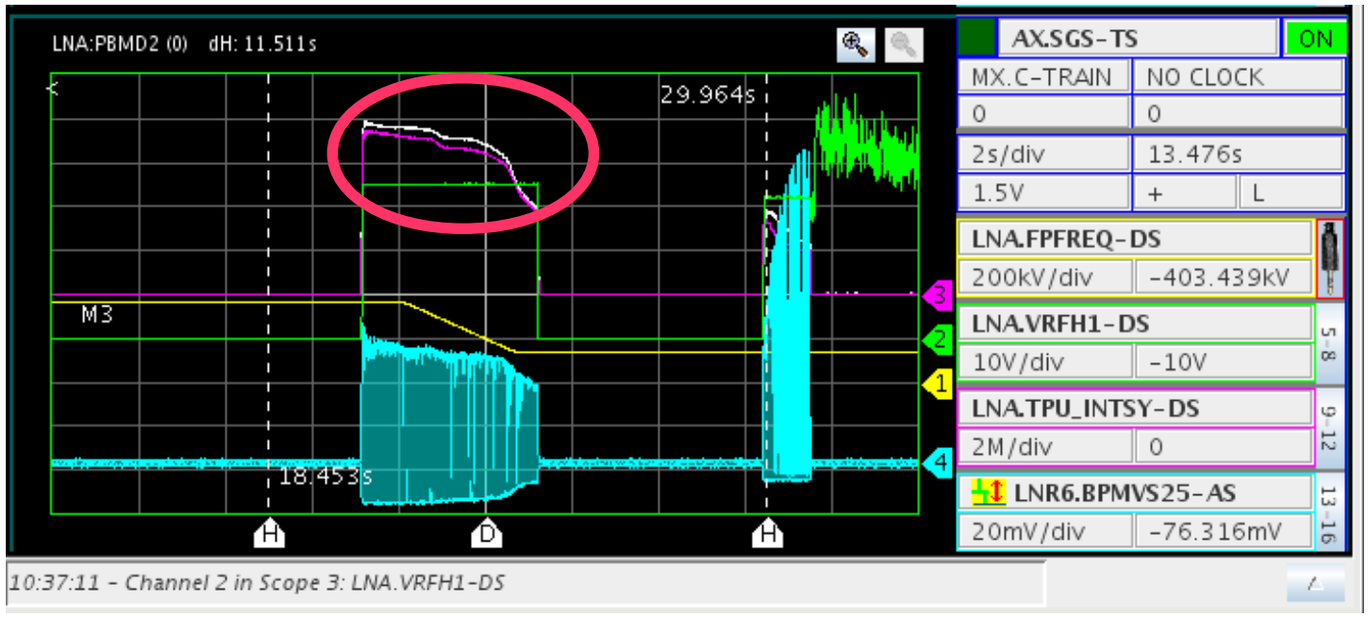
Beam Losses during last ramp

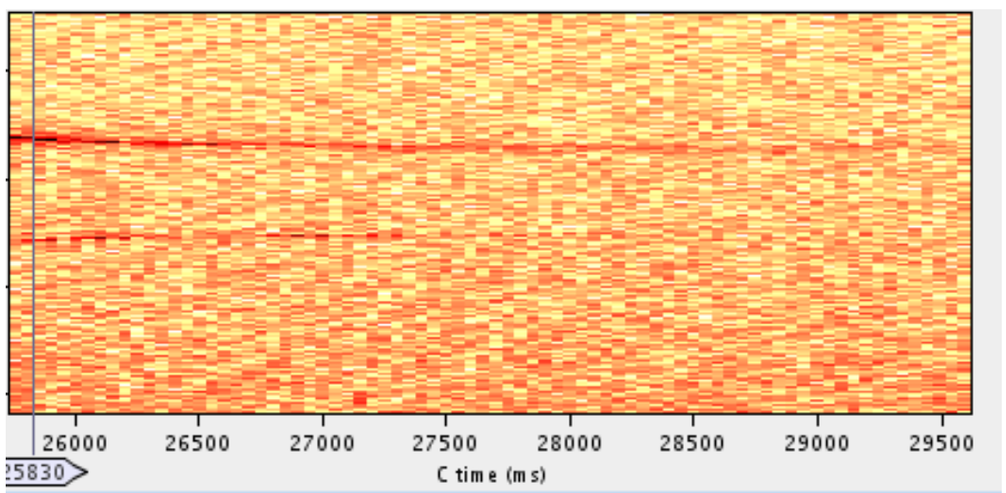
Actual settings (Gbar ext.)

