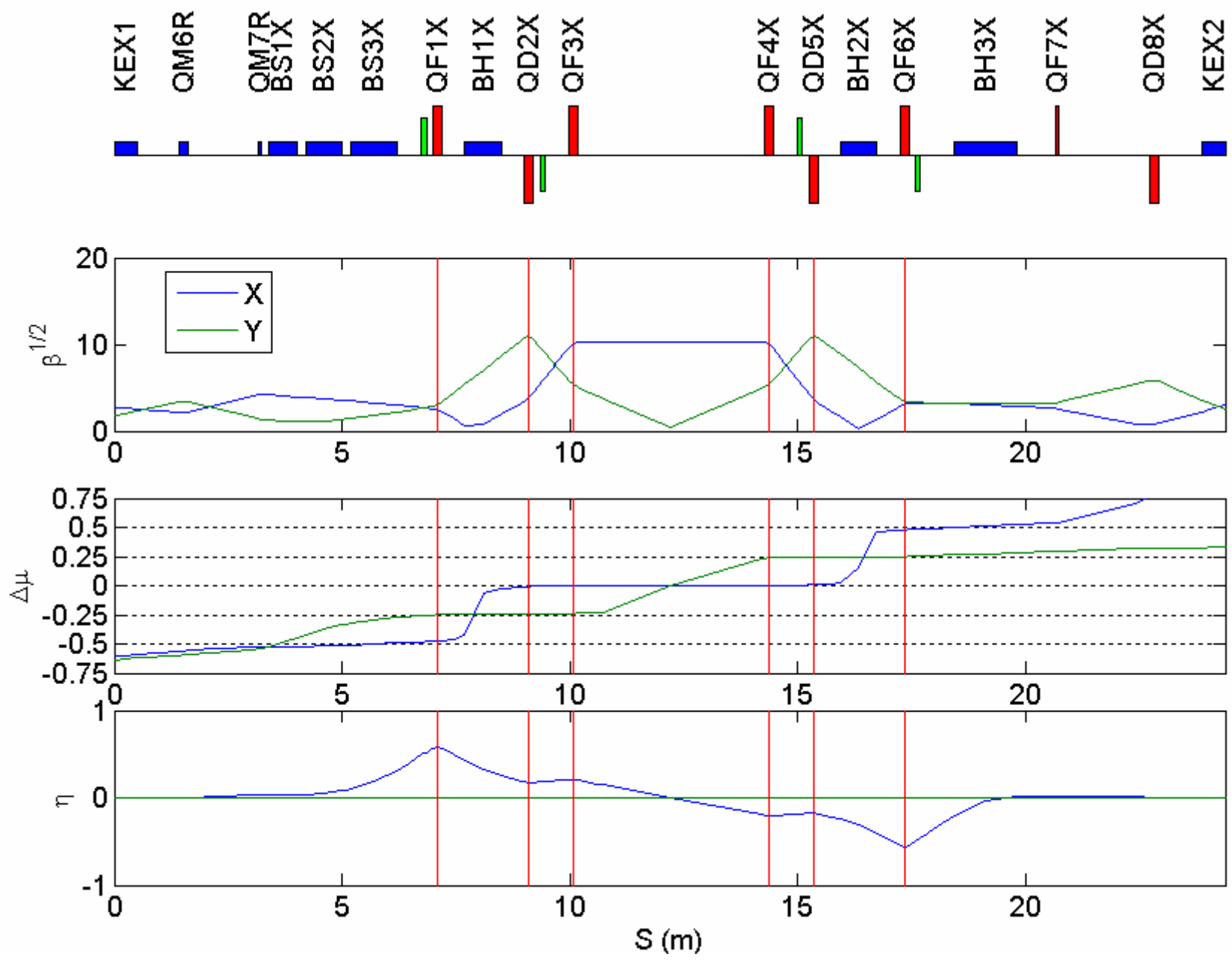
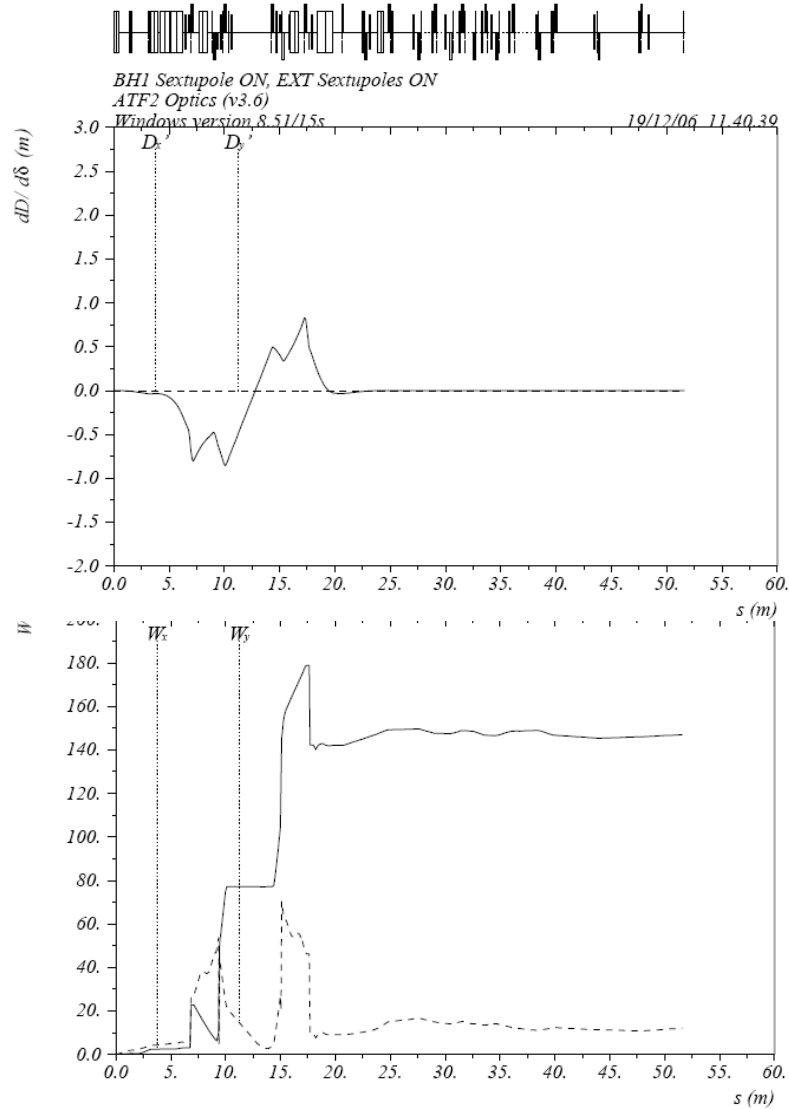




