



E-lens related beam-beam experiment

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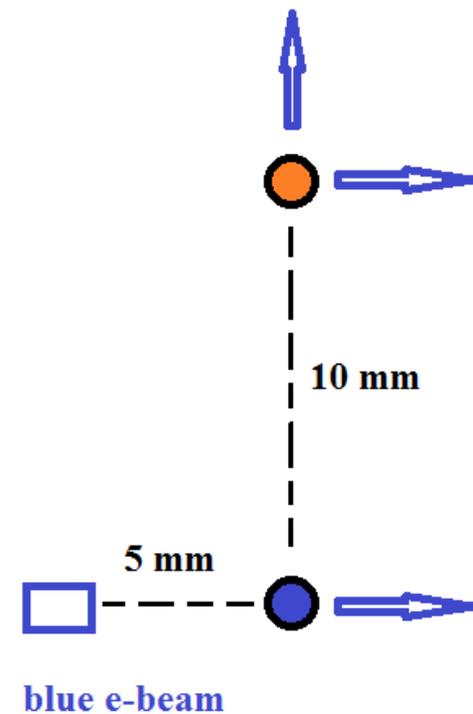
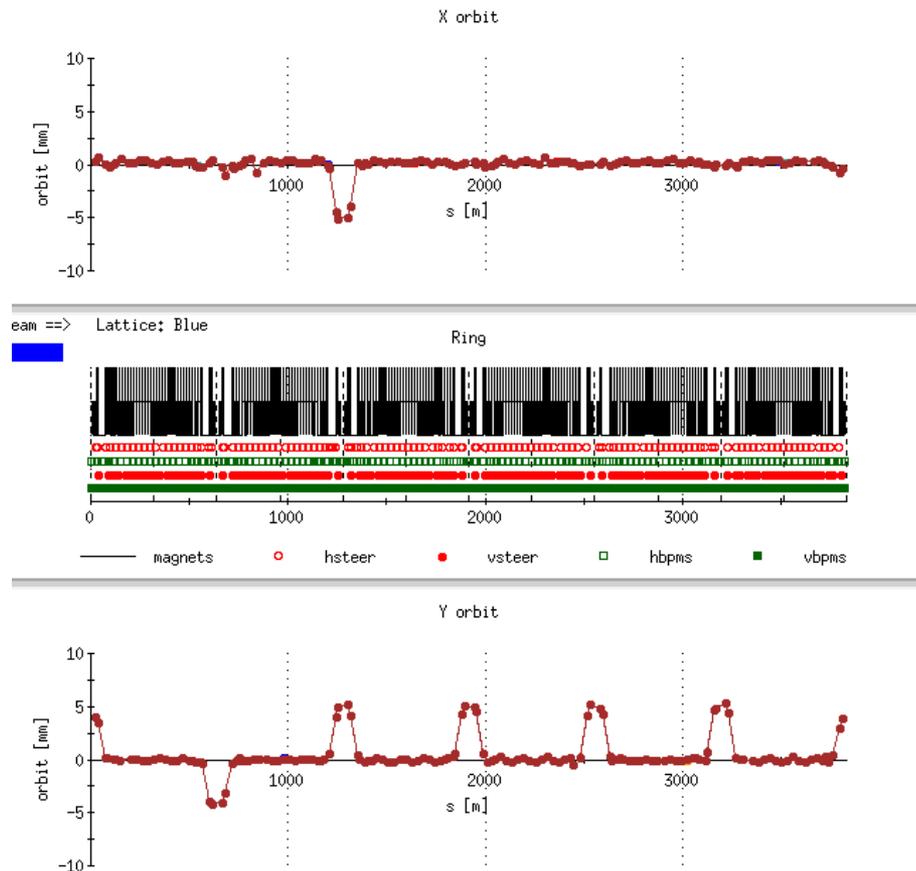


1. - at injection: monitor BBQ signal with blue & Yellow e-lens at high current
2. comparison of store with and without e-lenses
3. BTF with octupoles
4. Actual yellow DC e-current fluctuation studies (Thank **Vadim and Mike**)

