



## Septum Window Polish, Enhanced LIGO

AUTHOR:	CHECKED:	DATE	APPROVALS		
			DCN NO.	REV	DATE
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### Applicable Documents

LIGO-D070082-A      ELI Septum Window

### Requirements

#### Physical Configuration

According to  
LIGO-D070082-A      ELI Septum Window

Fabricate from  
Corning grade 0AA fused silica or equivalent

#### Part and Serial Number

The Serial number shall be per D070082 and of the format:  
ESW YY    Where  
YY        is incremental for each optic starting at 01

#### Registration Mark

Registration mark shall be etched, ground or sandblasted

#### Side and Bevel Polish

All sides and Bevels shall be polished from a five micrometer grit finish. These surfaces shall appear transparent with no gray, scuffs or scratches visible to the naked eye when viewed in normal room light against a black background.

#### Scratches and Point defects within the clear aperture defined by D070082

Scratches and point defects are to be minimized as scattered light is highly detrimental to the project.

Requirement: 20/10

Goal: 10/5

**Septum Window Polish, Enhanced LIGO****Surfaces 1 and 2, measured over the central 140 mm diameter****Surface Figure:** deviation from flat < 10 nm rms**High Spatial Frequency Band:** Micro-roughness is measured with a commercial microscopic interferometer or surface profiler. $\sigma_{\text{rms}} < 0.1$  nanometers

Measured at the following locations:

1. The center of the mirror substrate.
2. Four positions equally spaced along the circumference of a centered, 60 mm diameter circle.

Specification	Test Method	Frequency of Inspection	Data Delivered
Physical Dimensions	Visual Inspection	100%	Certification
Side and Bevel Polish	Visual Inspection	100%	Certification
Scratches and Point defects	Visual Inspection	100%	Certification
Surface Figure	Interferometry	100%	Surface Map
Surface Errors – High Spatial Frequency	High resolution Surface Map	100%	Certification