

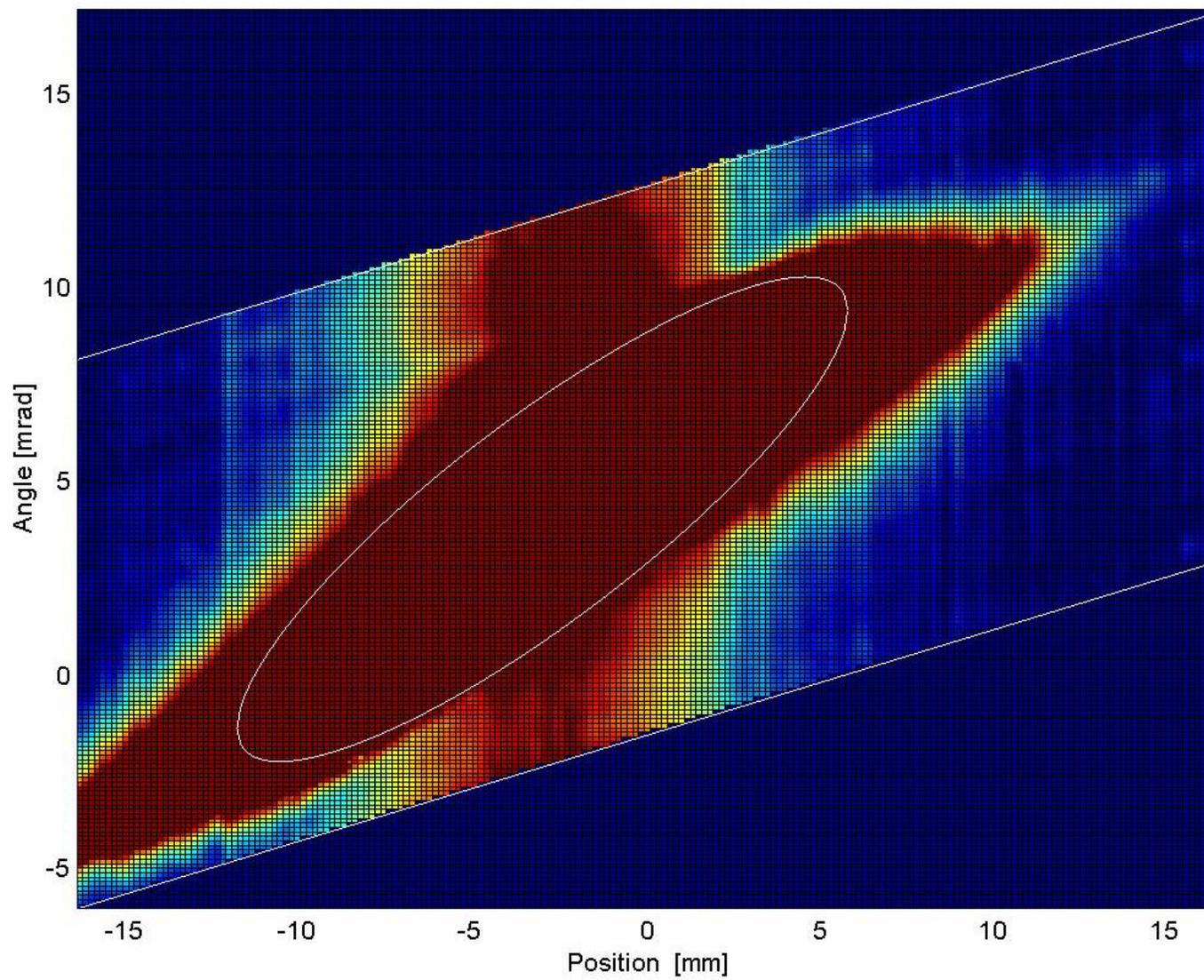
Results of beam measurements

- Peak beam current:
 - 50 mA at .06% duty factor for 2 hours
- Duty factor:
 - 3% at 25 mA for 50 hours
- Output emittance (MEBT exit):
 - less than .3 p mm mrad vertical and horizontal at 25mA, .06% duty factor