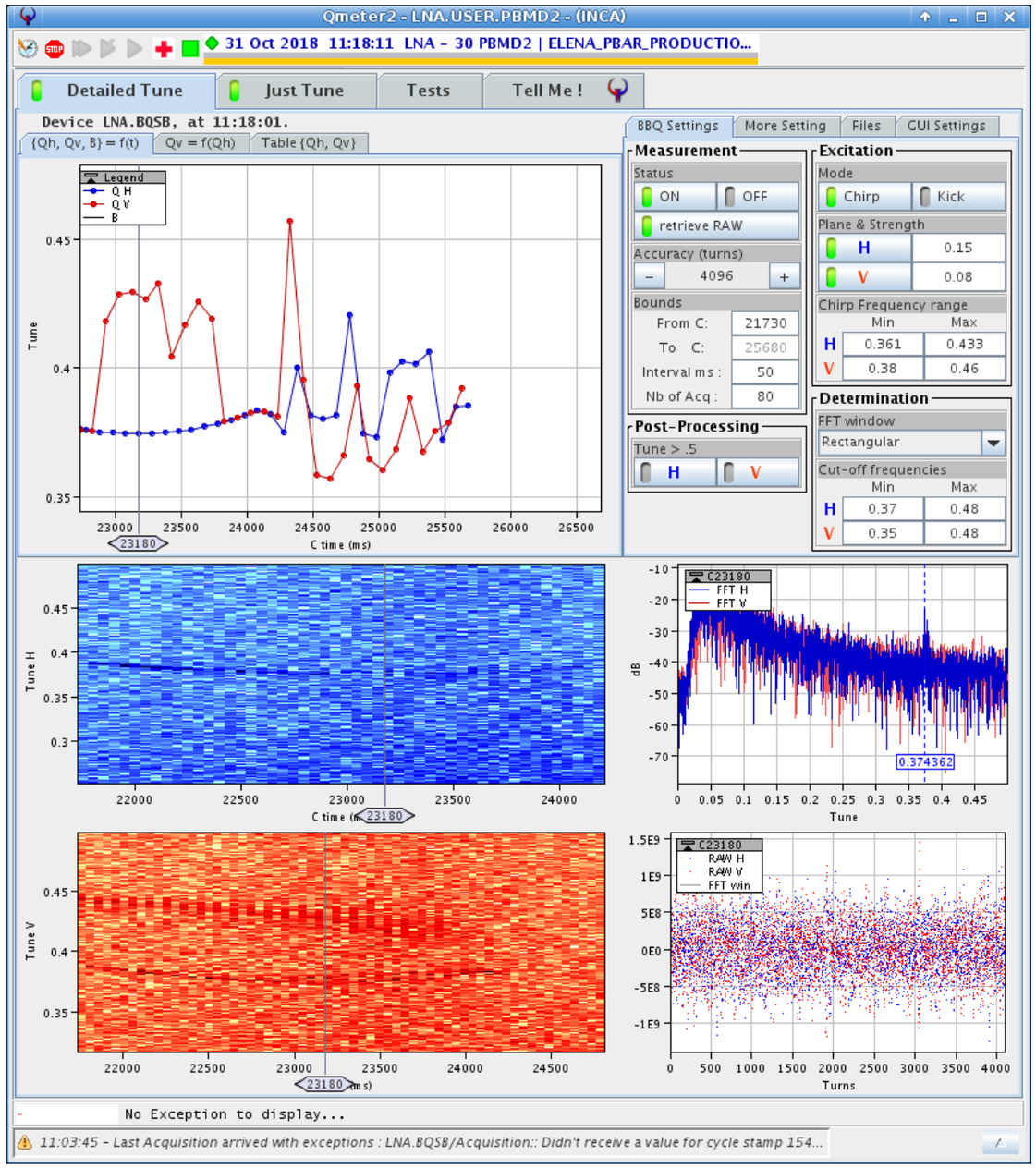


Tune along 2nd ramp

