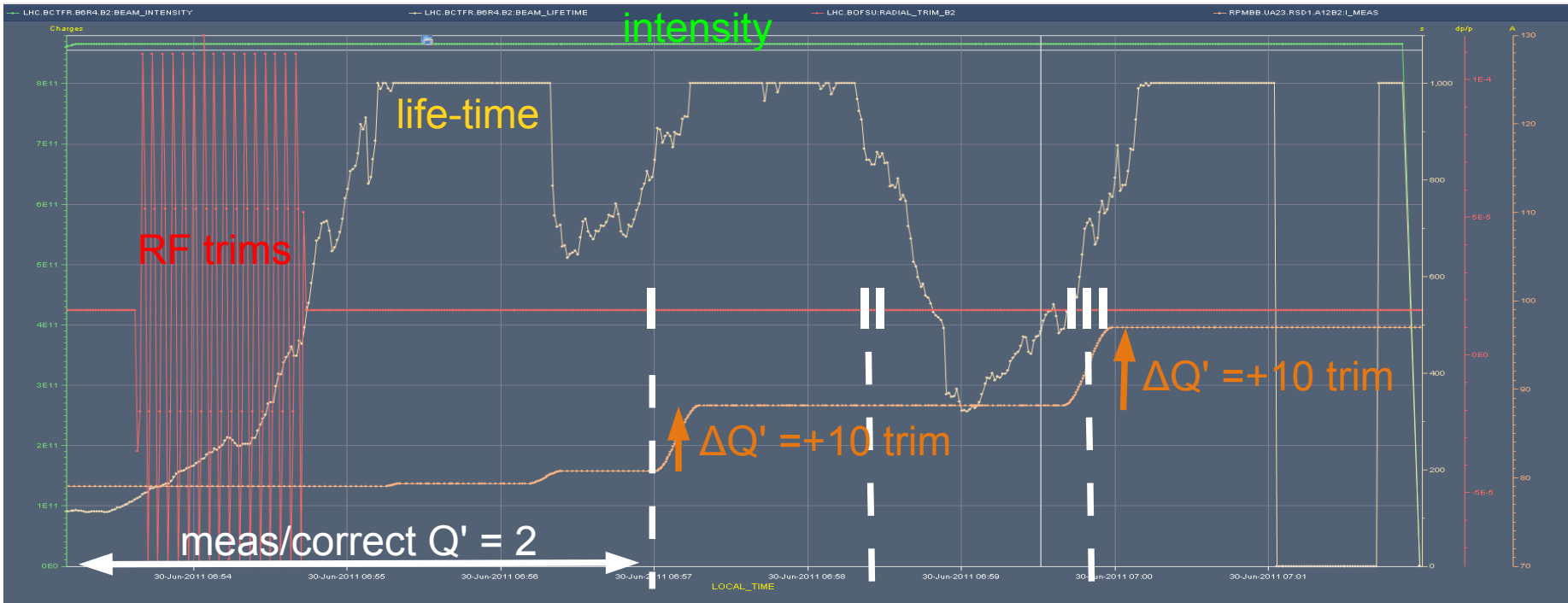




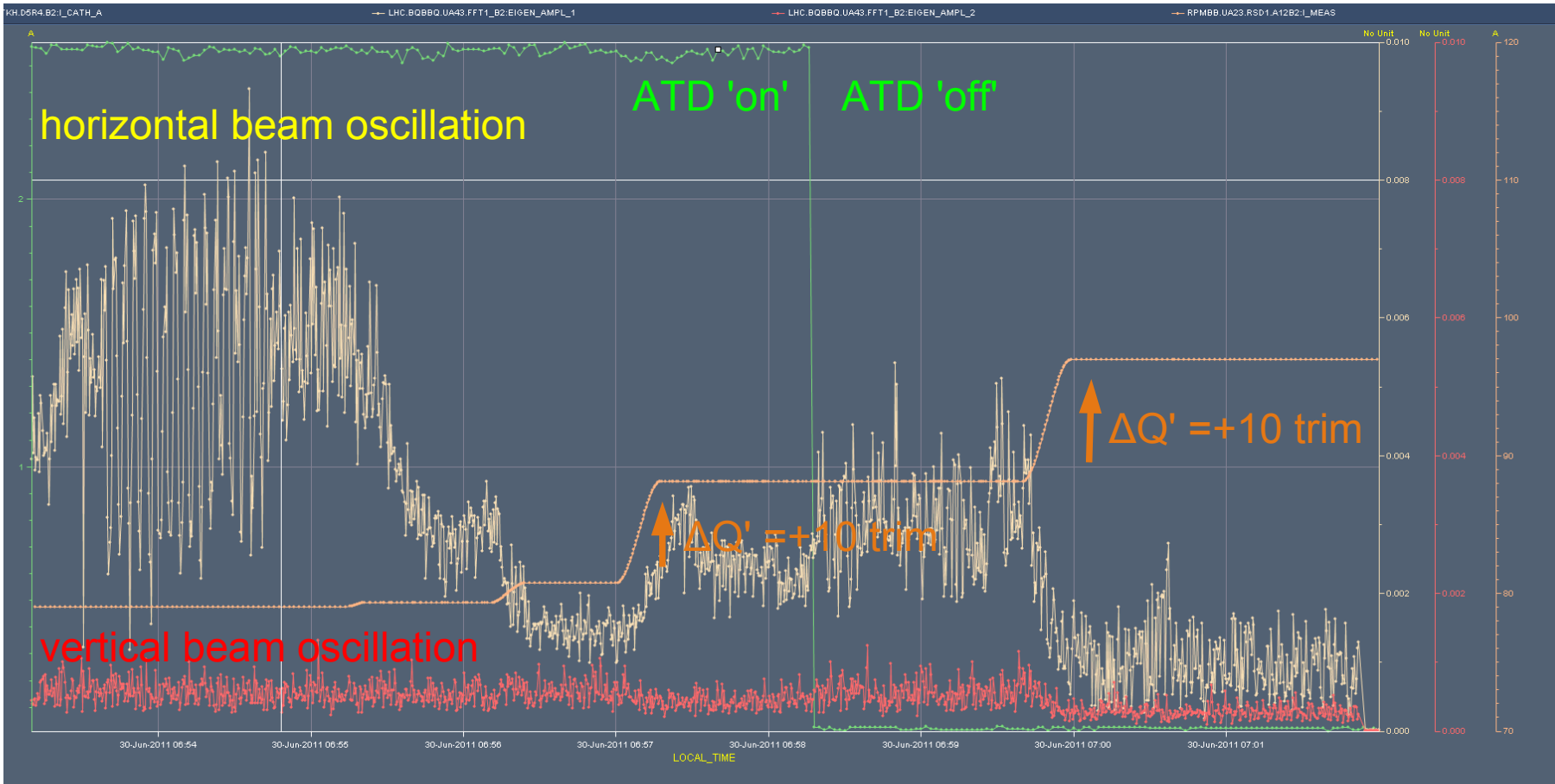
At the very end of our BI-MD (~7:00, 2011-06-30): Does the Single-Bunch Emittance Growth depend on Q'?

- Experiment setup:
 - ramped nominal beam/bunches (10^{12} p, $\sim 1.2 \cdot 10^{11}$ p/b, 1.1 ns) to 3.5 TeV
 - measured and corrected Q' to 2 units in both planes
→ Q' can be measured/corrected with nominal beam
 - fixed BSRT B2 acquisition to single bunch for better resolution
- Outline of what has been measured:
 - I. Increased $\Delta Q' = +10$ units → no (noticeable) e-growth or life-time drop
 - II. Transverse damper 'off' → no e-growth and negligible life-time drop
 - III. Increase by yet another $\Delta Q' = +10$ units → same observation (=nothing)