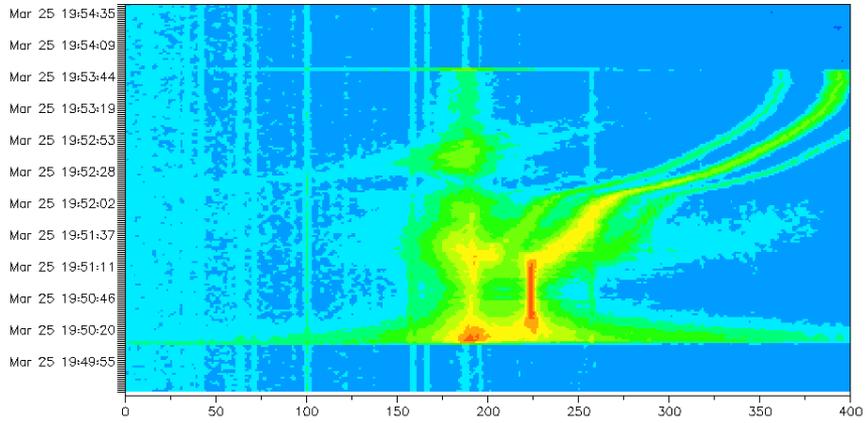


BBQ DSA spectrum

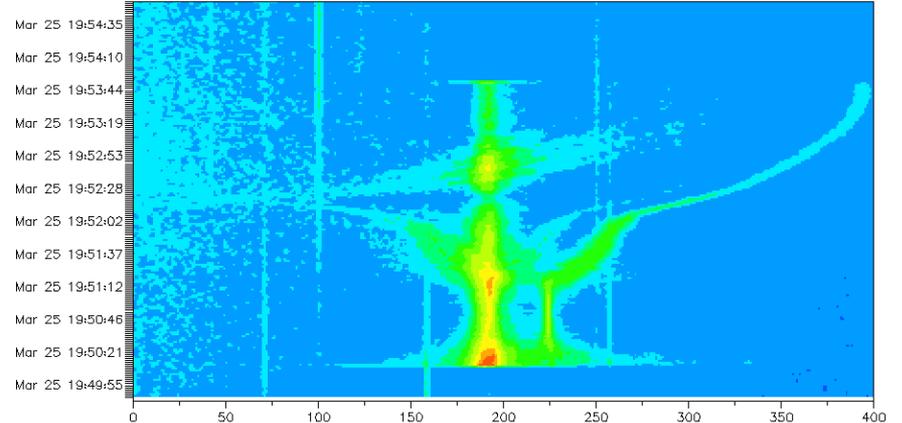
Get some information about the excitation from the blue e-lens



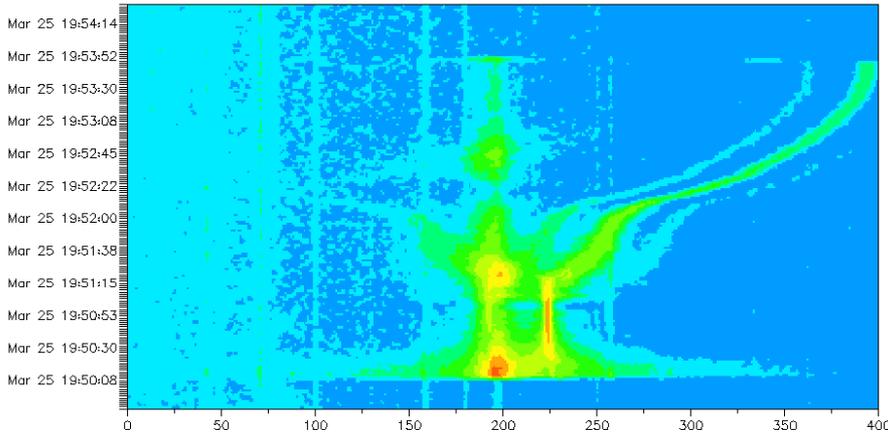
BBQ DSA spectrum (DSA y-axis is in dB)



