

Thursday was a VISA run day. XJ started tuning the beam at 9am, and we sent beam through the undulator at noon. The most stable time for the system is after 6pm. XJ, Alex and I called it an early evening and shut down at 10:30pm.

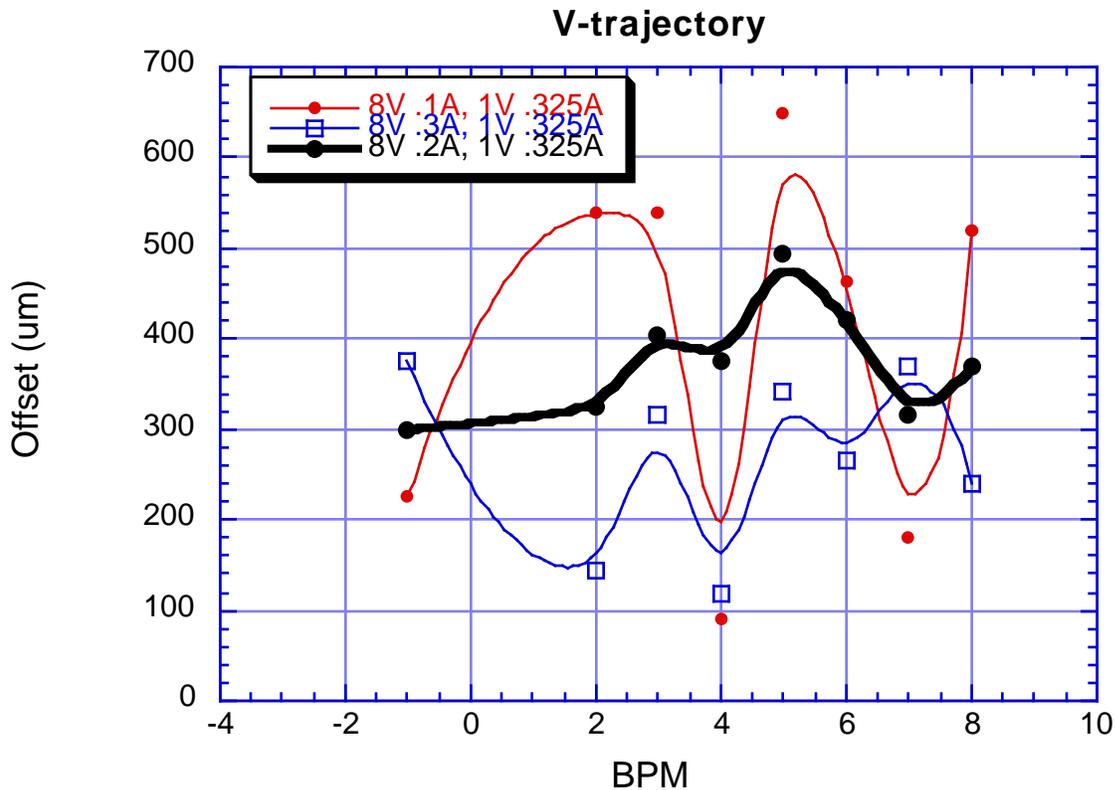
The beam was run @ 70.9MeV with an energy spread of <.3% full width.

We did a Faraday Cup calibration to make sure the peak signal is linear with the charge (area).

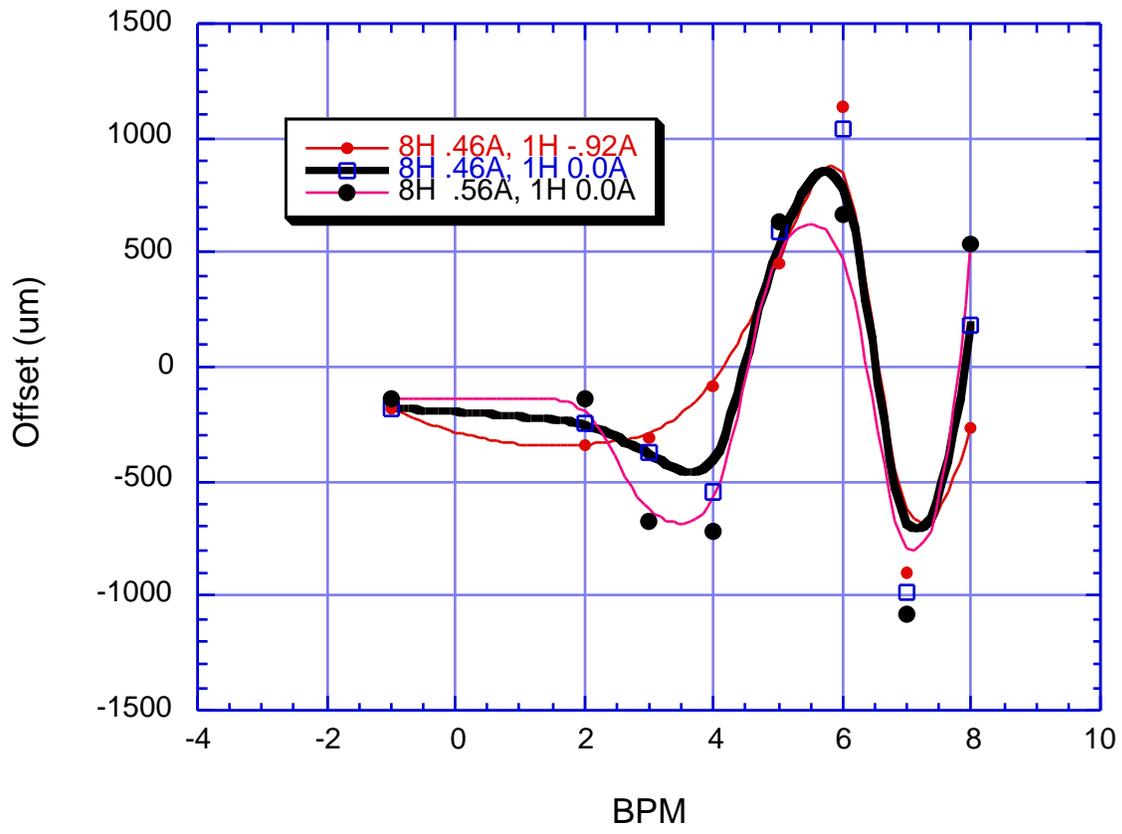
Trajectory studies were done using the upstream correctors and not using the undulator correctors.

