

**ITM04 Transmission**

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Approval(s)			
Specification Doc.	LIGO-E0900041	Specification	0.013-0.015
Procedure Doc.	LIGO-E1000863	Mean \pm Error*	0.0148 \pm 0.0003
Conclusion	Qualified.		

*Error is the calibration error, which is ~2%.

Discussions and Comments:

The scan was done in center of 160 mm in diameter with the beam and step sizes of 1 mm and positioning the arrow on barrel at Y+ direction, as shown in Fig.1. The calibration is done by normalizing the transmitted signal to the signal without mirror and the variation of laser power during scan is monitored and corrected. The 'low part' in beginning of T is most likely a systematic error (e.g. diode thermal stabilization) which cannot be removed. Therefore, the data over 120 mm diameter aperture is analyzed. The transmission uniformity is quite good. In the histogram, the FWHM ($\sim 2.35 \times \text{RMS}$) over Mean is about 0.5%, which is dominated by the systematic error.

ITM04 Transmission

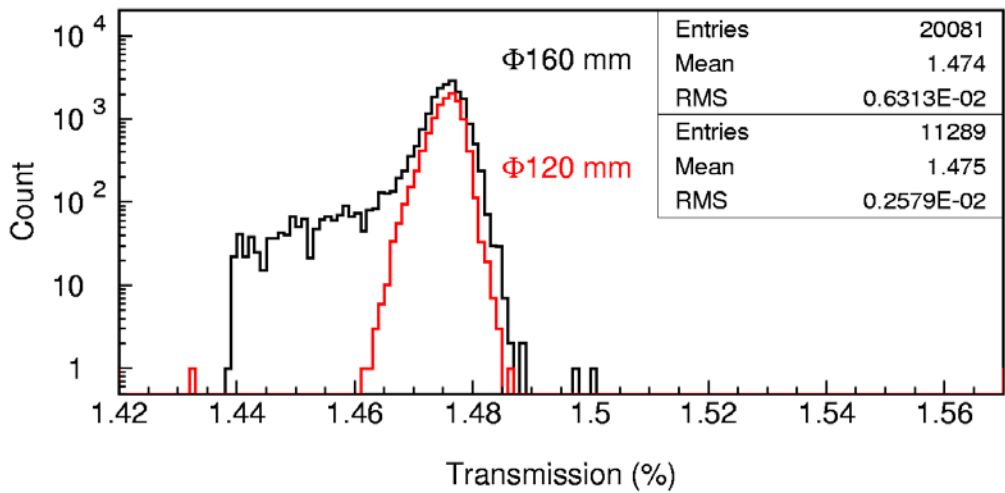
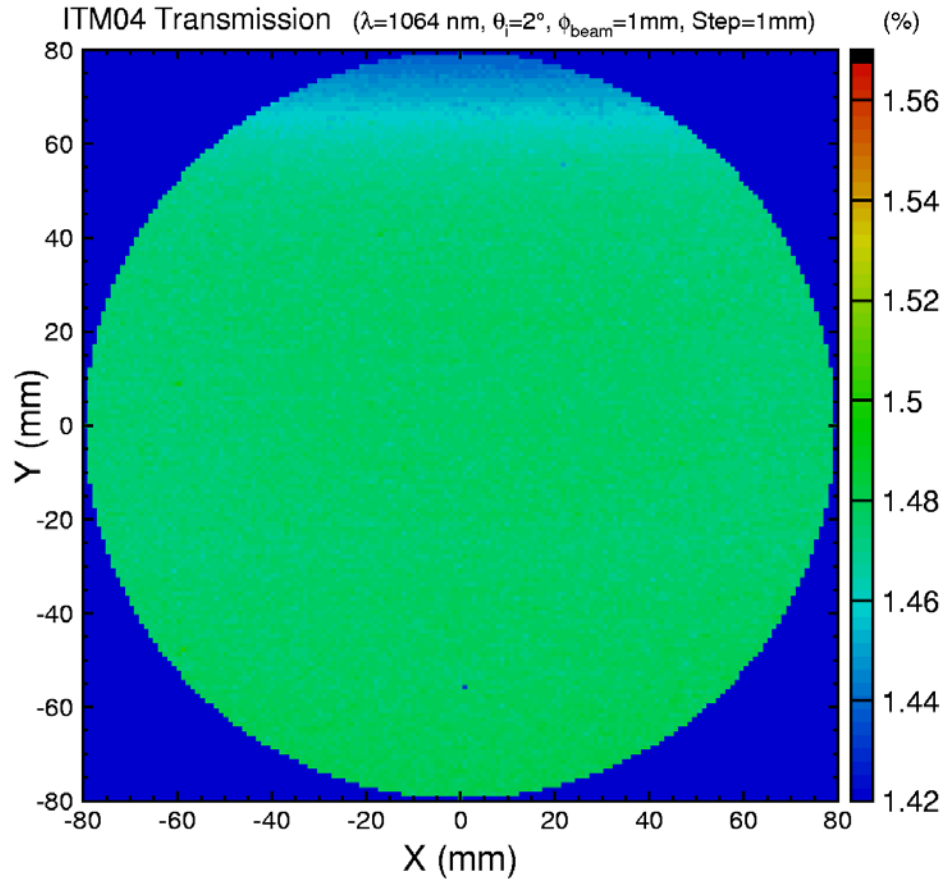


Fig. 1 ITM04 transmission over a 160 mm diameter aperture.