to MIL-G-174



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Specification	Method	Frequency of Inspection	Data Delivered
Physical Dimensions	Visual Inspection	100%	Inspection Report included with Certification
Registration Mark - Location	Visual Inspection	100%	Inspection Report included with Certification
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	Interferometric Measurement	100%	Color print of the phase map with Peak to Valley and rms displayed. Terms removed: Tilt and Piston
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

Table 1: MEASUREMENT MATRIX: FREQUENCY AND METHOD