



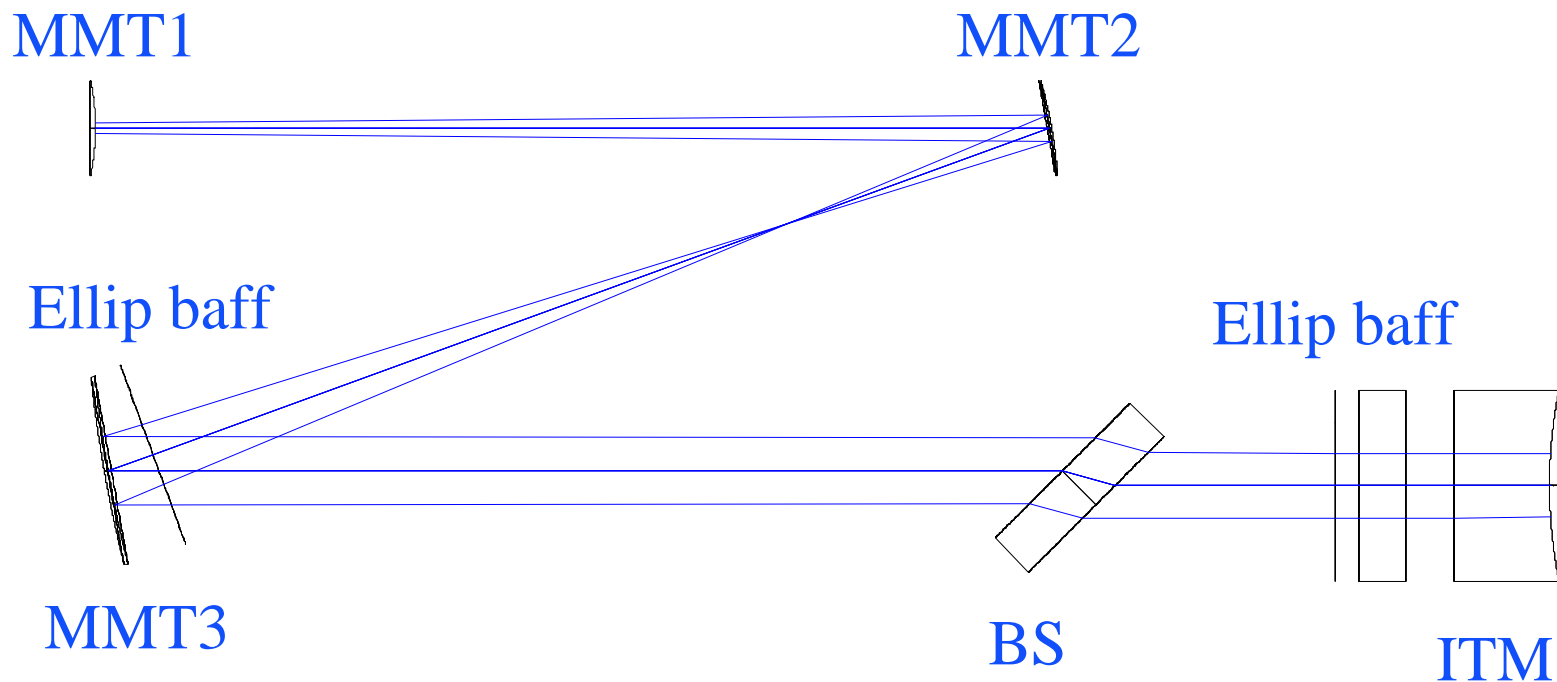
STABLE RECYCLING CAVITY RT DIFFRACTION LOSS

