Personal Opinion of FF optics at the beginning of 2012 Autumn Run

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ATF2 weekly meeting

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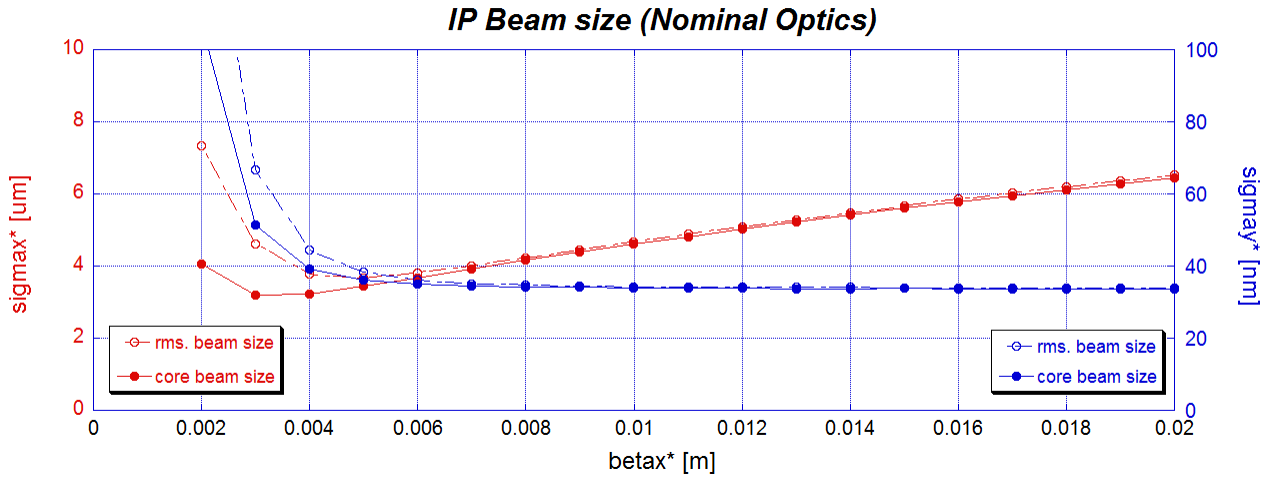
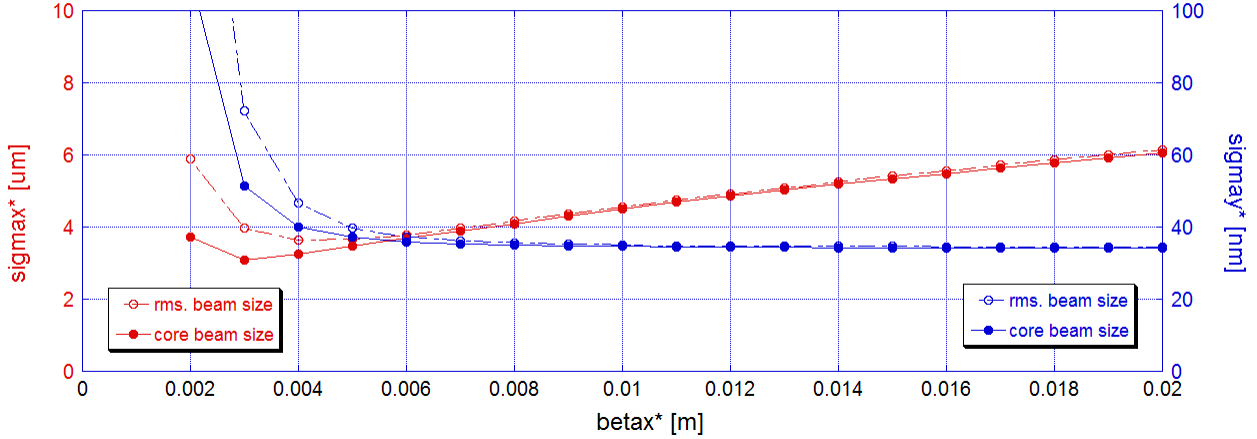
IP beam sizes with measured multipole errors





emitx = 2nm
emity = 12pm
betay = 0.1mm*

after Y24 Y46 Y22 Y26 Y66 Y44 correction

betax's are changed by changing matchng quads.*

No significant difference after correction

Beam Optics ?

No clear difference for Nominal Optics & Glen's 2.5x1 optics,
when we applied the sextupole and skew sextupole corrections.

Since the nominal optics is a ILC like optics,
I recommend to use "Nominal FF optics".

