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| **AUTHOR:** | **DATE** | **CHECKED:** |
| **Mike Smith** | **3-26-12** | **Ken Mailand** |
| **Lisa C. Austin** | **05-15-2012** | **See DCN E1101192** |
|  |  |  |

This specification is for a protected silver high reflectance coating, to be applied to front surface mirrors.

**Applicable Documents**

LIGO- D0901565 aLIGO TMS Telescope Secondary Parabolic Mirror

LIGO- D1000075 aLIGO TMS Telescope Primary Parabolic Mirror

LIGO- D1102334 aLIGO TMS Telescope Second Fold Mirror

LIGO- D1102335 aLIGO TMS Telescope First Fold Mirror

**Requirements**

**Reflective Coatings**

Applied to front surface S1, >80% clear aperture.

Durability per MIL-C-675C, Coating Adhesion and Durability, or current compatible standard, to be approved by LIGO.

Surface S1 will be used in an ultra-high vacuum environment.

Coating to be free from visual scattering or blemishes.

**Mirror Coating**

Front surface S1only

Wavelength 1064 nm

Polarization Random

Incidence angle < 8 deg

Protected silver, reflectivity >98%

Durability per MIL-C-675C, Section 4.5.12

**Materials**

Substrate material: Zerodur, BK7, or fused silica

**Testing and Documentation**

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| **Specification** | **Test Method** | **Frequency of Inspection** | **Data Delivered** |
| Surface Quality | Visual Inspection | 100% | Certification |
| HR Coatings | Spectrophotometer | Witness sample for each coating run | Spectral scans |