Michael Smith
9/5/07



STABLE RECYCLING CAVITY

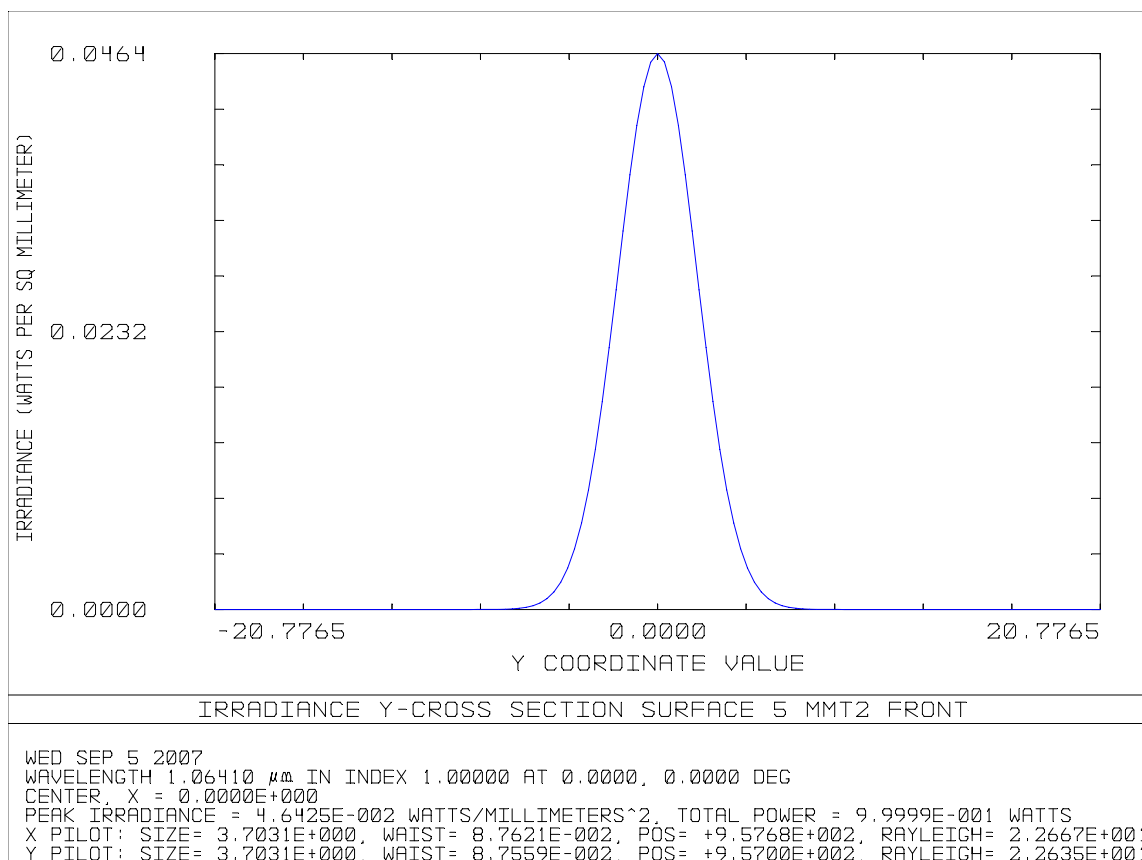
- Optical Schematic
- $w=2.23$, $R=76460$ mm @MMT1





