



ITM09 AR Reflection

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Approval(s)			
Specification Doc.	LIGO-E0900041	Specification	< 50 ppm
Procedure Doc.	LIGO-E1000863	Mean \pm Error*	630 \pm 10 ppm
Conclusion			

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

Discussions and Comments:

The scan was done over a 160 mm diameter aperture with the beam and step sizes of 1 mm and positioning arrow on barrel at Y+ direction. The calibration is done by normalizing the AR reflection signal to the signal from a 1" HR mirror (T=70 ppm) and the variation of laser power during scan is monitored and corrected, the result is summarized in Fig.1.

Some haze is observed on AR surface under flash light, but the pattern is not correlated to that of ripples in the AR reflection. The ripple fringes are believed to be in the coating uniformity caused by the planetary motion in coating process. Figures 2 and 3 show some data along X and Y directions.

ITM09 AR Reflection

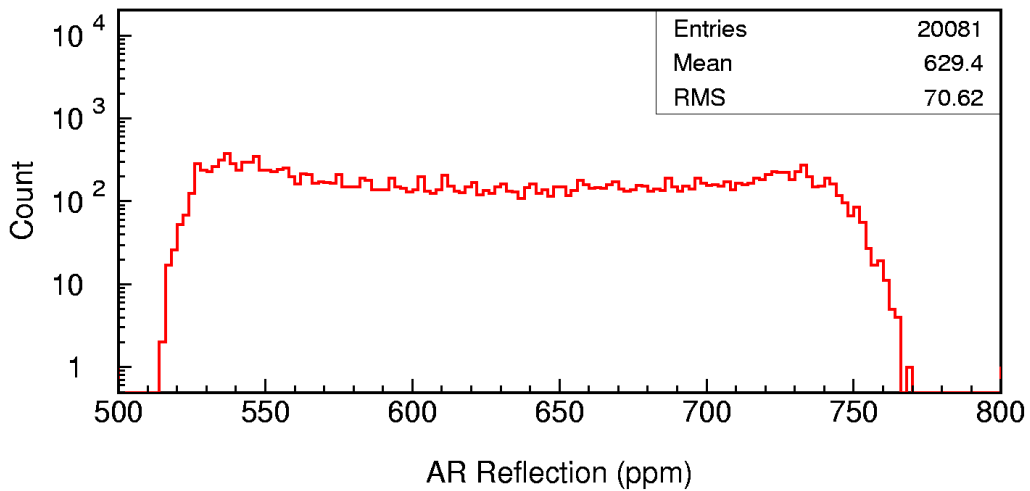
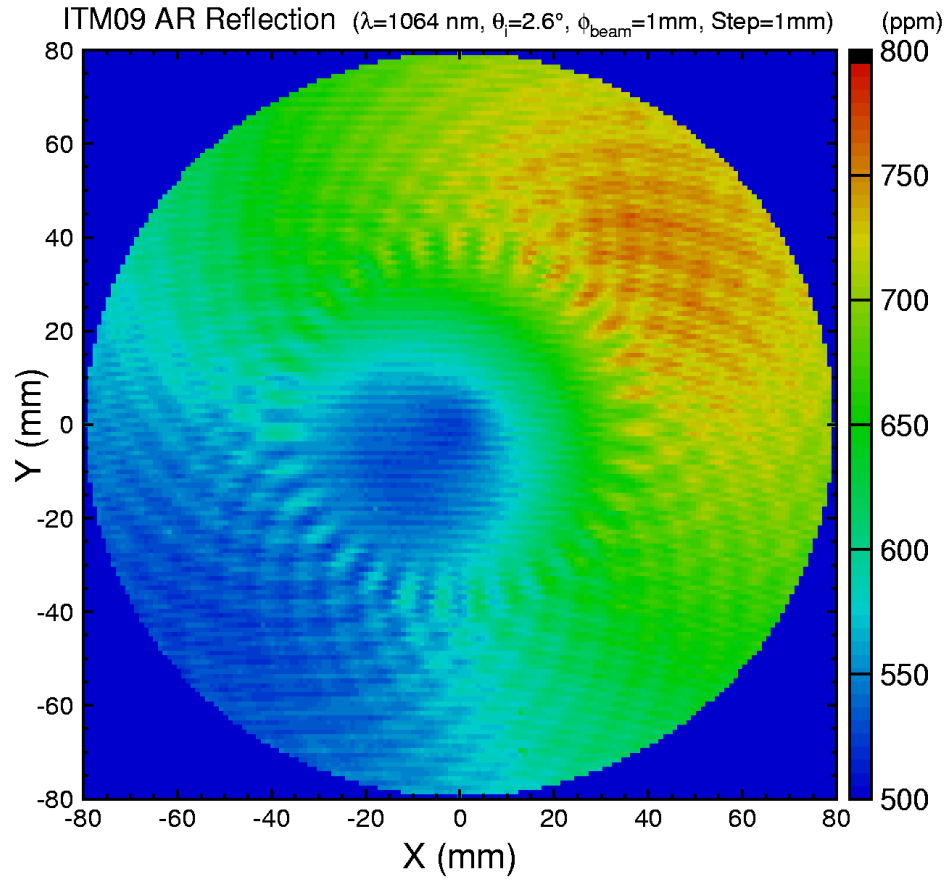


