



**ITM Penultimate Mass**

**1 Applicable Documents**

This document supports the drawing:

D080128\_ALIGO\_SUS\_ITM QUAD Penultimate Mass - A

**2 Requirements**

**Material**

Fused Silica (choose from following list)

- Heraeus Suprasil (any grade, including commercial grades)
- Heraeus HOQ 310
- Schott Lithosil QT
- Corning 7980 5G
- Corning 7980 Substrate Grade

NOTE: Material to be supplied with a certificate of conformity

**Physical configuration**

Shape and polish according to:

D080128\_ALIGO\_SUS\_ITM QUAD Penultimate Mass

**Reference Markings:**

Registration marks shall be etched, ground or sandblasted, and located per LIGO-D080128.

**Serial Number:**

The serial number shall be etched, ground or sandblasted, and located per LIGO-D080128.

**3 Inspection**

Specification	Manufacturing note / drawing zone (LIGO-D080128)	Test Method	Data delivered
Outside diameter	(Zone E10)	Physical inspection	Measurement at six equally spaced locations, plus mean measurement
Thickness	(Zone F6)	Physical inspection	Measurement at six locations (equally spaced around barrel, starting at location of arrow pointing at surface 'S3'), plus mean measurement
Wire groove separation	(Zone A5)	Physical inspection	Measured dimension at four locations (12 o'clock, 3 o'clock, 6 o'clock and 9 o'clock, when looking at surface 'S3' - arrow at 12 o'clock)
Face to wire groove check	-	Physical inspection	
Surface S3 to wire groove 1	Note 7	"	Measured dimension
Surface S4 to wire groove 2	Note 7	"	Measured dimension



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Flat length (surface S1)	(Zone D11)	“	Measured dimension (sharp to sharp)
Flat length (surface S2)	(Zone D8)	“	Measured dimension (sharp to sharp)
Flat to Flat separation (at central location)	(Zone C9)	“	Measured dimension
Edges and chamfers	Note 3	Visual inspection	Inspection report included with certification
Scratches and point defects	Note 3	Visual inspection	Inspection report included with certification
Serial Number	Note 8	Visual inspection	Inspection report included with certification
Bond area (surface S1)	Note 6	Interferometry	Surface map of bond surface ( $\lambda = 633\text{nm}$ for surface measurements)
Bond area (surface S2)	Note 4	Interferometry	Surface map of bond surface ( $\lambda = 633\text{nm}$ for surface measurements)

*Table 1: Inspection requirements list*

**Data**

To be taken as instructed in Table 1.  
 Instrumentation used for any given measurement should be listed alongside that measurement.

**Orientation**

For the purpose of all data collection, data should be taken where possible from side 4 (surface S4). If this is not possible there shall be a special note beside the data indicating from what direction/how it was taken.

**Format**

All data shall be delivered according to Table 1.