First the vertical trajectory was corrected to < 200 μm peak-peak of the alignment laser-included are a few of the other, best trajectory is thick black line. The horizontal was then corrected but the best we could do today was peak to peak of ~1.8mm. Both trajectories are shown below.

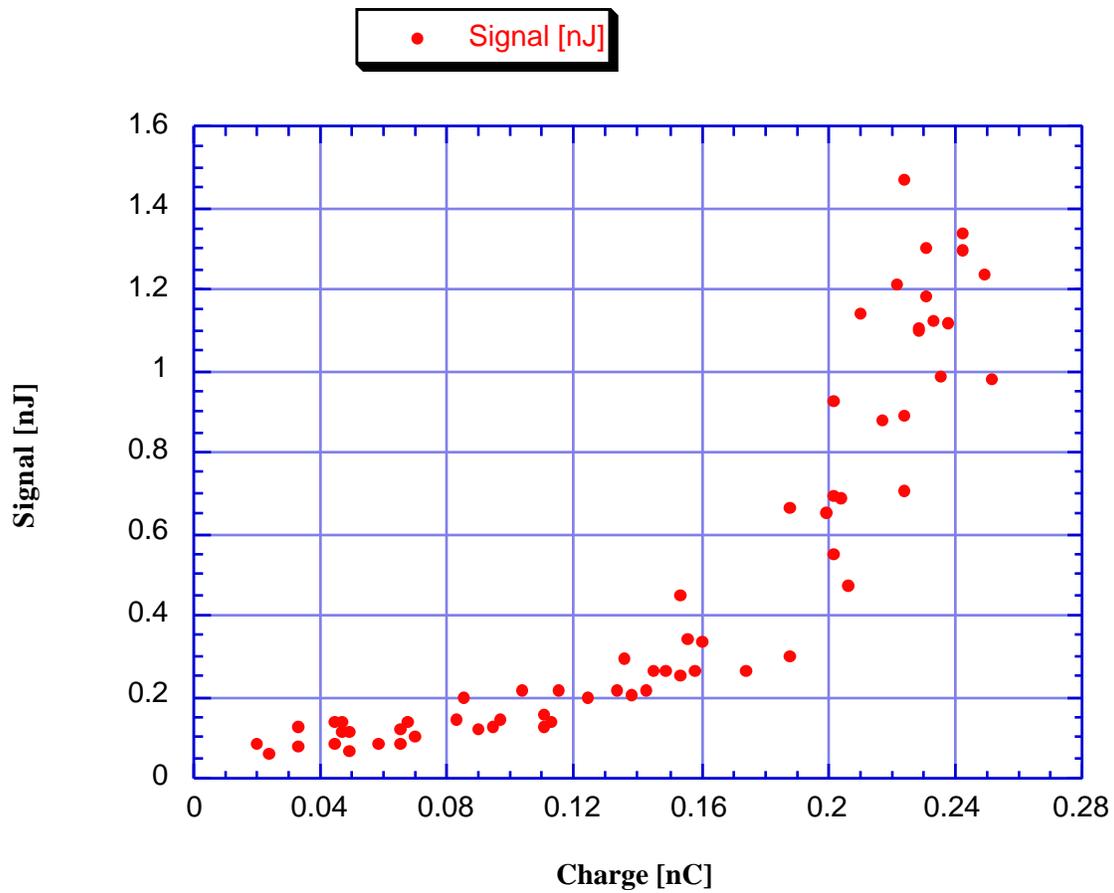
8V refers to the steering magnet placed in the matching section a few weeks ago. And BPM -1 refers to the BPM just before the undulator. Remember there is no BPM 1



H-trajectory



Next, we saw fluctuations in the detector signal which were greater than the faraday cup. To maximize the signal, the correctors around the undulator were used to place the e-beam within 100 μm of the alignment laser. The upstream steering was changed from the trajectory plots above to maximize signal. Detector vs. charge measurements were then done, and the results are non-linear- evidence of gain. A .5" iris was placed 1.5 m after the exit of the undulator (acceptance angle 8.5mrad), and the peak detector signal remained nearly the same.



The Data Acquisition sync problem was fixed, and as can be seen the data is much “cleaner” compared to last time.

We tried putting a bandpass filter in front of the detector, but it seemed to cut off all the radiation. We were apparently outside the bandpass of the filter. In order to get the undulator radiation within the bandpass of the filter, we pushed the energy up to 72.0

MeV and tried to tune at the end of the night, but could not get near the relatively high signal we had before.