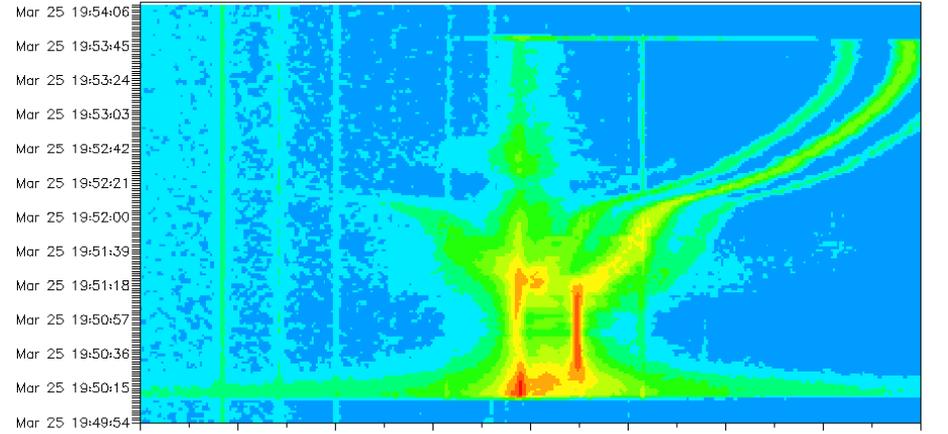
BH



BV



YH



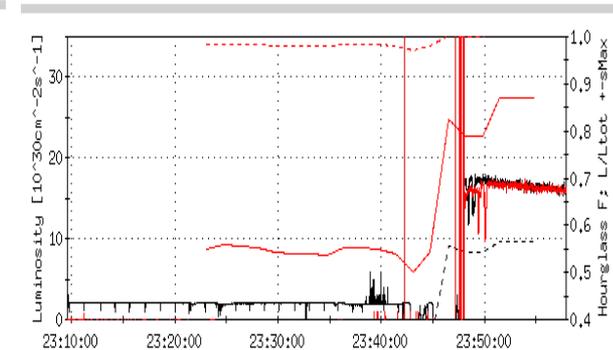
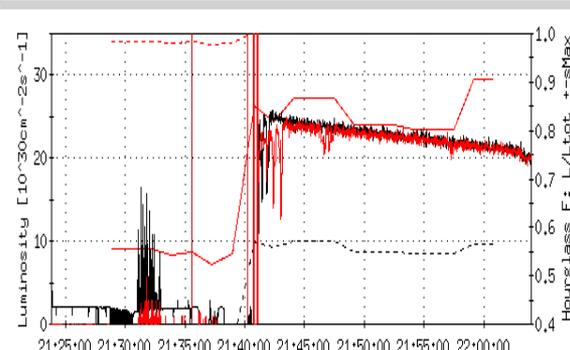
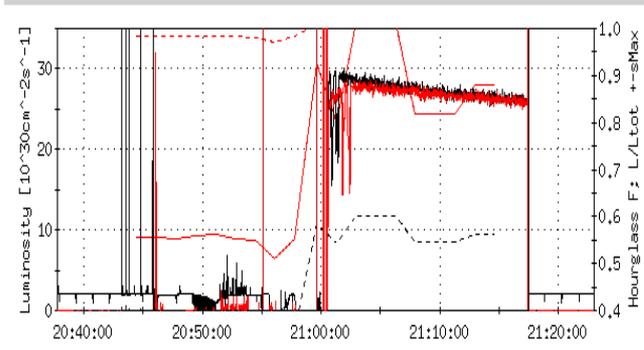
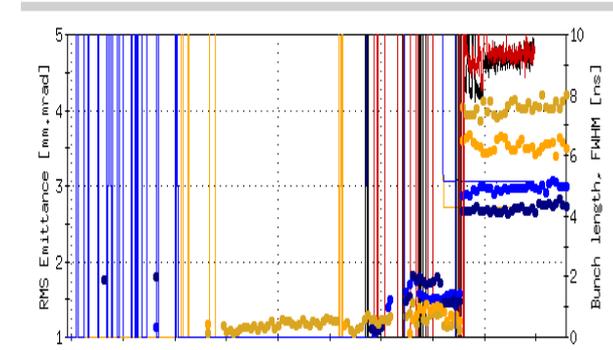