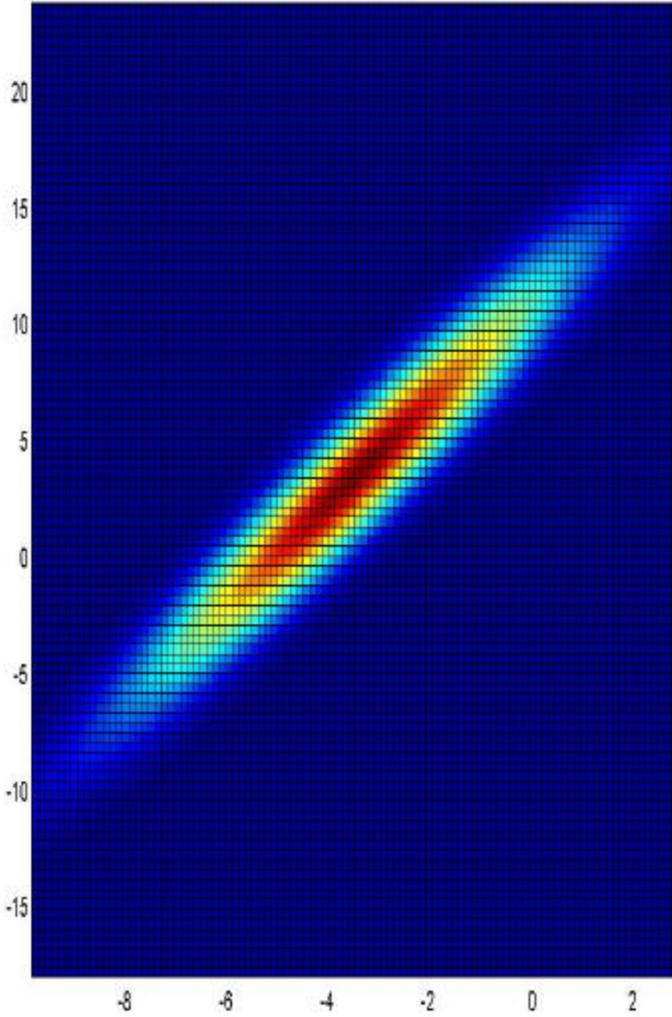
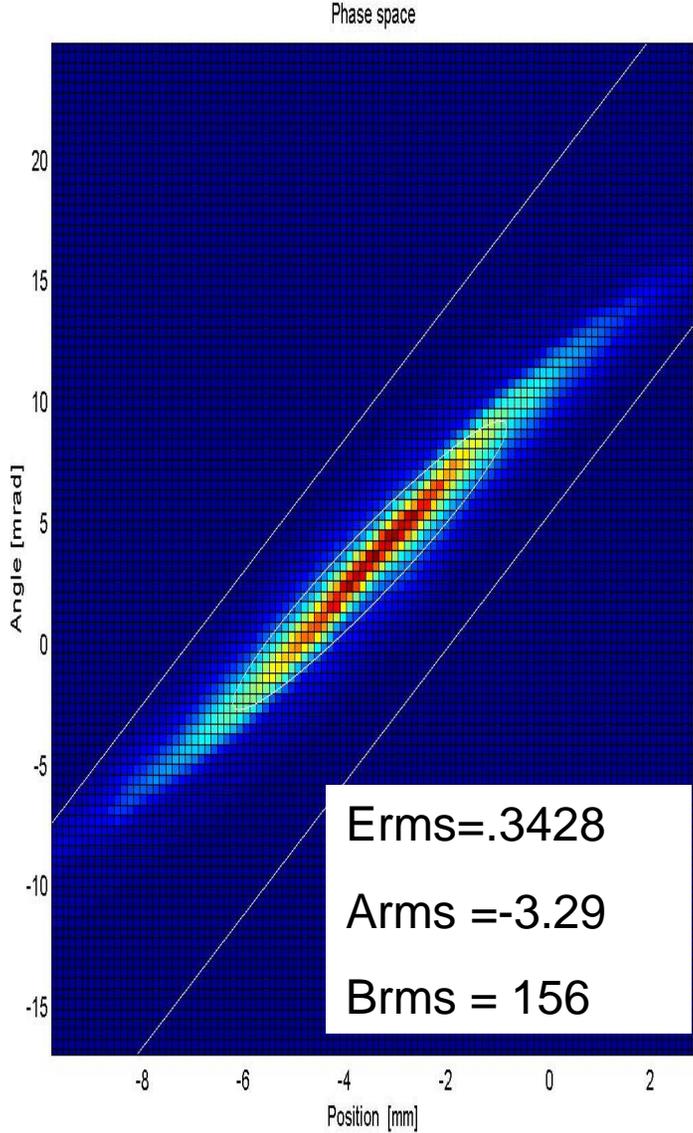
FE emittance measurement and interpretation