Horizontal Beta Function ?

Large betax*

Advantages

- decrease the effects of the multipole errors
  - the 12poles and 6poles for QF1 will be improved from spring run, but we don't know the other multipole effects.
- decrease the coupling effect of <x'y>
- make some margin to horizontal emittance growth.
- already understood the IP-BSM background from QF1FF (horizontal).

Disadvantages

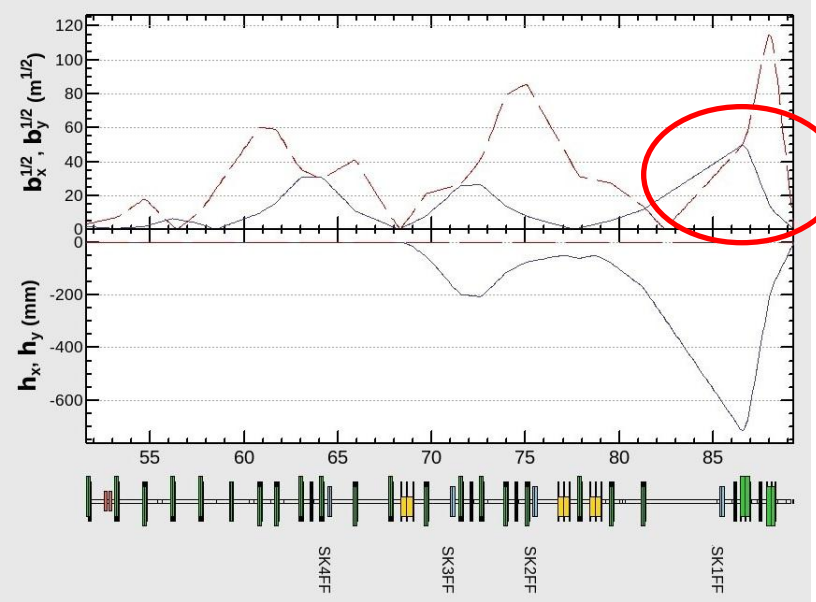
- increase the effect of the beam tilt <xy>
  -> We have already tried the tilit correction with QKs.

I recommend to use 10x1 optics at the beginning of 2012 autumn run.

Backup

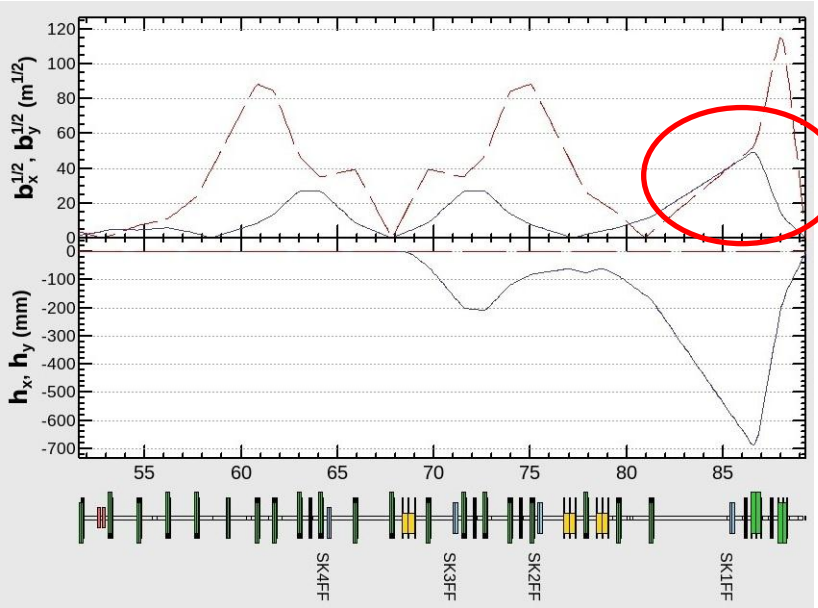
FF optics (Glen's optics & Nominal optics)