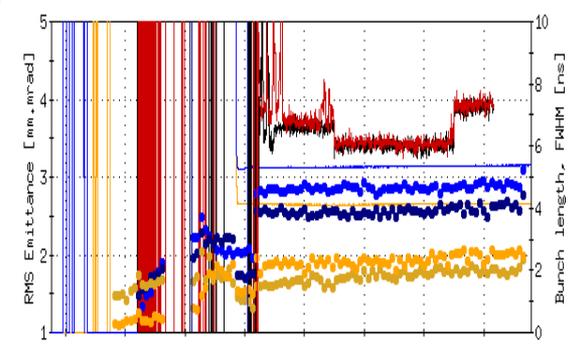
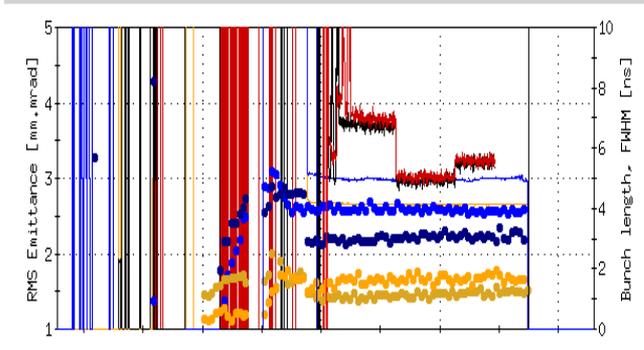
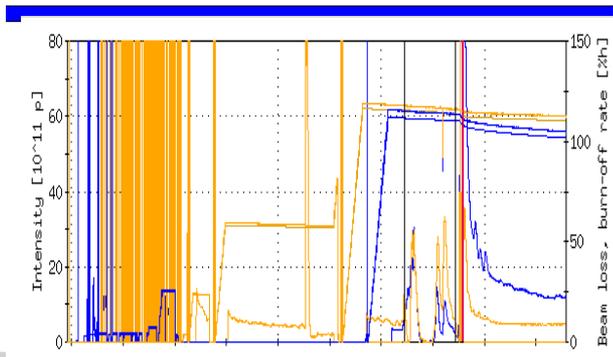
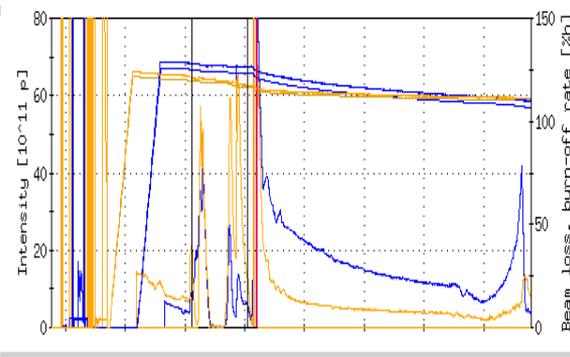
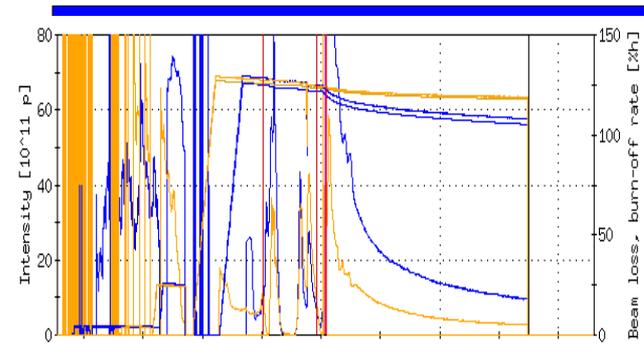
YV