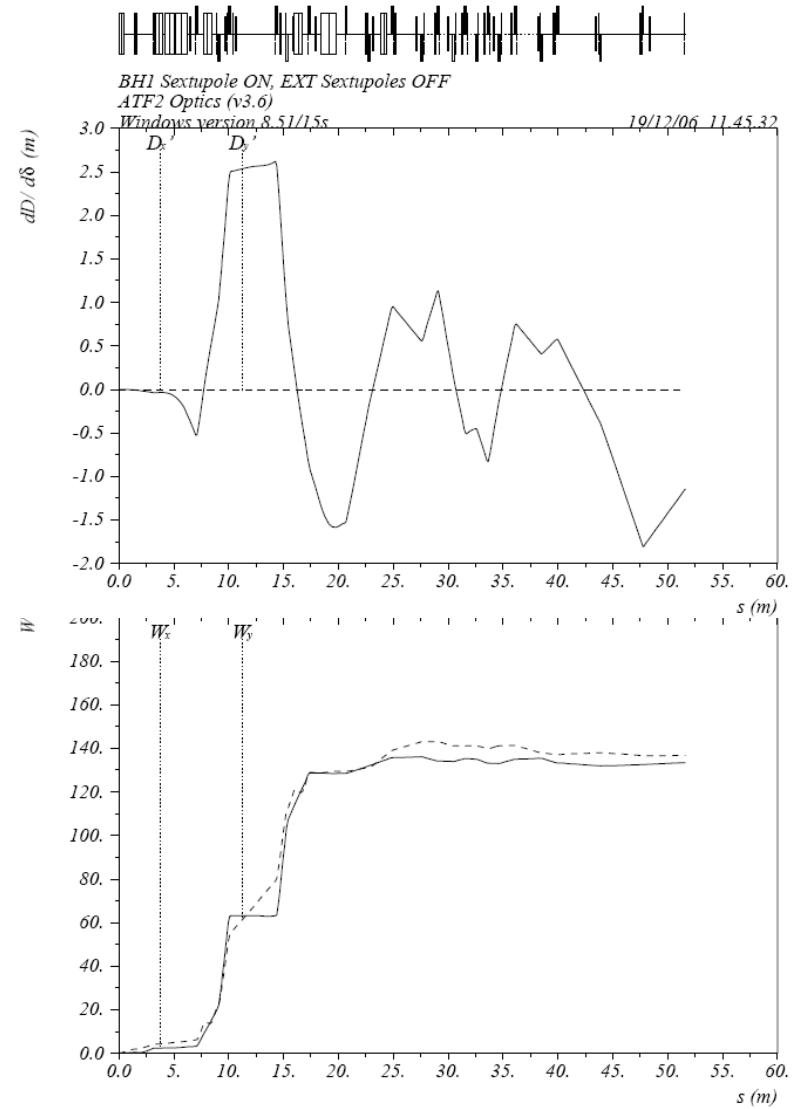
More on Vertical Dispersion and Coupling Correction in the ATF2 EXT Line (v3.6)