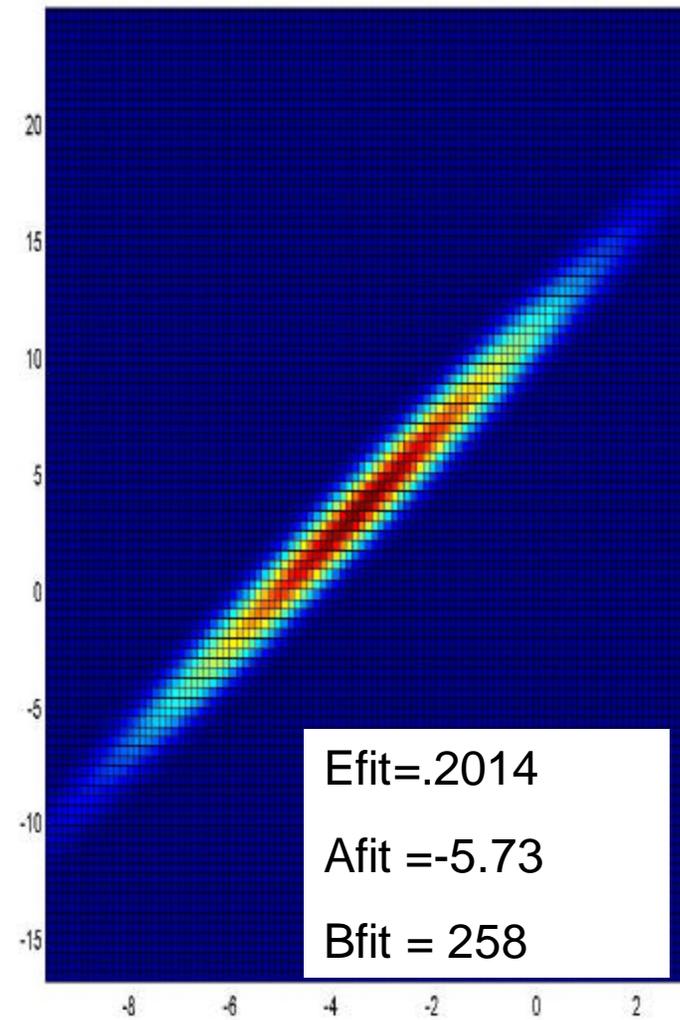
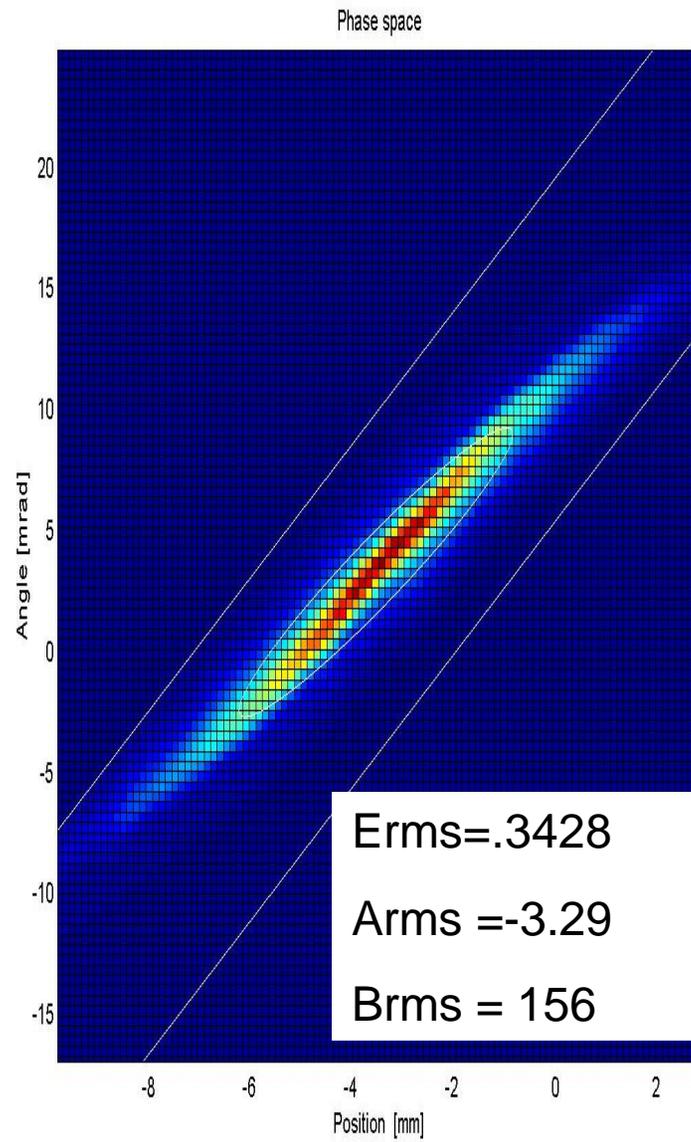
- Measurement scheme
 - Movable slit (40 μ m) + movable harp (30 wires) separated by 1m drift space.
 - One plane at a time. Need to be rotated mechanically to change plane.
- Data processing
 - Bias subtraction during beam off
 - Slit scattering taken into account by subtraction of scattered current
 - No need for data thresholding
- Twiss parameters calculation
 - R.M.S. parameterers
 - 2D fitting to gaussian distribution