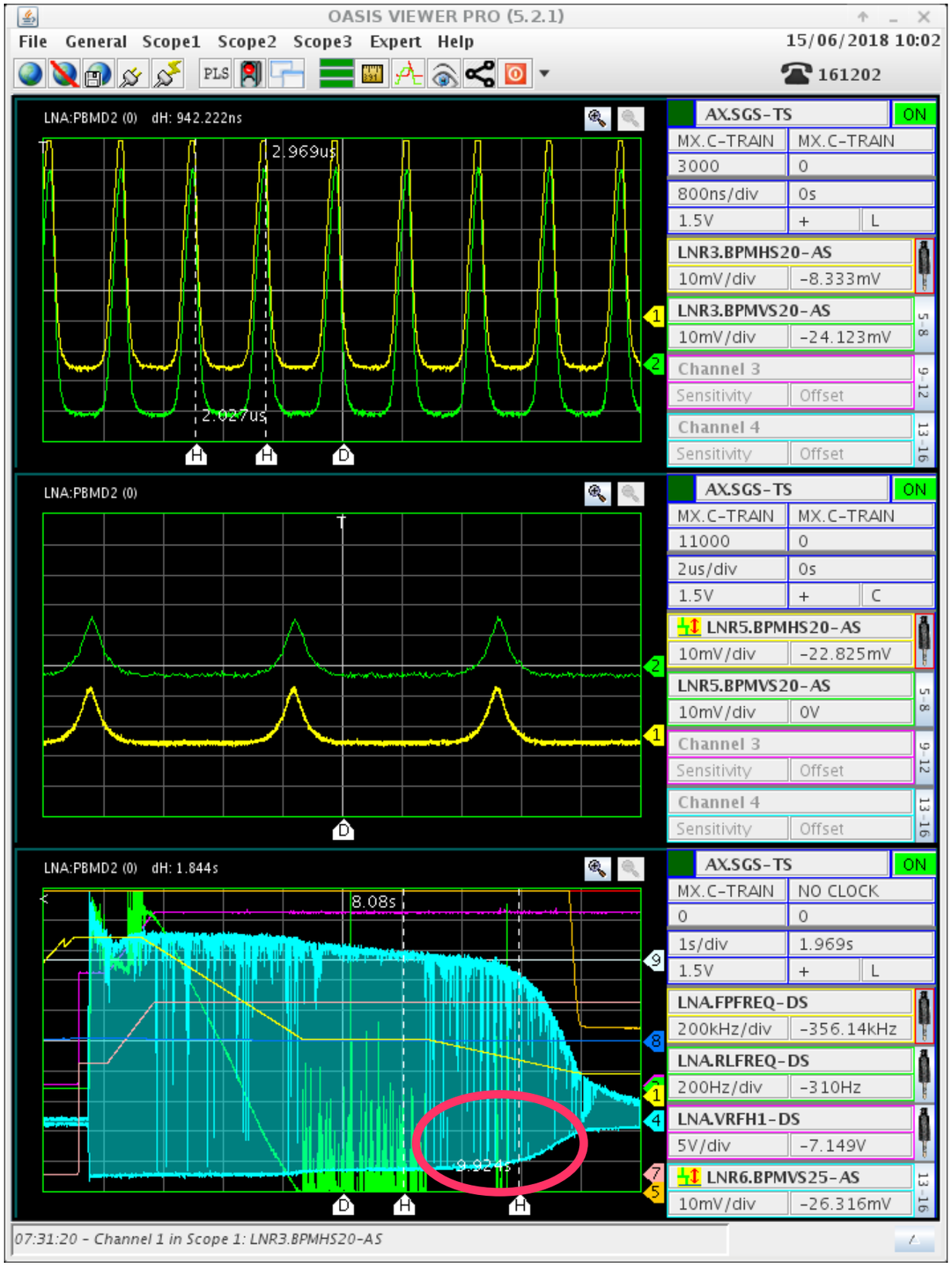
- "Best" settings for extraction
- Tunes measured