

This drawing represents the procedure I developed to measure where the main input beam and therefore the REFL beam from PRM are on CW1, the input wedge to the IO Faraday.

I positioned an analog camera on the HAM2 West door. The only way to get an image of CW1 is to shoot through the IM1 cage. In this case I'm shooting through the upper most area in the IM 1 cage, which is 1.5 inches in height, and the full width of the IM cage.

With a single bounce from the IMC to the aligned PRM, I moved PRM in yaw, and determined that at +200urad there was an increase of light on the baffle in front of CW1, indicating clipping, and at -1000urad, the REFL beam is easily identified to the right of the main input, beam, and I an image with the beam in each location.

I used the image of the REFL beam at -1000urad to measure the beam locations, and this identified the main beam as being +2.4mm from the center of CW1.

I then wrote code in matlab to simulate the beam path and the PRM rotation +/-, and this identified the main beam as being ~~+1.9mm~~ **+2.2mm (recalculated)** from the center of CW1.

The IO Faraday is very sensitive to alignment, both the centering of the beam through the Faraday, and the angle of incidence.

I plan to commission my HAM2 top camera, to see the output of the IO Faraday, and use that, and my CW1 camera, to realign through the Faraday.