Fig. 1 ITM09 S2 AR reflection over a 160 mm diameter aperture.



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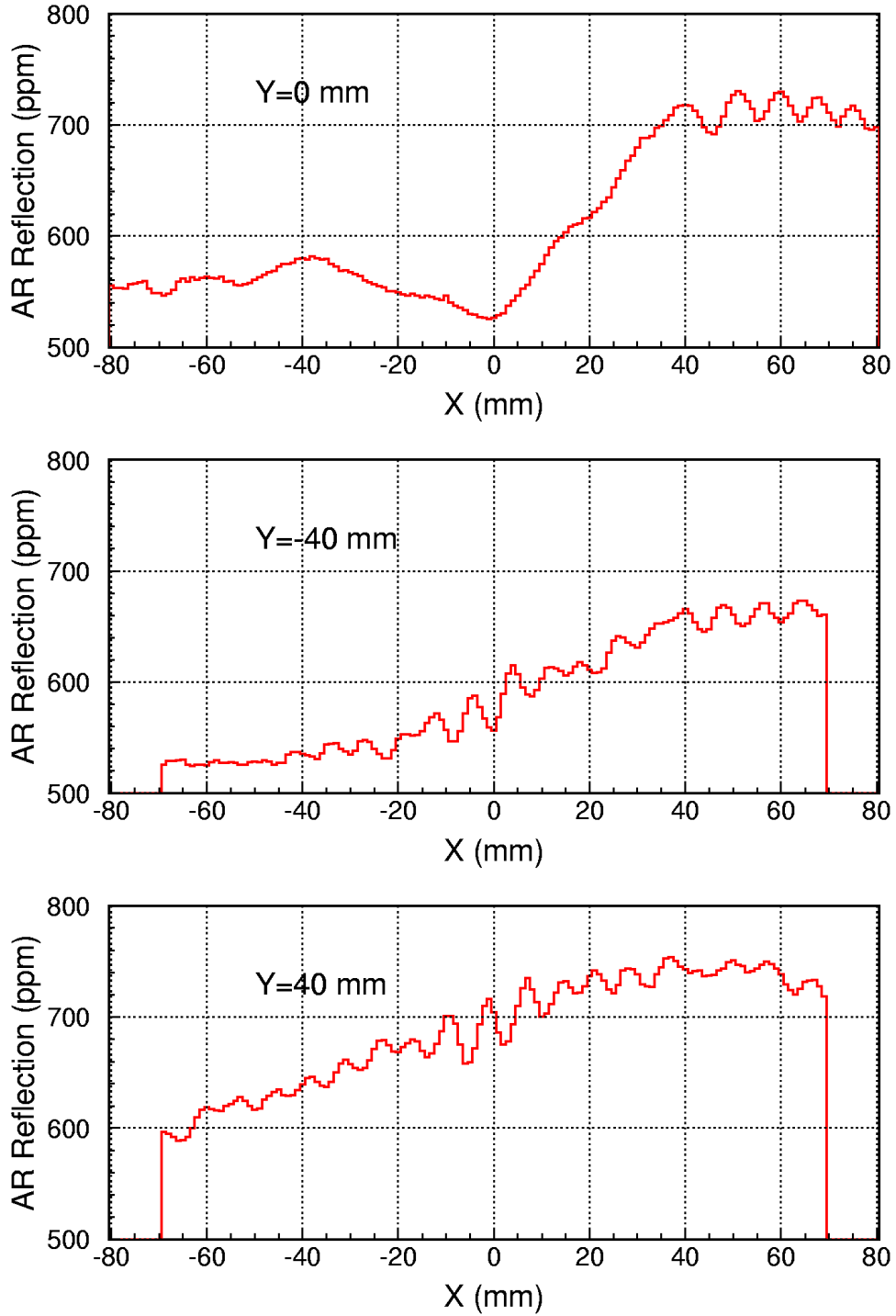


Fig. 2 ITM09 AR reflection along X at Y=0, -40 and 40 mm respectively.