Phase space file=1306

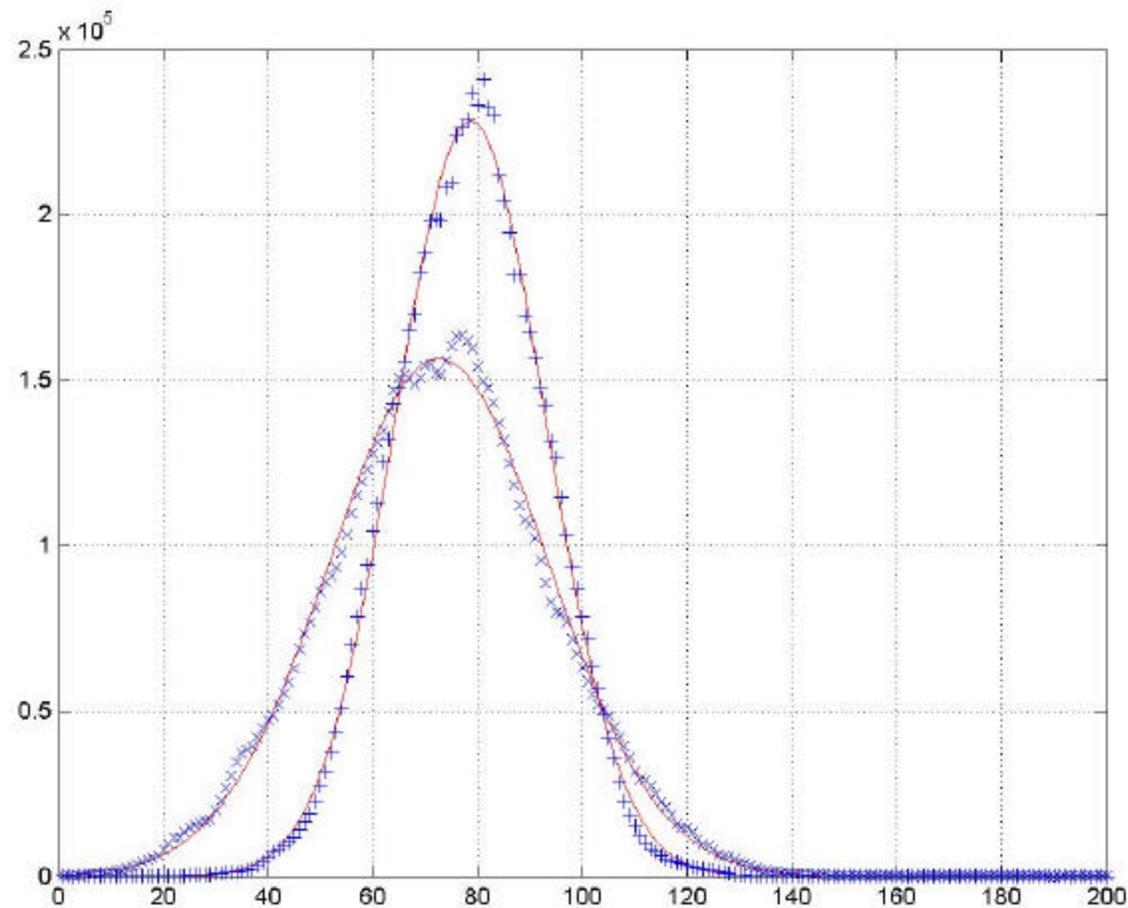


Vertical plane, not bunched, 25mA , no slit