Advanced LIGO Output Mode Cleaner Optical Prisms

APPROVALS	DATE	REV	DCN NO.	BY	CHECK	DCC	DATE
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1 Description

An optical quality 20x23x10 mm (WxDxH) fused silica optical prism

2 Material

Corning HPFS 7980 (high purity fused silica, UV grade)
Grade 0A (Low inclusion class: <0.3 mm² cross section, 0.1 mm max. size;
Homogeneity < 1ppm)

3 Dimensions

FLAT-FLAT
Width: 20.0 ±0.1mm
Height: 23.0 ±0.1mm
Thickness (thin edge): 10.0 ±0.1mm
Wedge: 30 arc-minutes front-back in horizontal plane (see figure)
Perpendicularity: 90.0° ±30" front surface to bottom surface (see figure)
Chamfer: 1mm chamfer on back/top edge (see figure)
Minimal chamfer to prevent chipping on other edges
Marking: Etched or enscribed "E1101086-xxx" on *thin* edge where xxx is "A","B", or "C" for the coating

See D1101968 for machine drawings.

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4 Surface Specification

Side 1 (Front)
Super-polished
Microroughness: < 1 Angstrom rms over central 80% of width, height with 10-5 scratch-dig;
Best effort for 20-10 scratch-dig outside central 80%.
Surface figure: Flat to λ/10 at 632.8 over central 80%

Side 2 (Back)
Microroughness: < 5 Angstrom rms over central 80% of width, height
Surface figure: Flat < λ/4 at 632.8 over central 80%

Side 3 (Bottom)
to be prepared for thin-film epoxy bonding
Microroughness: <10 nm rms over central 80%,
Surface figure: < 1 μm pk-pk over entire surface

Side 4 (Sides and top)
Inspection polish

5 Coatings

As per coating specification E1101095 and statement of work E1101096