Glen's 2.5x1 Optics

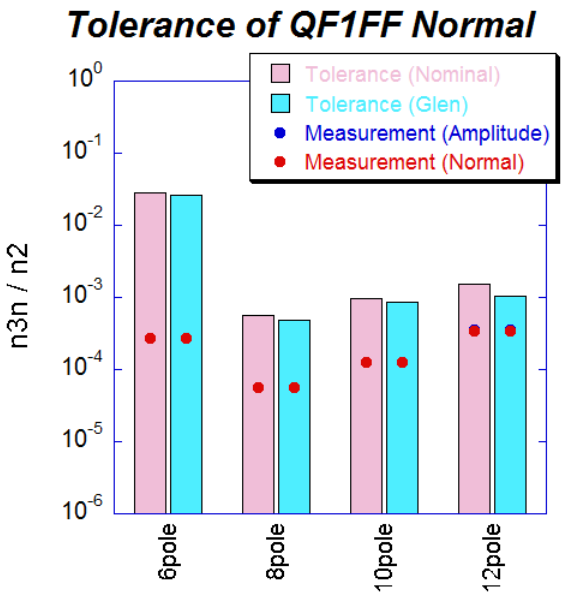


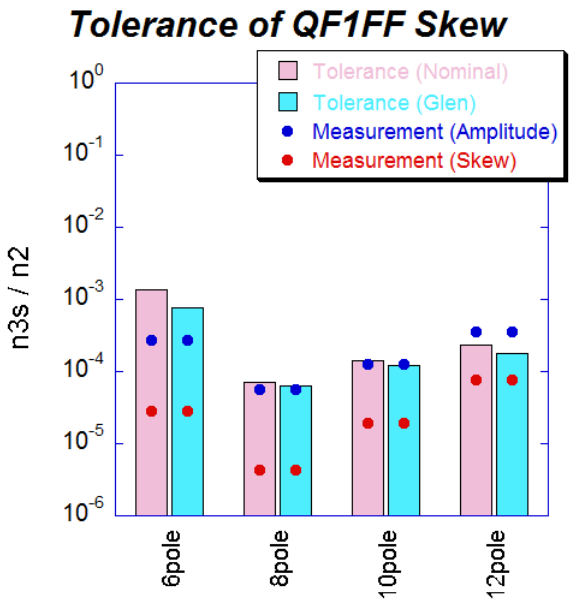
Same betax at QF1FF

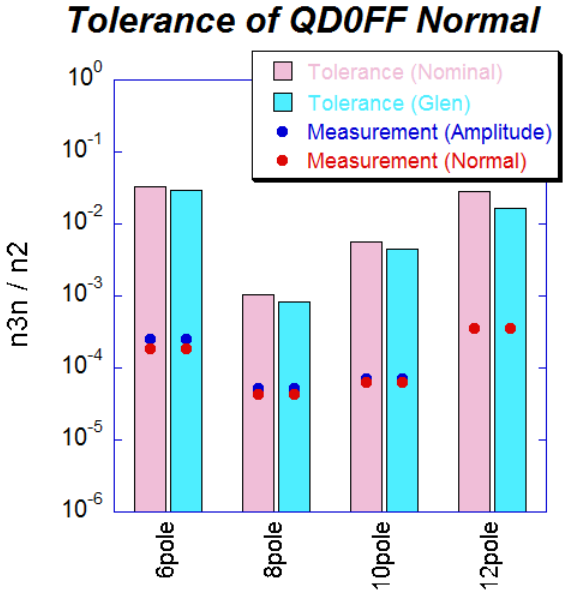
Nominal2.5x1 Optics

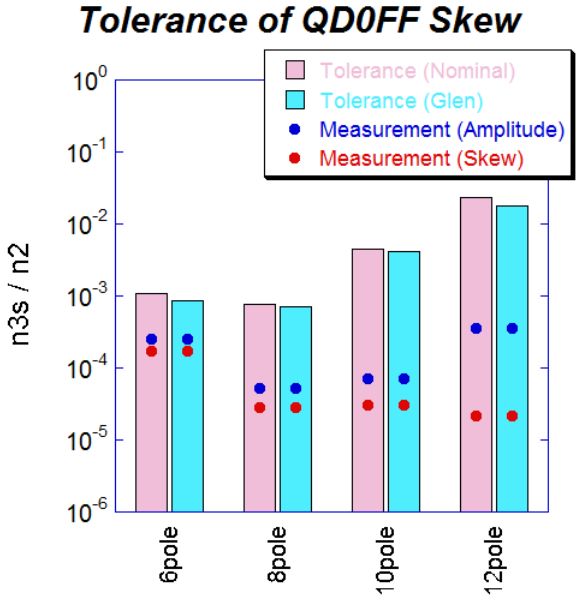


Tolerances for Multipole Errors for Final Doublet









Red ; Nominal 2.5x1
Blue; Glen's 2.5x1

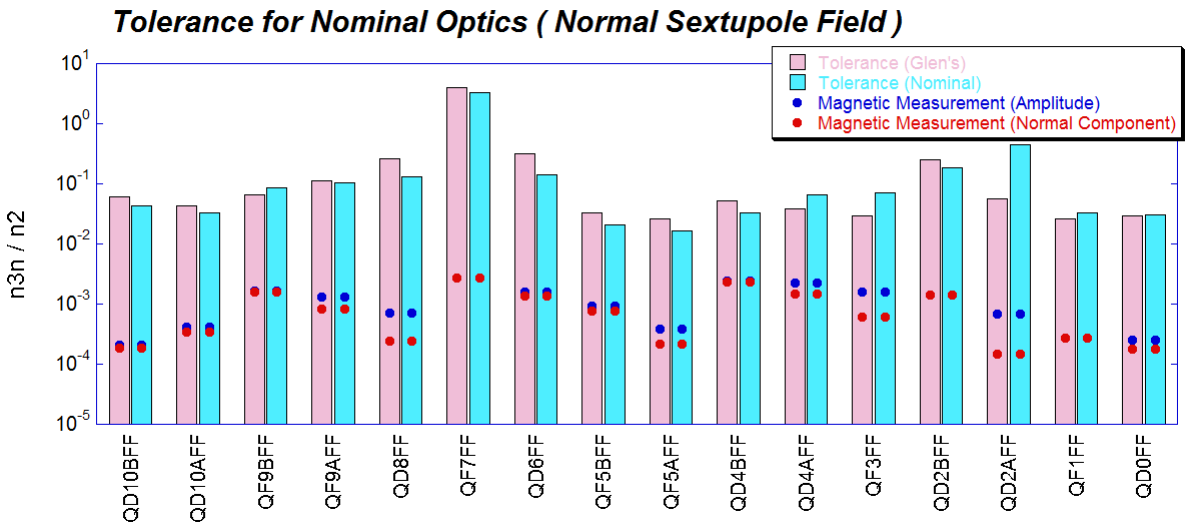
emitx = 2nm