scattering removal

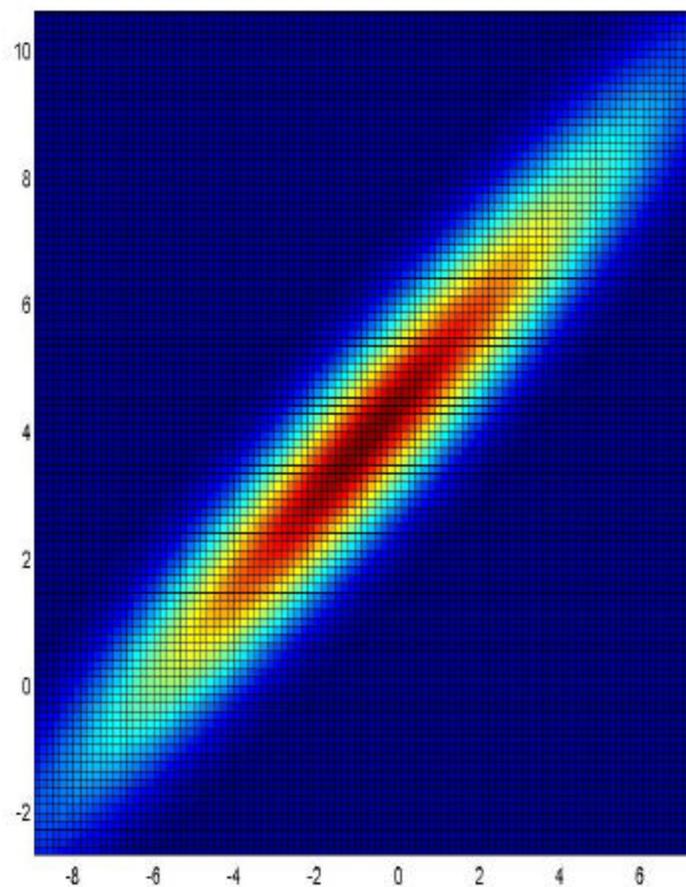
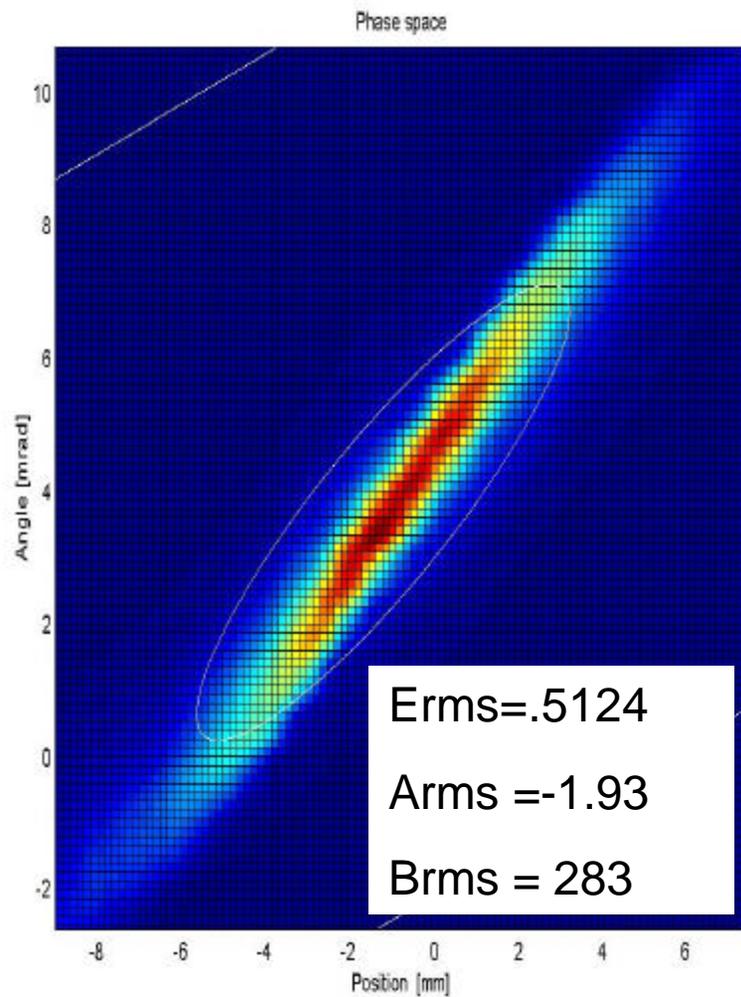