Transverse Damper Contributions

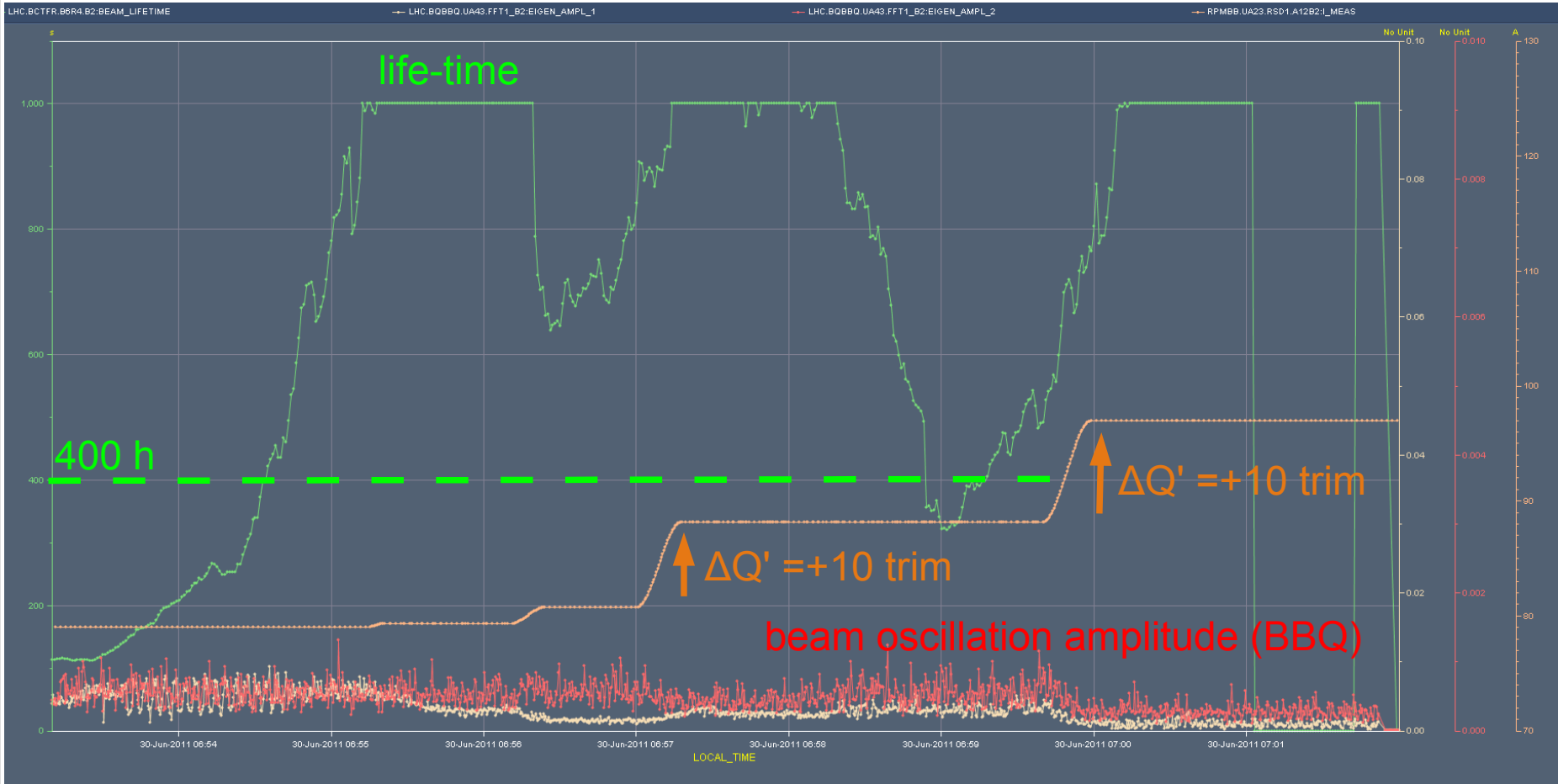
- Plot zoomed in to 10% of the BBQ saturation levels
- Horizontal oscillations became marginally larger, no effect in vertical plane.
- Second increase of Q' (to ~ 22 units) seem to stabilise the beam even further at no apparent cost w.r.t. beam size (see next slides)





Beam Oscillation Amplitude

- Life-time increased while modulating (removing tails?)
- No substantial impact of Q' on observed beam oscillation amplitudes
- Most life-time dips related to when 'touching' the machine (Q/Q' trims, ADT 'on \leftrightarrow off' transitions etc..)





(Absent of) Beam Size Growth

- Somewhat unexpected effect...related to oct. field (circuits where $\pm \sim 150$ A)?
- Maybe interesting cross-checks: 450 GeV? Octupoles 'off'? bunch trains?
- Open question:
 - How important is ADT or Q' control actually after injection/ramp?
 - Impressive passive stability without active Fbs \rightarrow can it be improved?