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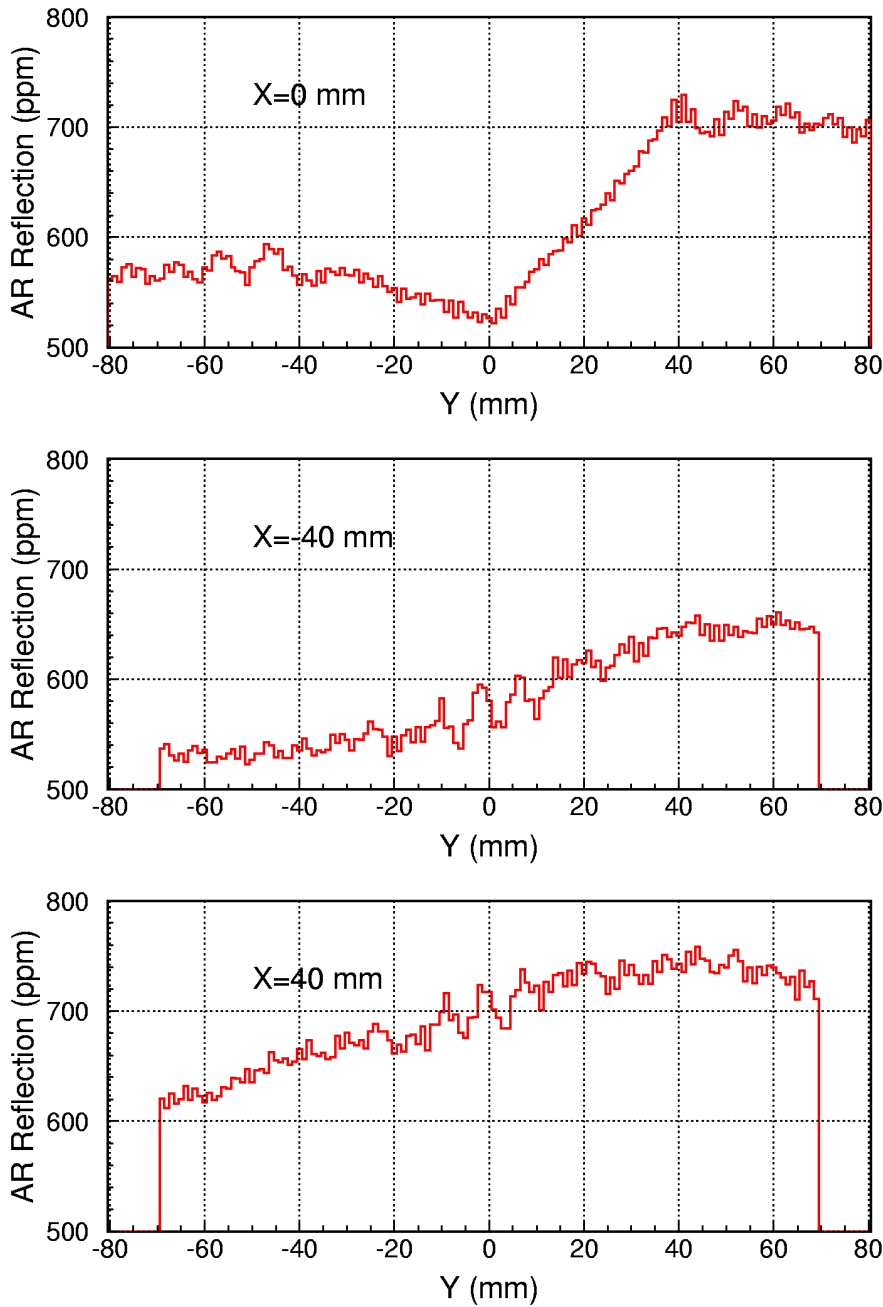


Fig. 3 ITM09 AR reflection along Y at X=0, -40 and 40 mm respectively.