2D projections of fitted and measured distributions



horizontal plane, bunched, 25mA , no slit scattering removal



Erms=.512 Efit=.2012

Arms =-1.93 Afit =-5.14

Brms = 283 Bfit = 623

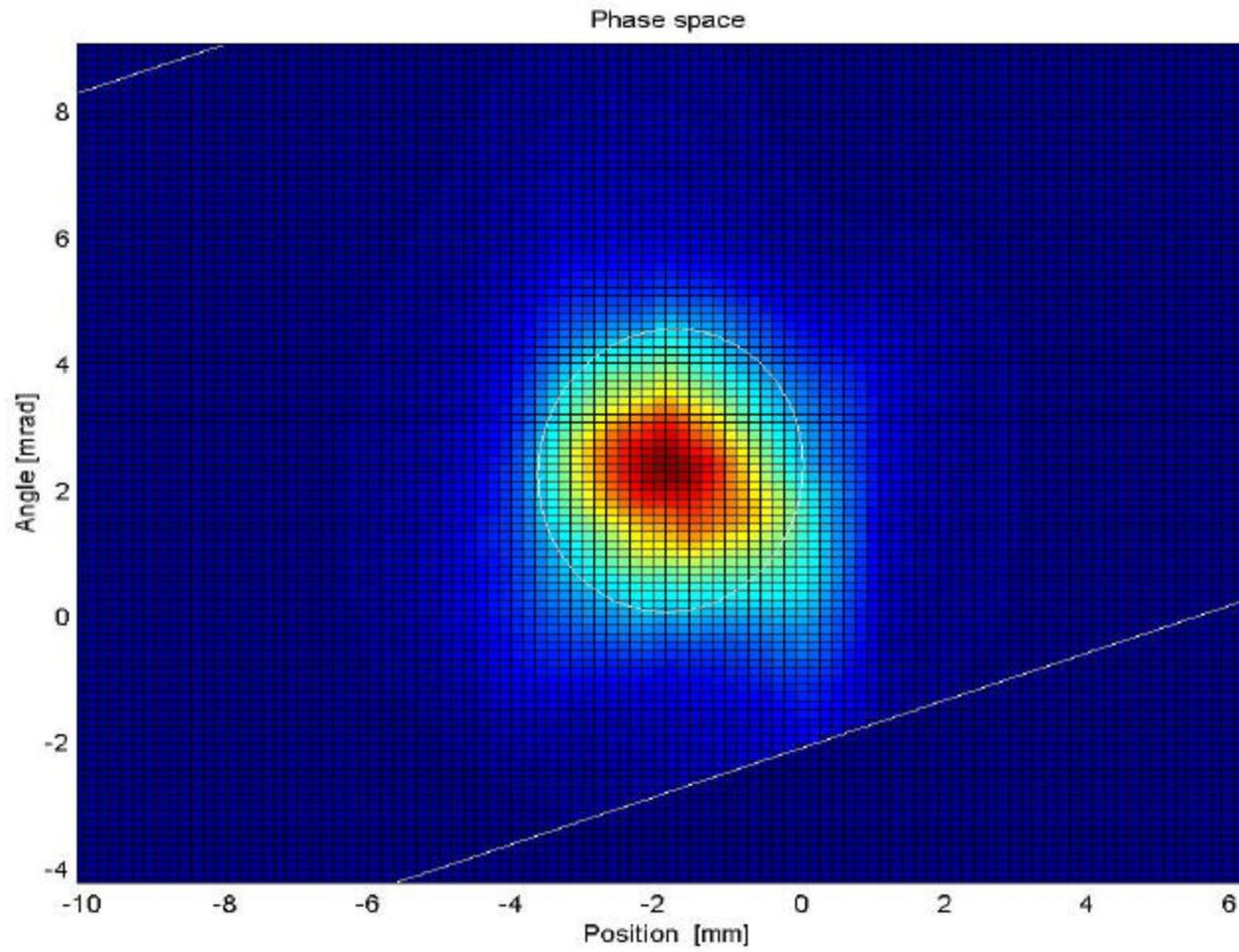
After slit scattering removal

Erms=.32 Efit=.174

Arms =-3.3 Afit =-5.8

Brms = 459 Bfit = 762

horizontal plane, unbunched, 25mA , no slit scattering removal



Erms=.3

Efit=.184

Arms =-0

Afit =0.5

Brms = 83

Bfit = 96