Store without and with e-lens

1. The first Store Without e-lens: tune change for better working point;
2. The second store with e-lens: nominal store tune;
3. The third store with e-lens: nominal tune;
 - but Blue hor chromaticity reduced from 5 to 2 in store stone.
 - Octupoles set to zero (were -3 m^{-3}) in store stone
 - Hor orbit at Blue e-lens changed.
 - e-beam size reduced from 0.75 to 0.64 mm.
4. Fill Pattern = 30x30; Intensity = $\sim 2.3 \text{E}11$; Emittance: $< 2 \text{ mm mrad}$



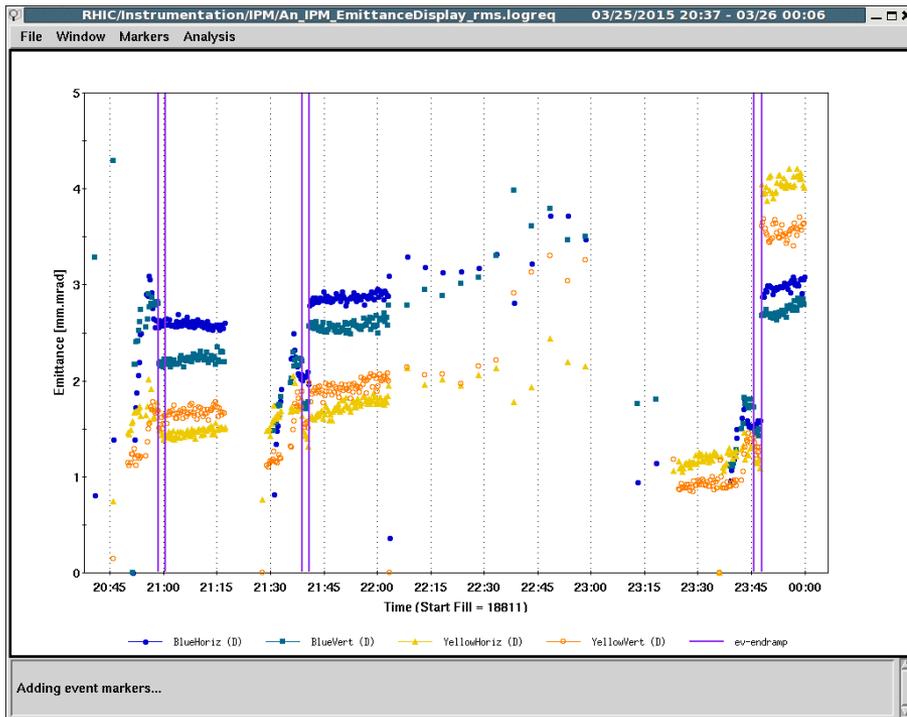


First Store

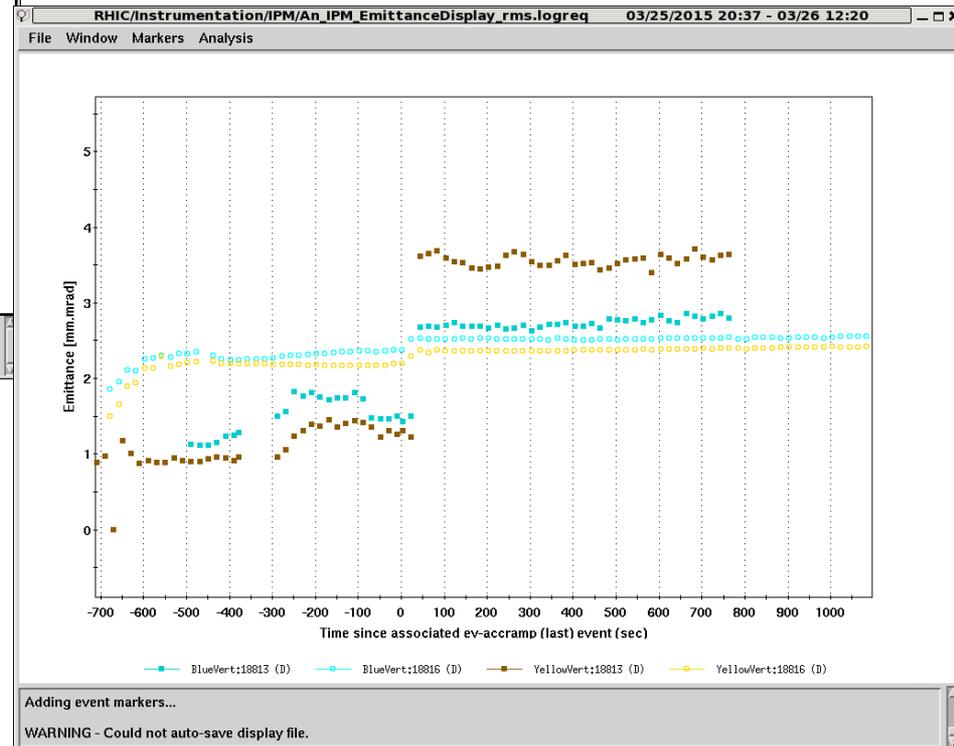
Second Store

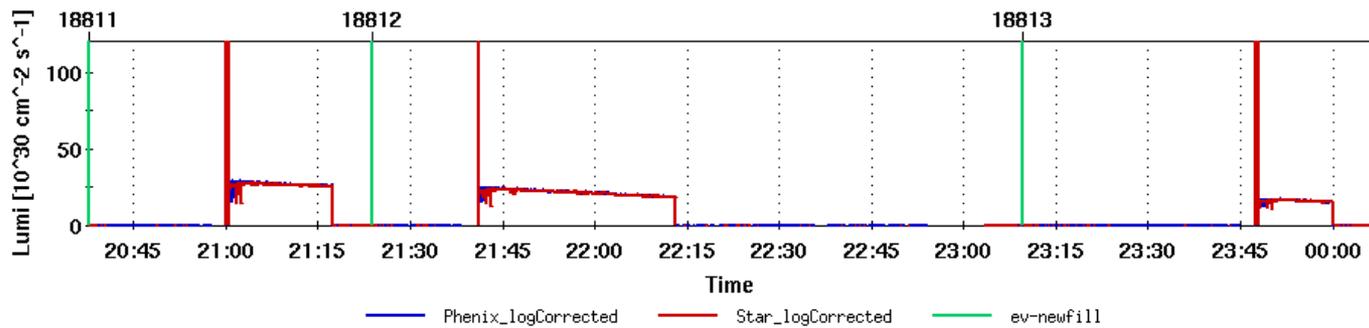
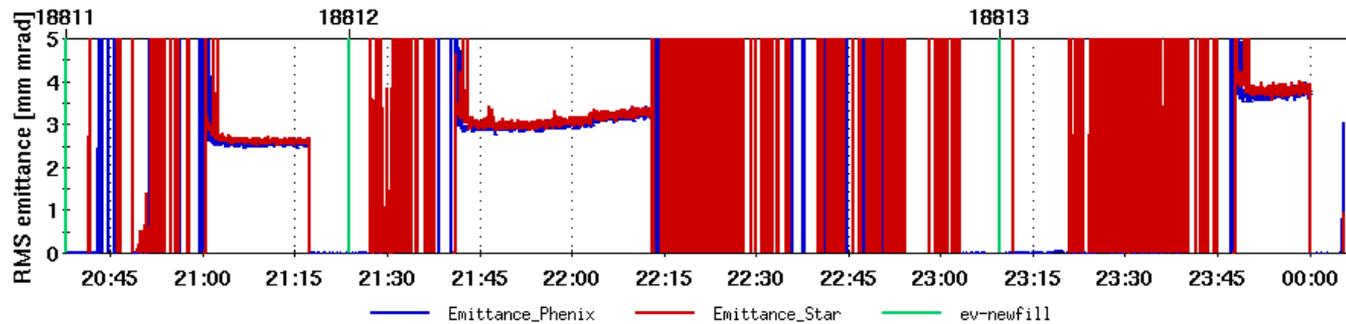
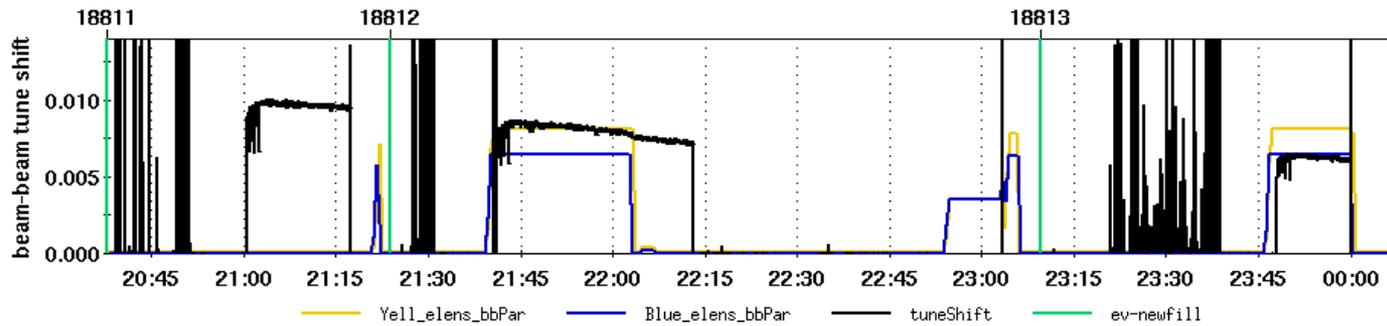
Third Store