IRRADIANCE BEFORE MMT2 without Elliptical Baffle

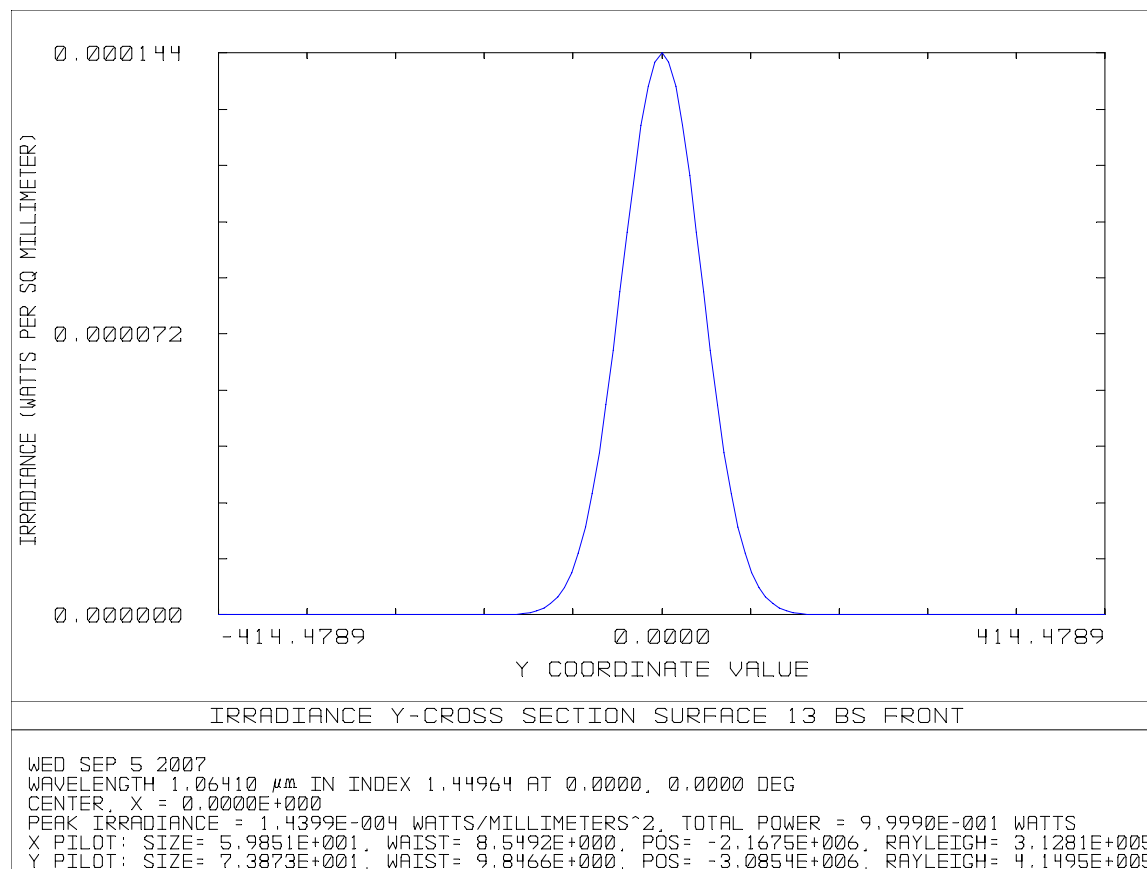
- Irradiance before MMT2





IRRADIANCE AFTER MMT3 without Elliptical Baffle

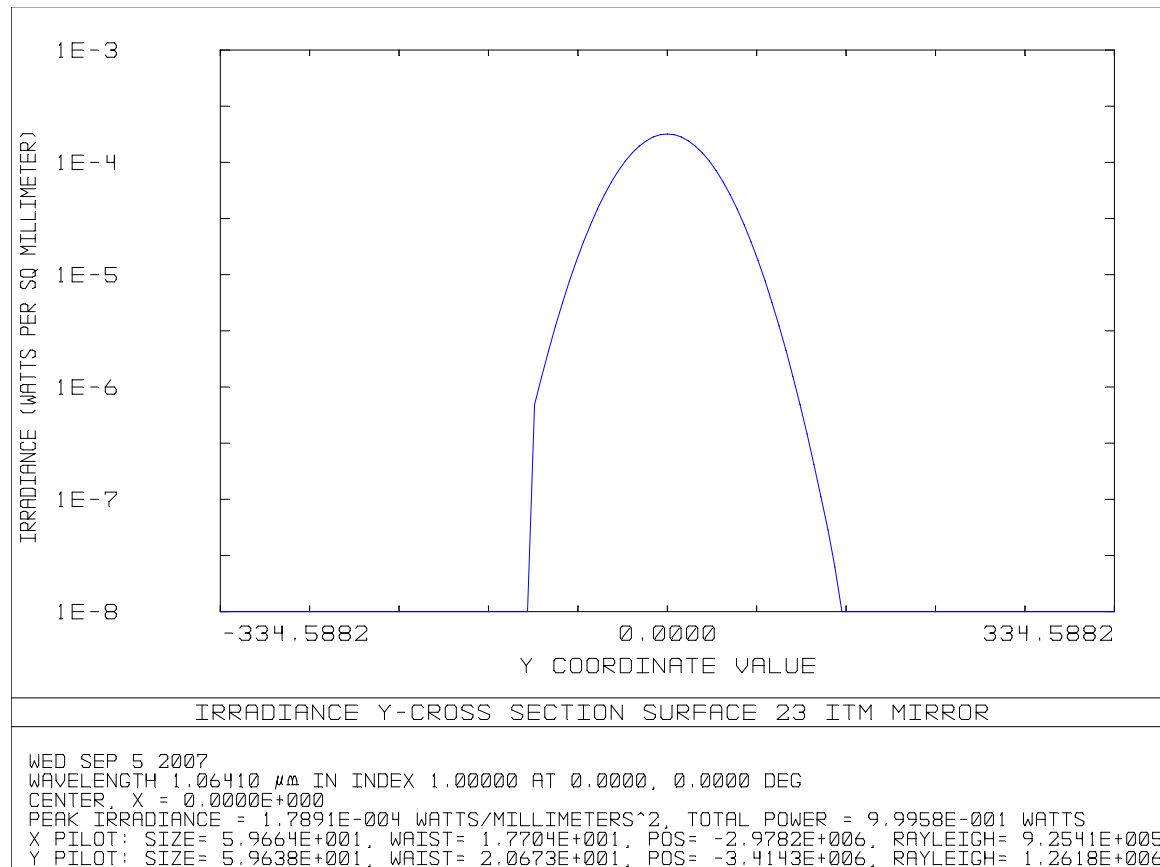
- Irradiance after MMT3





IRRADIANCE AT ITM without Elliptical Baffle