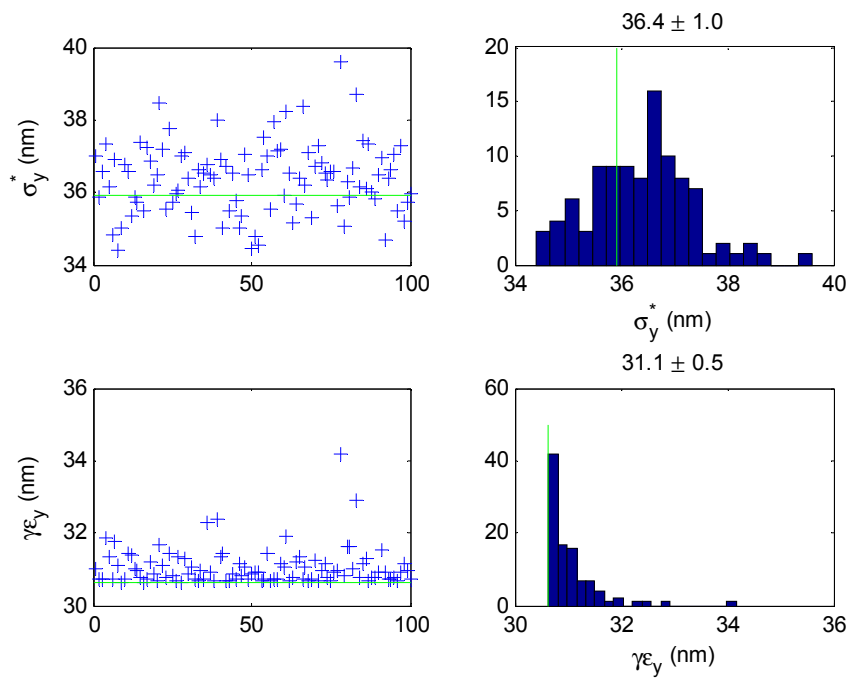
nominal (v3.6)



