MIRROR BLANK MATERIAL, A+ BEAMSPLITTER

AUTHOR	DATE	REV	DCN NO.
BILLINGSLEY	7/28/19	V1	E1900225

Applicable Documents

LIGO-D1900150 -v1	Mirror Blank Drawing, A+ Beamsplitter
MIL-G-174-B	Glass, Optical

Requirements

Physical Dimensions	per LIGO - D1900150
Clear Aperture	Central 300 mm
Serial Number	Blanks shall be serialized as BSXX, where XX increments starting at 11
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
Index Homogeneity in central 110 mm Index Homogeneity in clear aperture	$\leq 5.0 \times 10^{-7}$ P-V $\leq 2.5 \times 10^{-6}$ P-V
Birefringence	$\leq$ 1 nm/cm within the clear aperture $\leq$ 5 nm/cm outside the clear aperture
Bubble and Inclusion Cross section Within the clear aperture	Total ≤ 0.01 mm^2/100cm^3 Inclusions with a diameter of 10 μm or less are not included in the total. Note all inclusions
Maximum inclusion diameter	$\leq$ 0.1 mm
Striae	Class 1
OH Content	$\leq$ 1 ppm

MIRROR BLANK MATERIAL, A+ BEAMSPLITTER

Specification	Method	Frequency of Inspection	Data Delivered
Physical Dimensions	Visual Inspection	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	Interferometric Measurement	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
OH content	Measurement	100%	Inspection Report included with Certification

Table 1: MEASUREMENT MATRIX: FREQUENCY AND METHOD