emity = 12pm

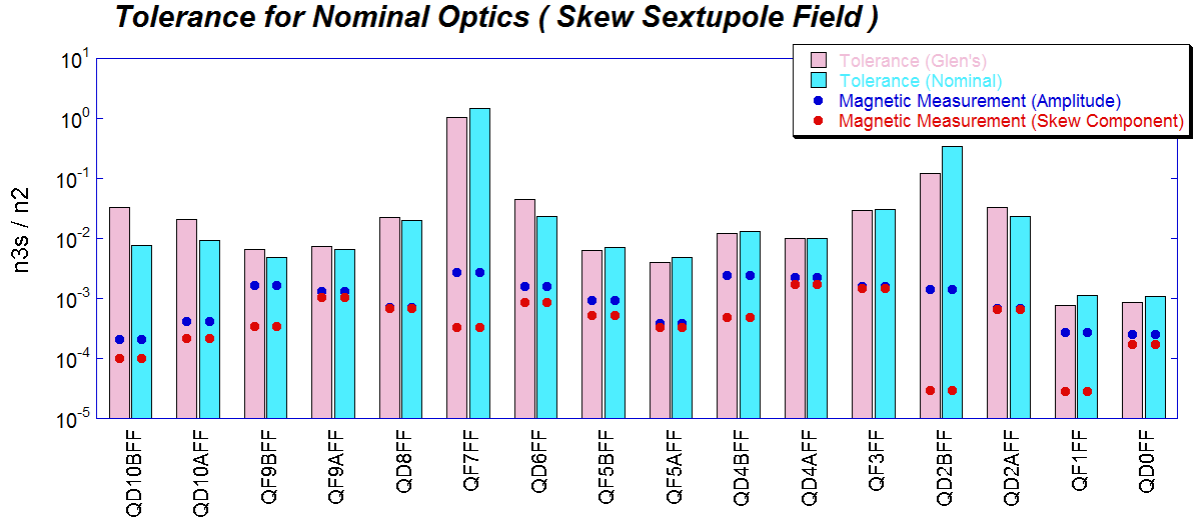
with Y24 Y46 Y22 Y26
Y66 Y44 correction

No significant difference after correction

a little bit large tolerances for nominal optics

Tolerances of Sextupole Field Errors for FF Quads





Red ; Glen's 2.5x1
Blue; Nominal 2.5x1

emitx = 2nm
emity = 12pm

with Y24 Y46 Y22 Y26
Y66 Y44 correction

No significant difference after correction