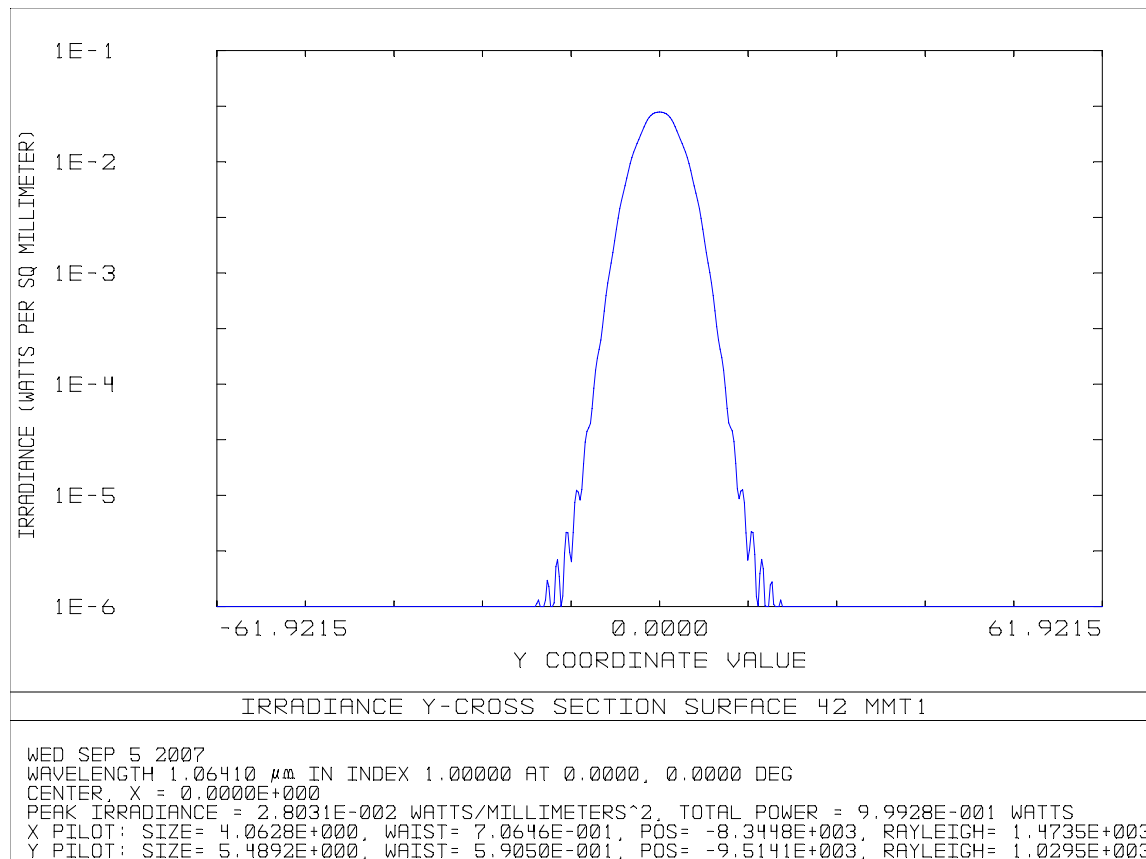
- Irradiance at ITM Mirror





IRRADIANCE AT MMT1 RT without Elliptical Baffle

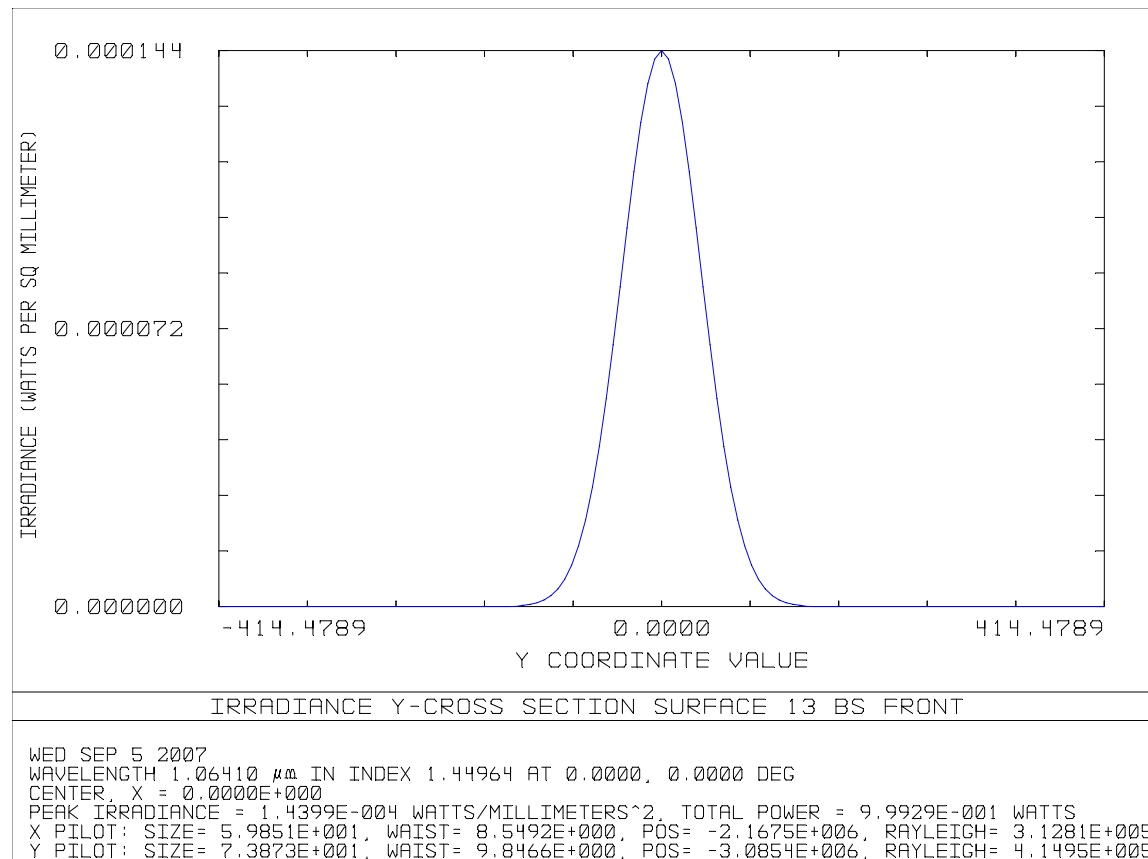
- Irradiance at MMT1 round trip





IRRADIANCE AFTER MMT3 with Elliptical Baffle

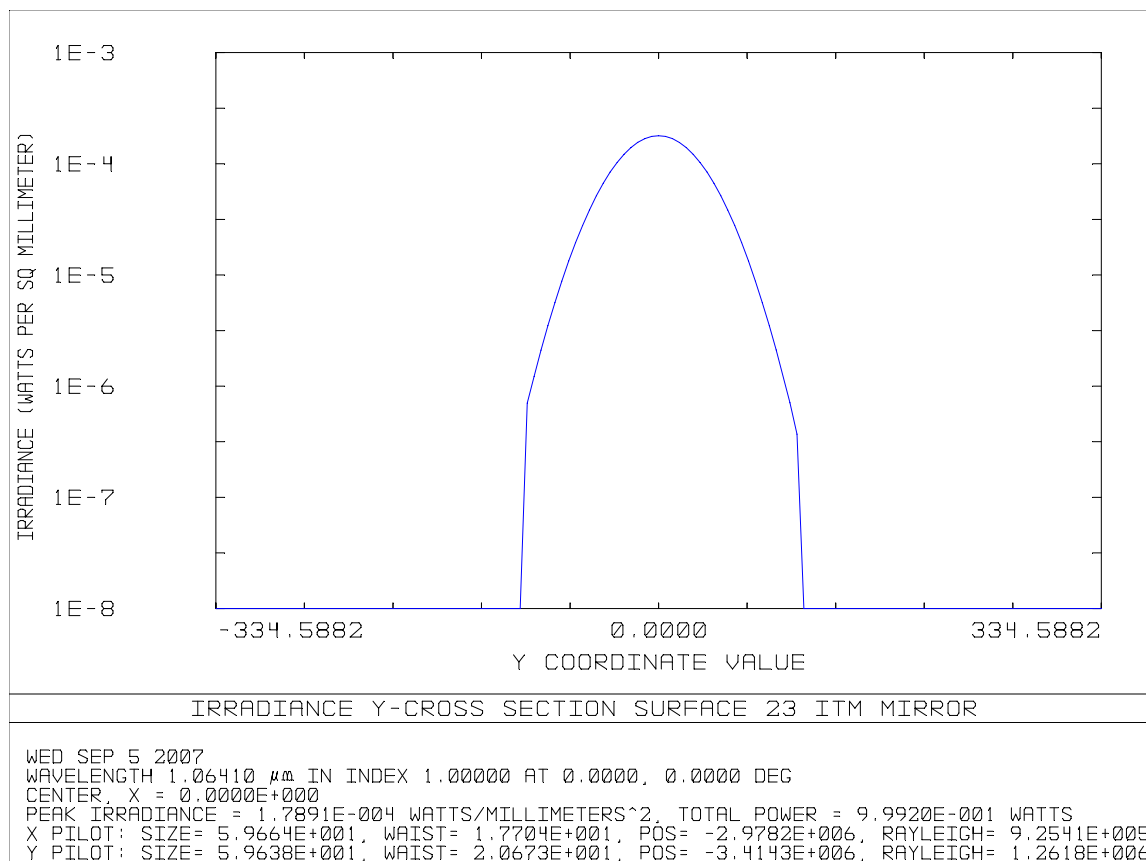