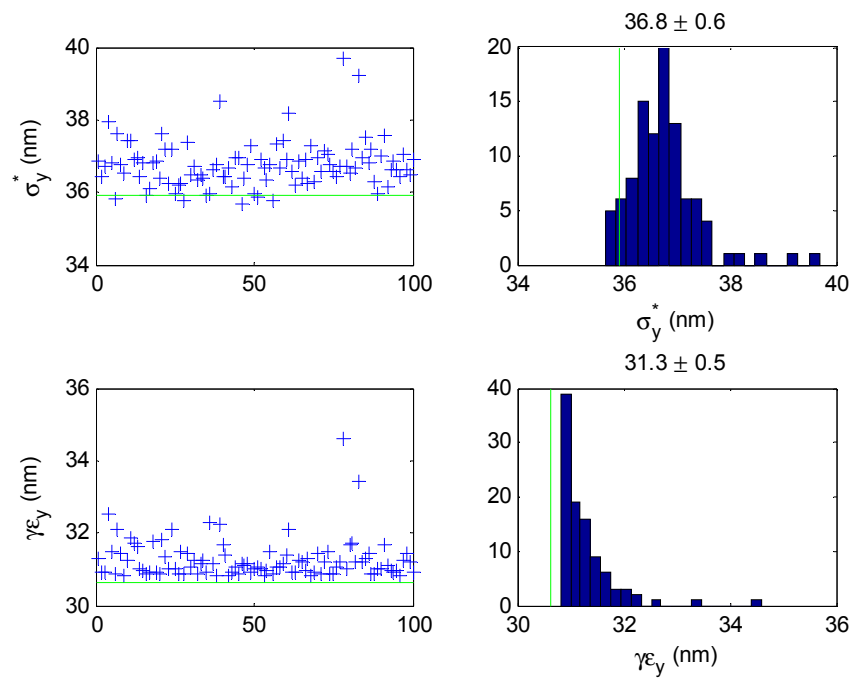
turn EXT sextupoles OFF



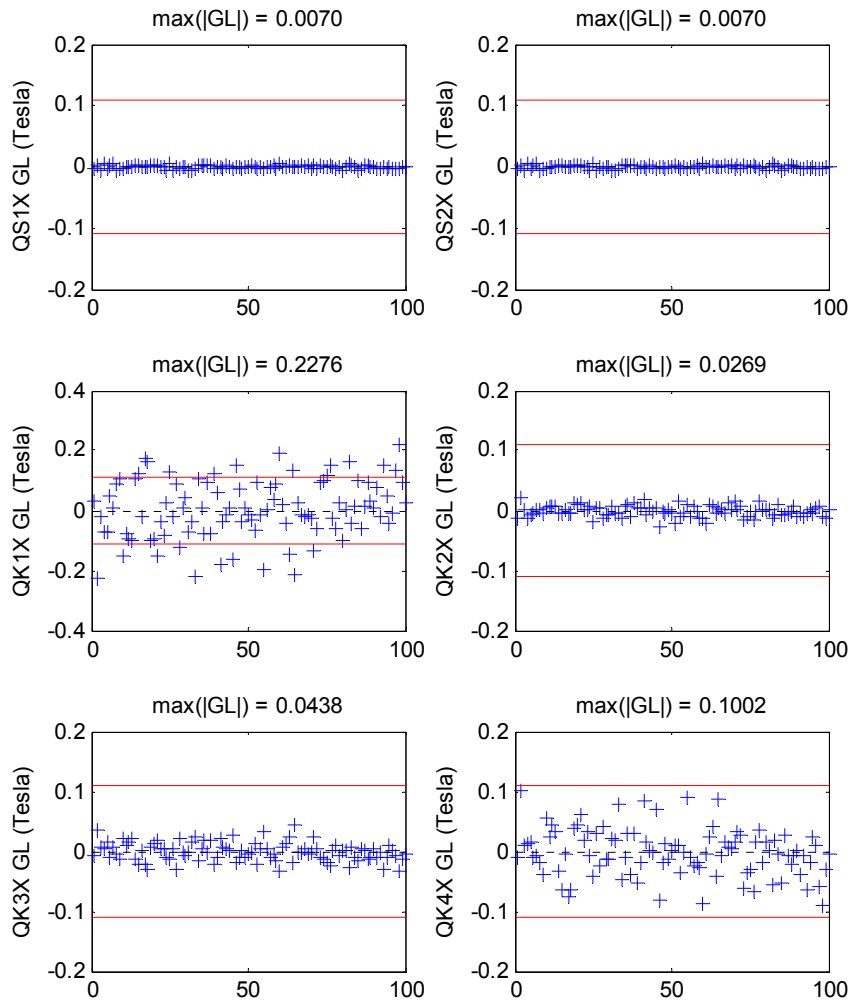
BH1,2 sextupole ON
EXT sextupoles ON