First Store vs Normal Store

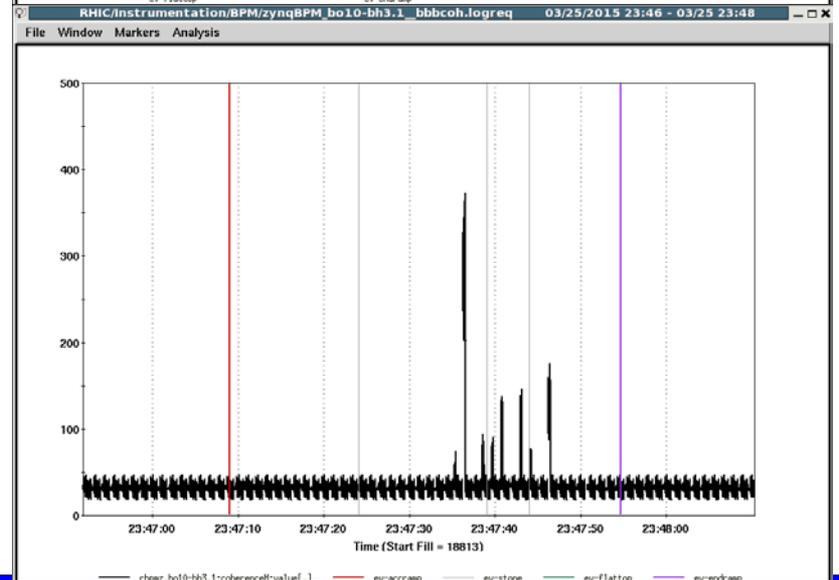
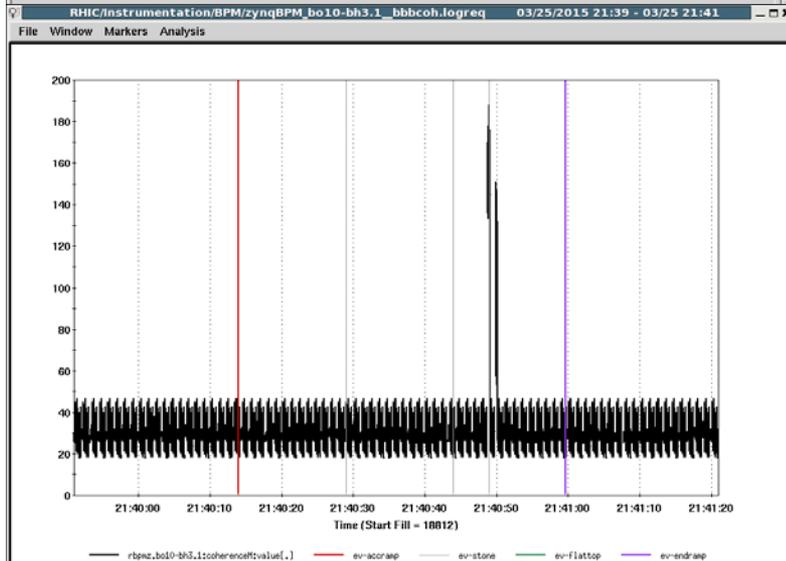
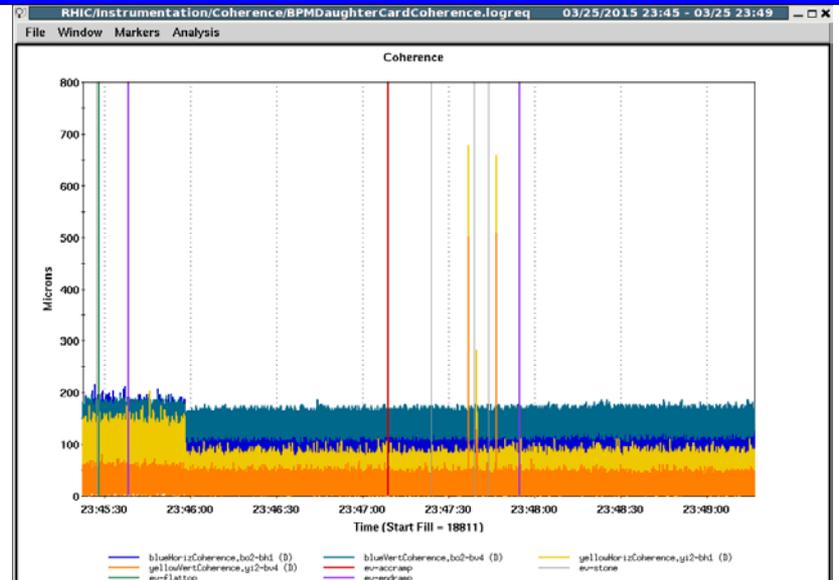
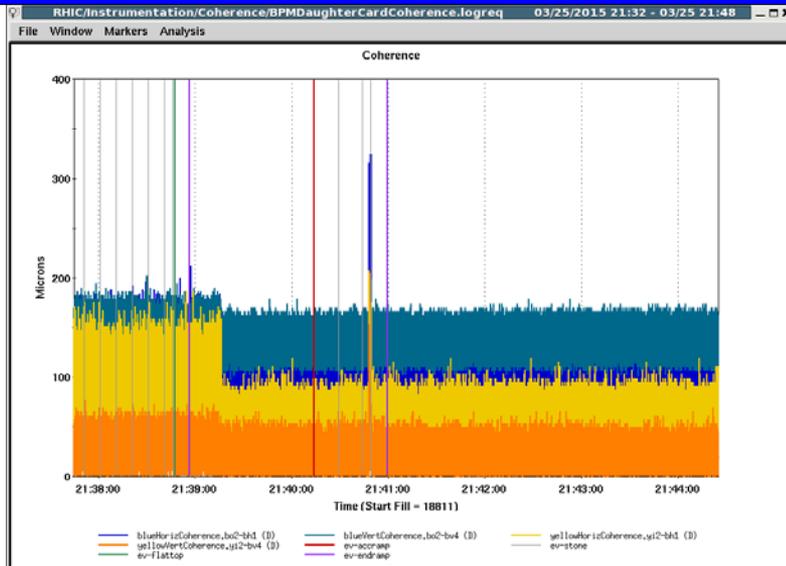