- Irradiance after MMT3





IRRADIANCE AT ITM with Elliptical Baffle

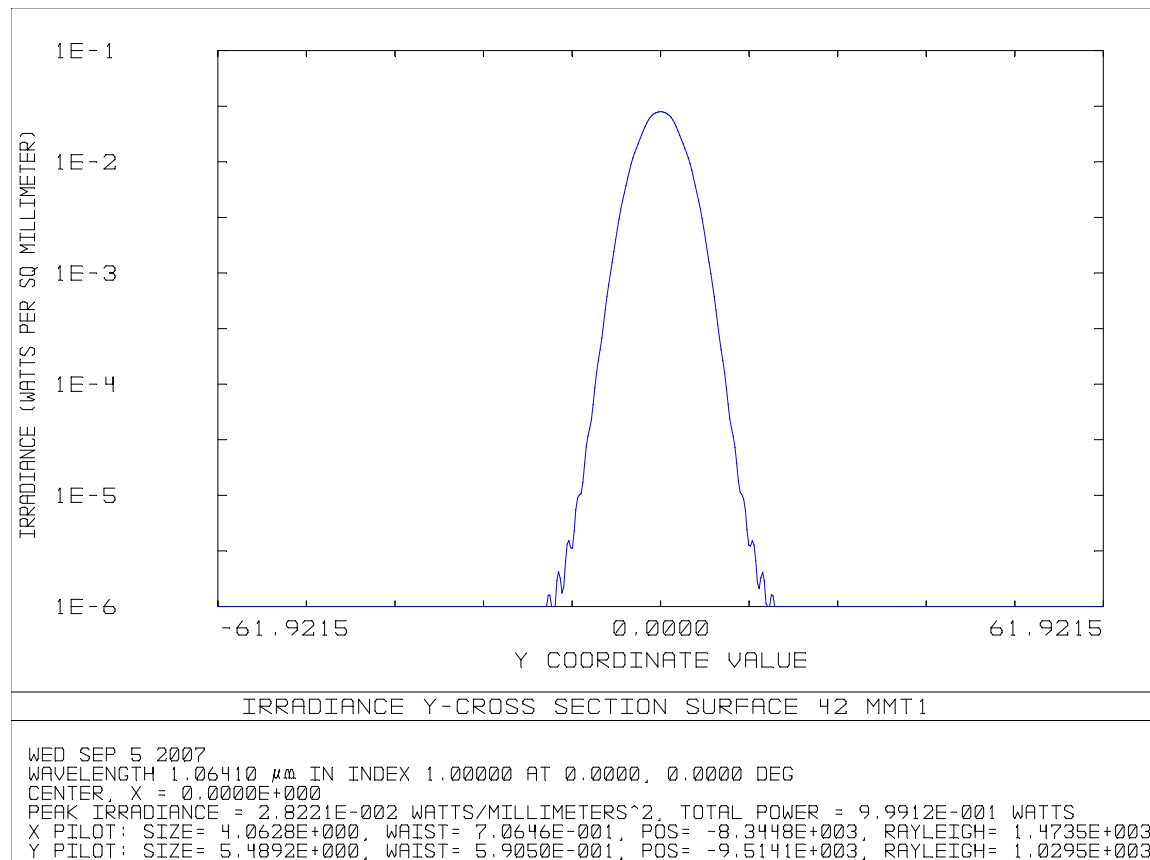
- Irradiance at ITM Mirror





IRRADIANCE AT MMT1 RT with Elliptical Baffle

- Irradiance at MMT1 round trip





CUMMULATIVE LOSS AROUND CAVITY FROM MMT1 Without Elliptical Baffle

<u>Component</u>	<u>Power @ COC</u>	<u>cummulative Loss</u>
Input @ MMT1	0.99999	
MMT2 FRONT	0.99999	0 ppm
MMT3 FRONT	0.99999	0 ppm
BS FRONT	0.99990	10 ppm
ITM MIRROR	0.99958	420 ppm
MMT1 (RT)	0.99928	720 ppm



CUMMULATIVE LOSS AROUND CAVITY FROM MMT1 with Elliptical Baffle

<u>Component</u>	<u>Power @ COC</u>	<u>cummulative Loss</u>
Input @ MMT1	0.99999	
MMT2 FRONT	0.99999	0 ppm
MMT3 FRONT	0.99999	0 ppm
BS FRONT	0.99929	710 ppm
ITM MIRROR	0.99920	800 ppm
MMT1 (RT)	0.99912	880 ppm

- Elliptical baffle adds about 160 ppm RT