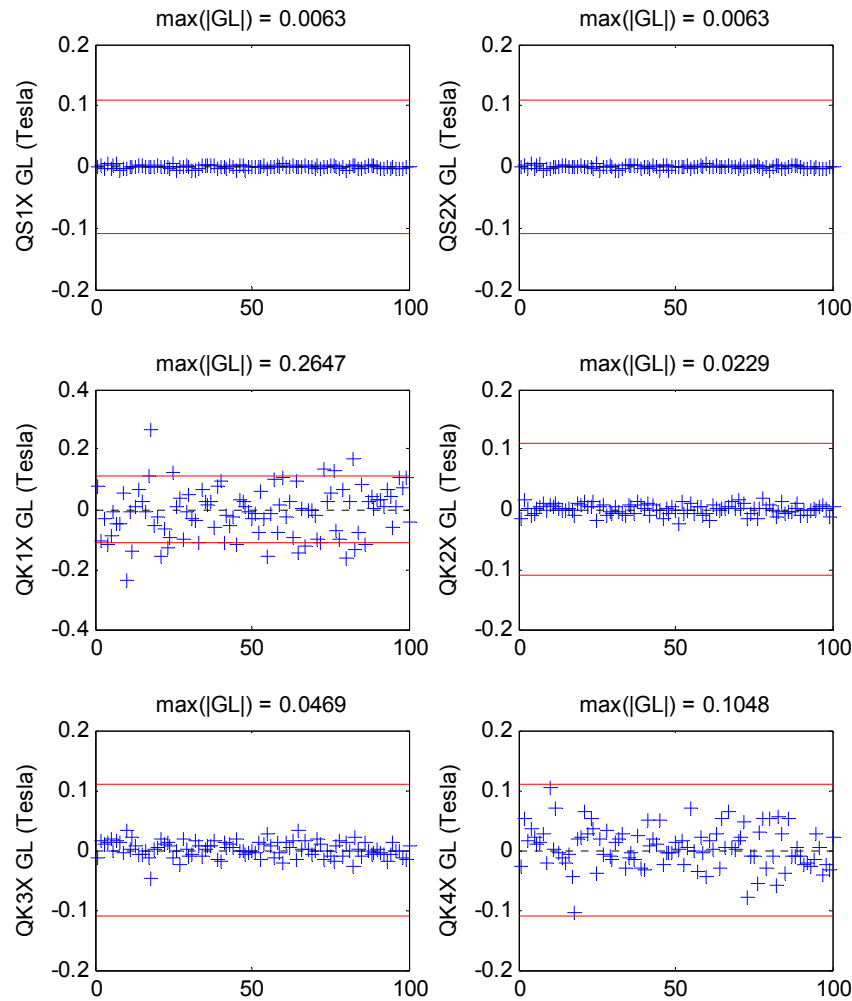
BH1,2 sextupole ON
EXT sextupoles OFF



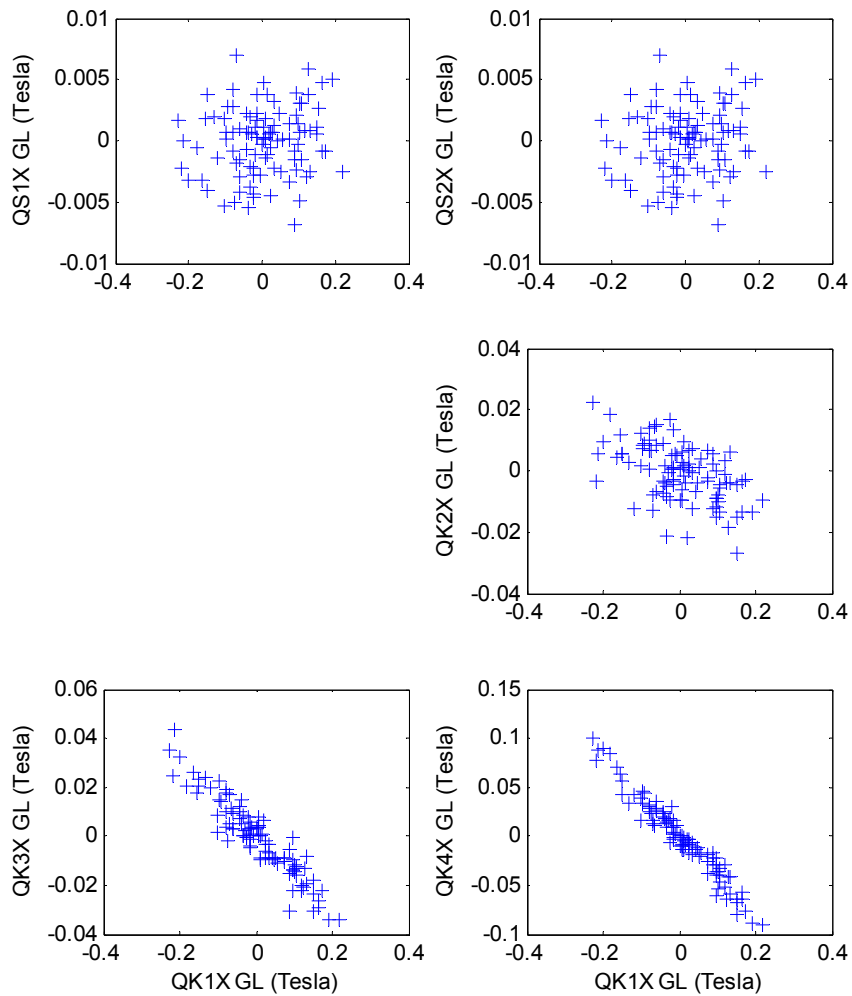
BH1,2 sextupole ON
EXT sextupoles ON



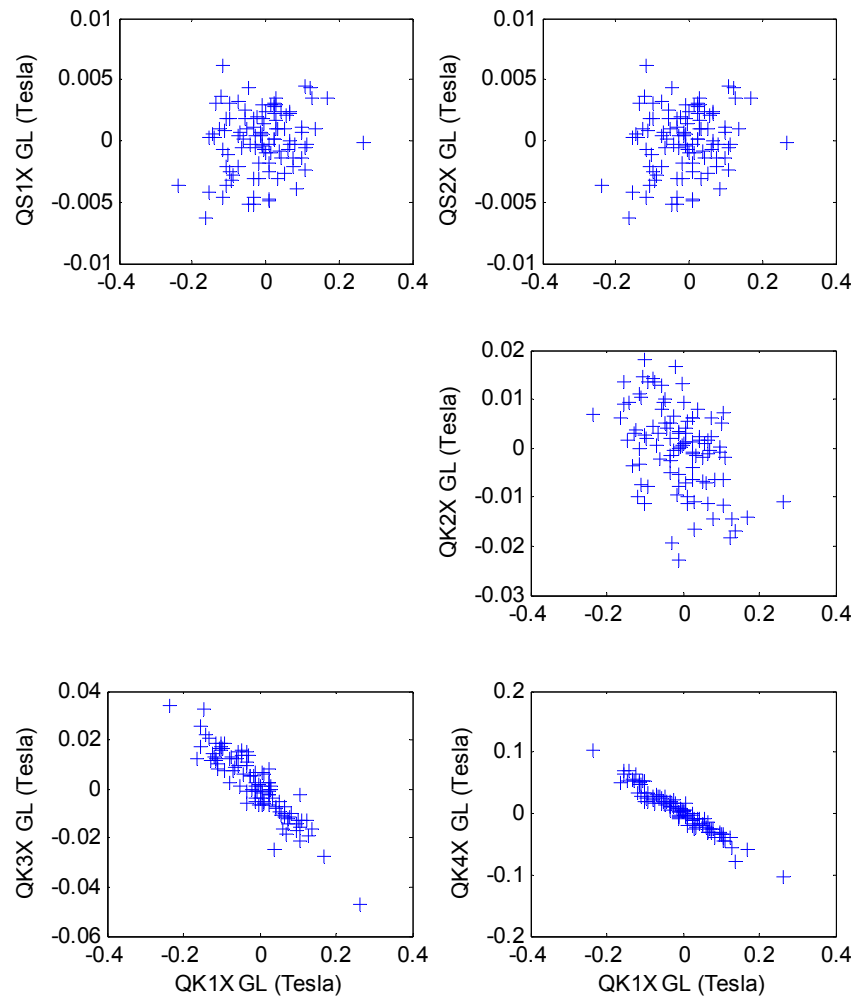