Angelika

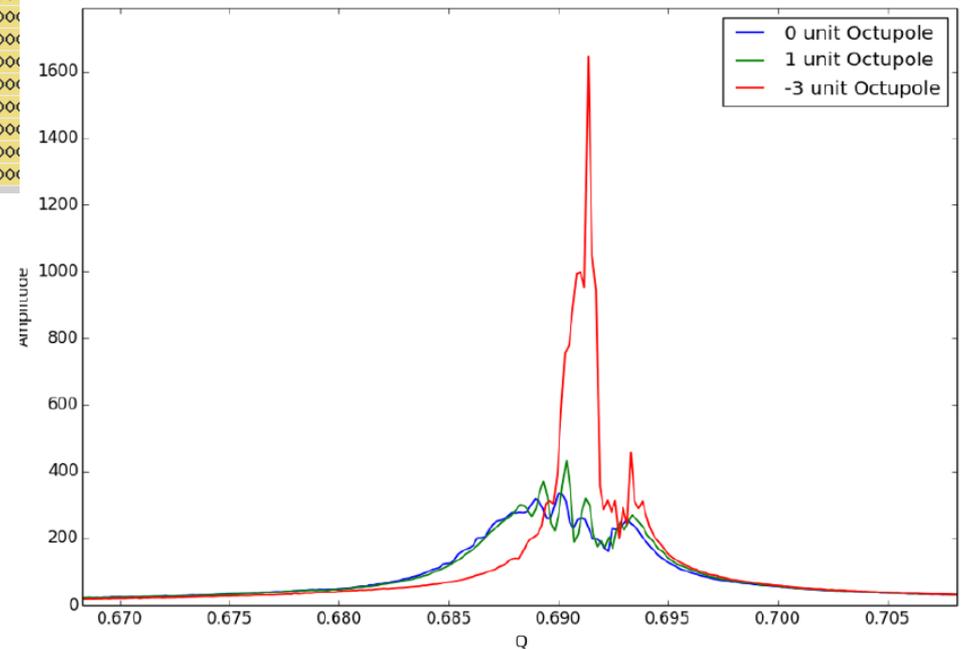


Coherent signal for the second and the third store



BTF with octupoles

Pebble	Blue	Yellow	Green		
QUAD	Family	Design	Trim	BDesign	BTrim
SEXTUPOLE	y-octd-disp	0.00000	3.00000	0.00000	-3.00000
H_STEER	y-octf-disp	0.00000	3.00000	0.00000	-3.00000
V_STEER	y-octd-nodisp	0.00000	3.00000	0.00000	-3.00000
GAMMA	y-octf-nodisp	0.00000	3.00000	0.00000	-3.00000
SKEW_QUAD	Magnet	Design	Trim	BDesign	BTrim
SKEW_SEXT	yi6-oct4	0.00000	3.00000	0.00000	-3.00000
NONLINEAR	yi6-oct5	0.00000	3.00000	0.00000	-3.00000
ABORT	yi7-oct10	0.00000	3.00000	0.00000	-3.00000
BEND	yi7-oct11	0.00000	3.00000	0.00000	-3.00000
HELIX	yo8-oct5	0.00000	3.00000	0.00000	-3.00000
RF	yo8-oct4	0.00000	3.00000	0.00000	-3.00000
	yo9-oct10	0.00000	3.00000	0.00000	-3.00000
	yo9-oct11	0.00000	3.00000	0.00000	-3.00000
	yi10-oct4	0.00000	3.00000	0.00000	-3.00000
	yi10-oct5	0.00000	3.00000	0.00000	-3.00000
	yi11-oct10	0.00000	3.00000	0.00000	-3.00000
	yi11-oct11	0.00000	3.00000	0.00000	-3.00000
	yo12-oct5	0.00000	3.00000	0.00000	-3.00000
	yo12-oct4	0.00000	3.00000	0.00000	-3.00000
	yo1-oct10	0.00000	3.00000	0.00000	-3.00000
	yo1-oct11	0.00000	3.00000	0.00000	-3.00000
	yi2-oct4	0.00000	3.00000	0.00000	-3.00000



Change Blue QX' down 3 unit



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1. Blue gun has some issue (current instability ?) with high current.
Limit at 650 mA.
 2. 30x30, 2.3E11 can go to collision without e-lens;
 3. Coherent signal was found when e-lens is ON with lower initial emittance. After removing octuple, it becomes stronger.
 4. E-beam current noise can't be measured within 3mA level, it comes from instrumentation noise. But some modification can be done for modulator

