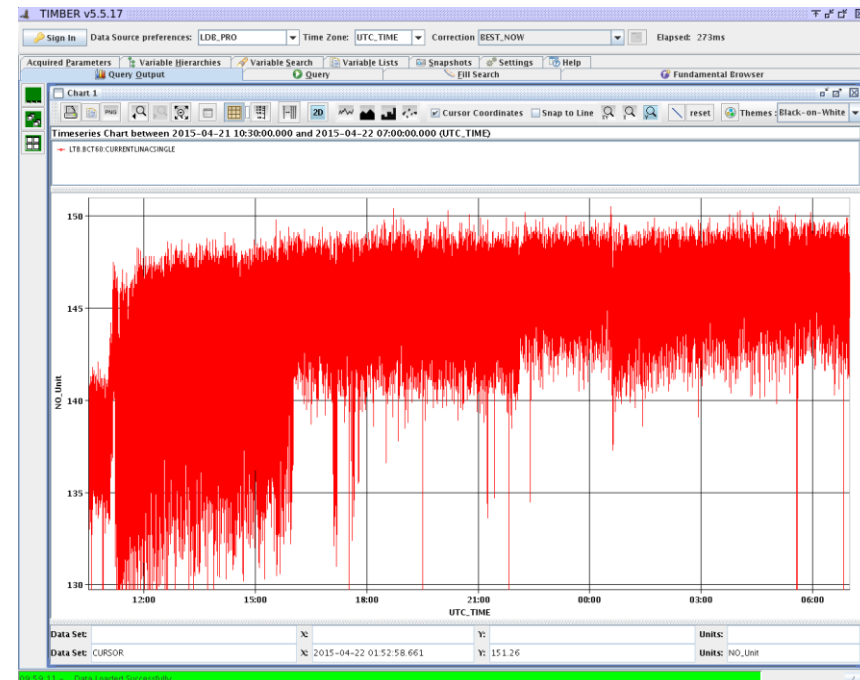


Options for higher Linac2 intensity

D. Küchler for the linac team

The source

- source arc is the main knob to tune source intensity
- increased to nominal value of 45 A last Tuesday
- an immediate increase at BCT60 by 6 mA visible
- additional long pulses further increased the intensity (training of cathode, was missing up to now)
- further increase may damage/break the filament -> 24–36 h downtime + several weeks conditioning



The linac RF

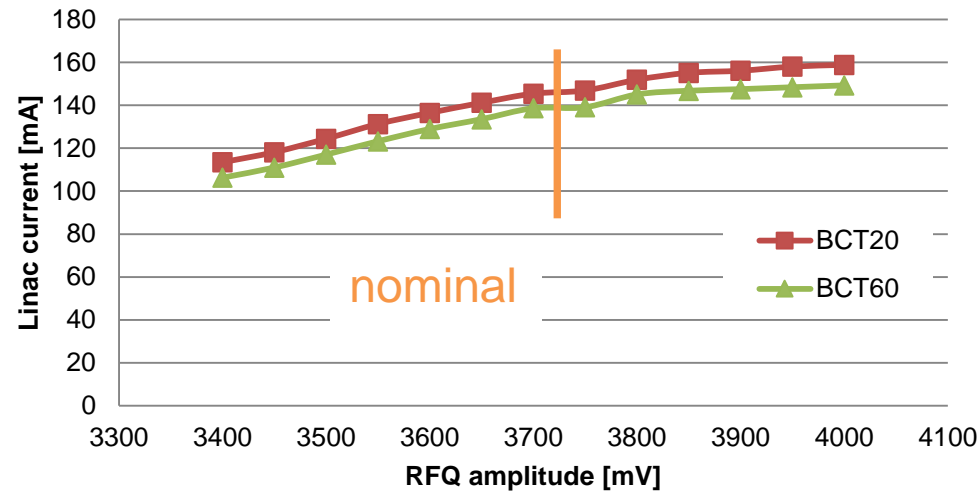
- RFQ amplitude is the main knob to tune

BUT

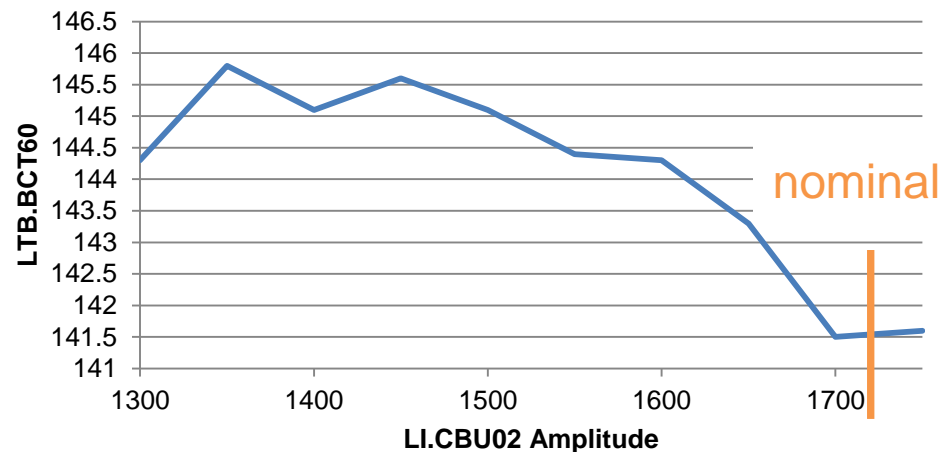
- increased risk of breakdowns in RFQ, RF transport and amplifier chain,
- after strong breakdowns the RF team often needs to manually re-conditioning
- risk to break the RFQ window
-> vacuum leak into RFQ,
if not detected quickly: venting of DTL
- risk of damage to RFQ TH170 amplifier:
adjustment mechanisms heavily corroded,
if adjustment need to be made then a 2-3 weeks intervention may be necessary
- risk to damage ignitrons

Behaviour of the buncher not yet understood. MD's are ongoing

Intensity vs RFQ amplitude, CBU02 at nominal value



Intensity v Buncher2, RFQ at nominal value



Intensity measurement

- hardware and software modified during LS1
- direct comparison of values not recommendable (integration interval not the same)
- measured values depending on background correction and calibration settings (many iterations since LS1)
- two values for the linac current available at the moment: averageCurrentSingle and currentLinacSingle they differ by at least 2mA
- figure of merit should be the number of charges in the PSB