BH1,2 sextupole ON
EXT sextupoles OFF



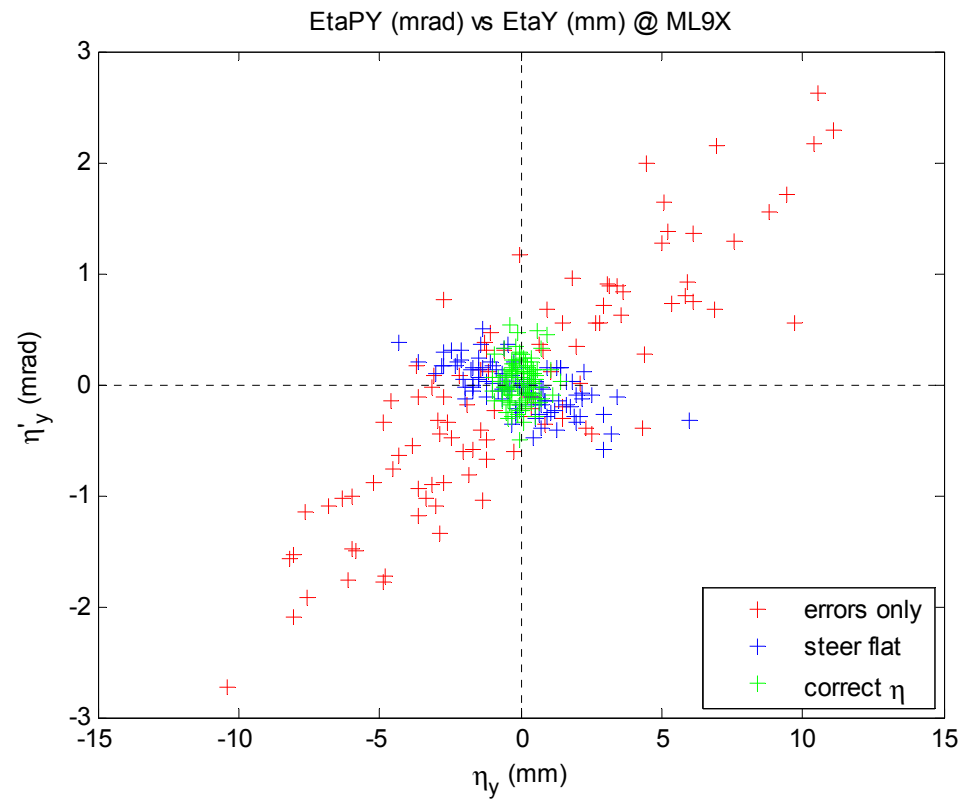
BH1,2 sextupole ON
EXT sextupoles ON



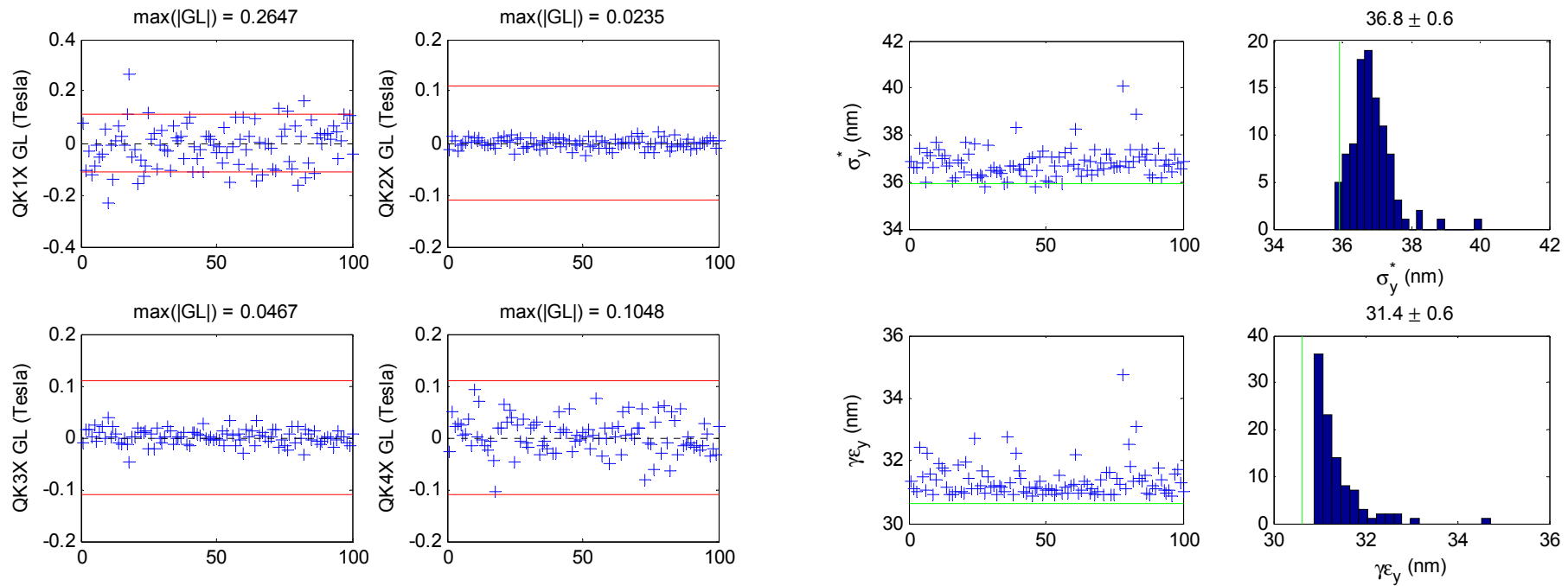
BH1,2 sextupole ON
EXT sextupoles OFF



BH1,2 sextupole OFF
EXT sextupoles OFF
300 μm quadrupole rolls
correct η_y with ZV1X/ZV2X/ZV3X vertical bump

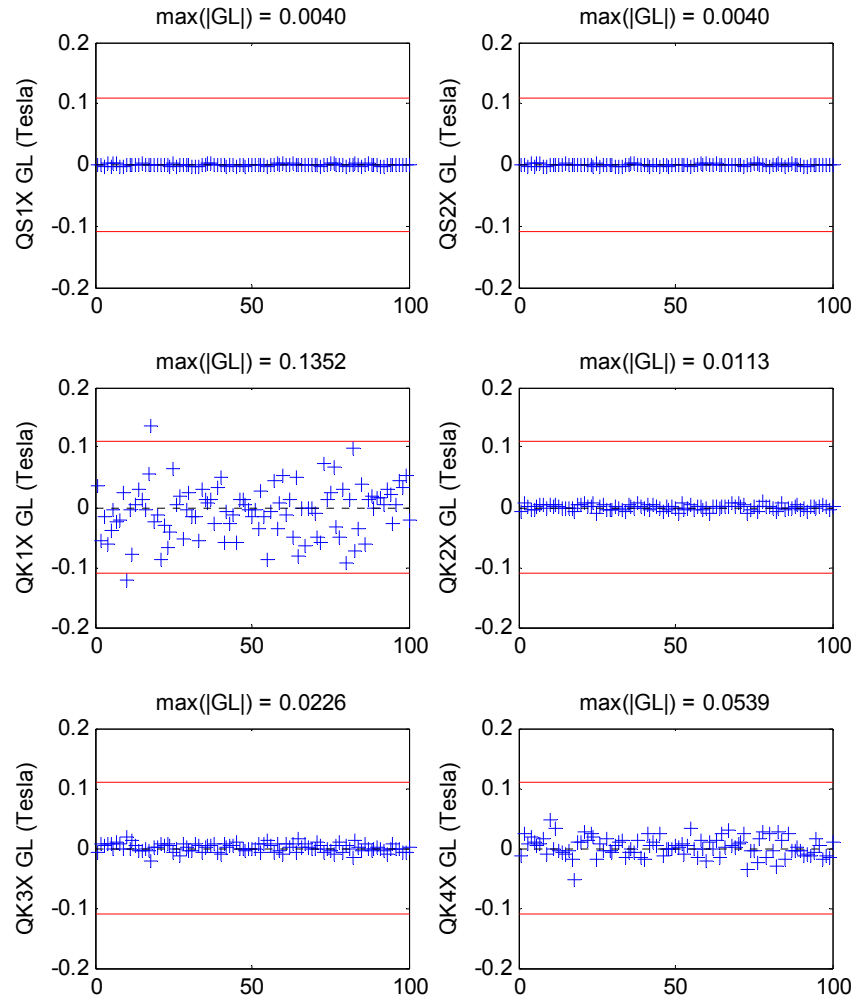
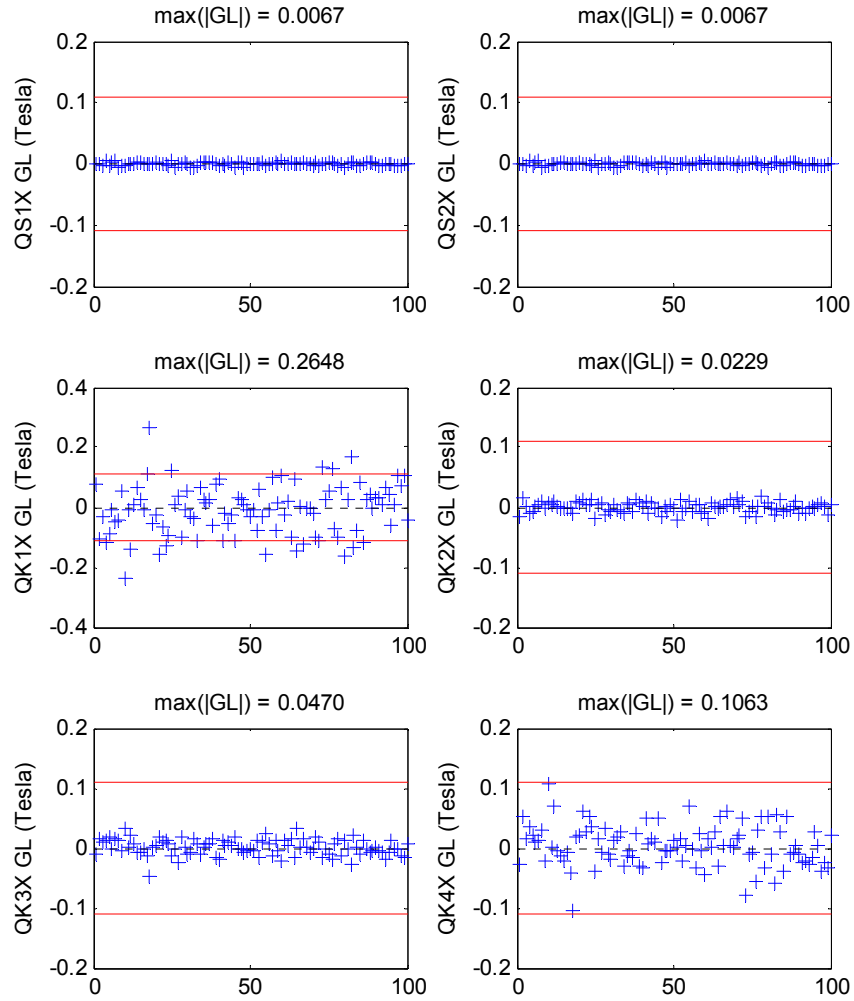


BH1,2 sextupole OFF
 EXT sextupoles OFF
 300 μm quadrupole rolls
 correct η_y with ZV1X/ZV2X/ZV3X vertical bump



BH1,2 sextupole OFF
 EXT sextupoles OFF
 300 μm quadrupole rolls

BH1,2 sextupole OFF
 EXT sextupoles OFF
 150 μm quadrupole rolls



Conclusions

- reducing quadrupole rolls by a factor of 2 (from 300 μm rms to 150 μm) reduces QK1X strength by the same factor
- for vertical dispersion correction with either QS1X/QS2X skew quadrupoles or ZV1X/ZV2X/ZV3X vertical bumps, the strength of QK1X appears to be driven by the magnitude of quadrupole rolls in the inflector
- the strengths of QK2X, QK3x, and QK4X are correlated with the strength of QK1X
- suggest to use IDX skew quads for QS1X, QS2X, QK2X, QK3X; build (or find) two new skew quads for QK1X and QK4X ... need maybe 2-5 times IDX strength (0.2-0.5 T)

Questions & Continuing Work

- alignment: can we do quadrupole roll alignment better than 300 μrad rms? maybe 100 μrad rms, with 300 μrad max?
- let's discuss what to do next ...