at 100 keV:

QH / QV~ 0.375/0.42



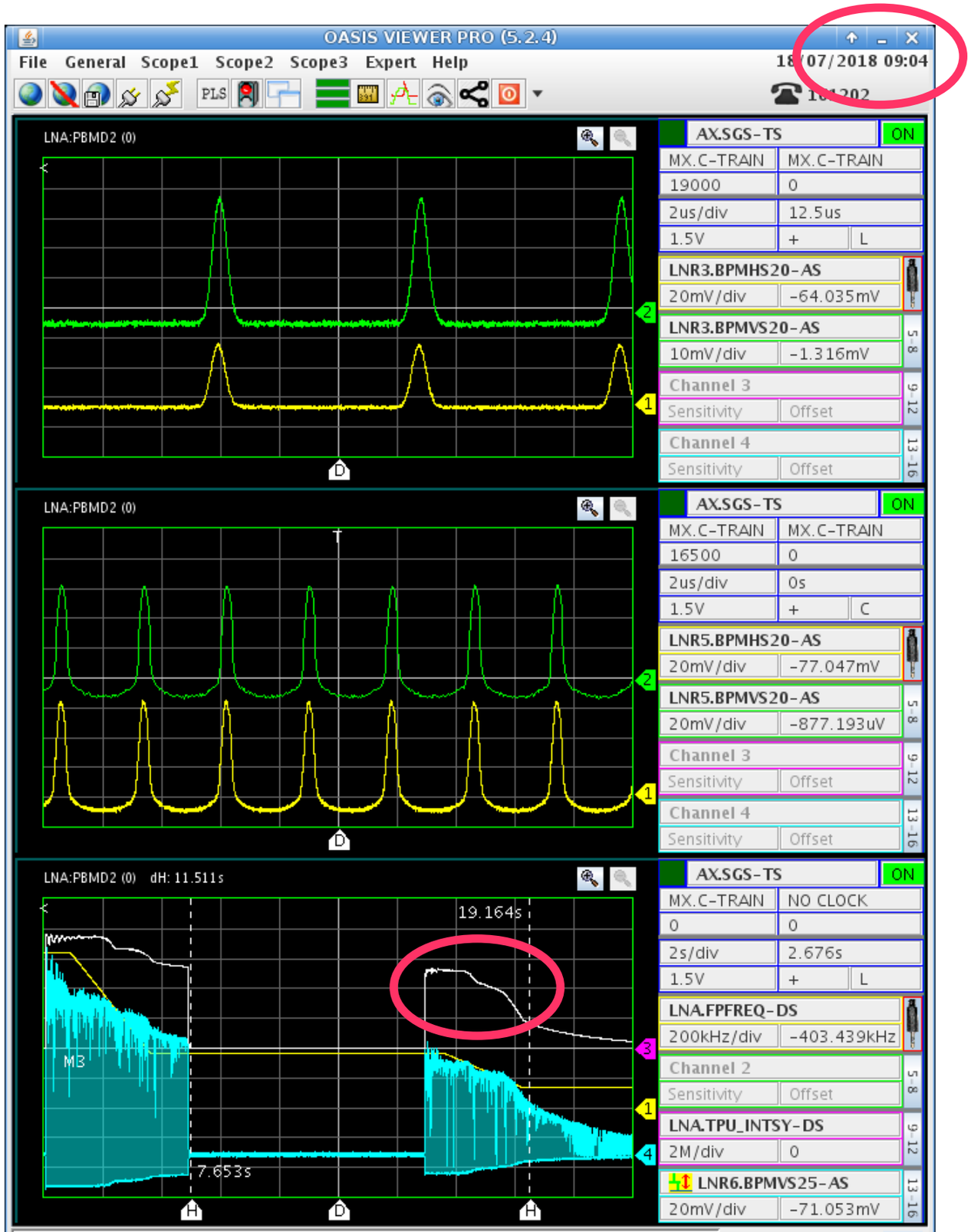


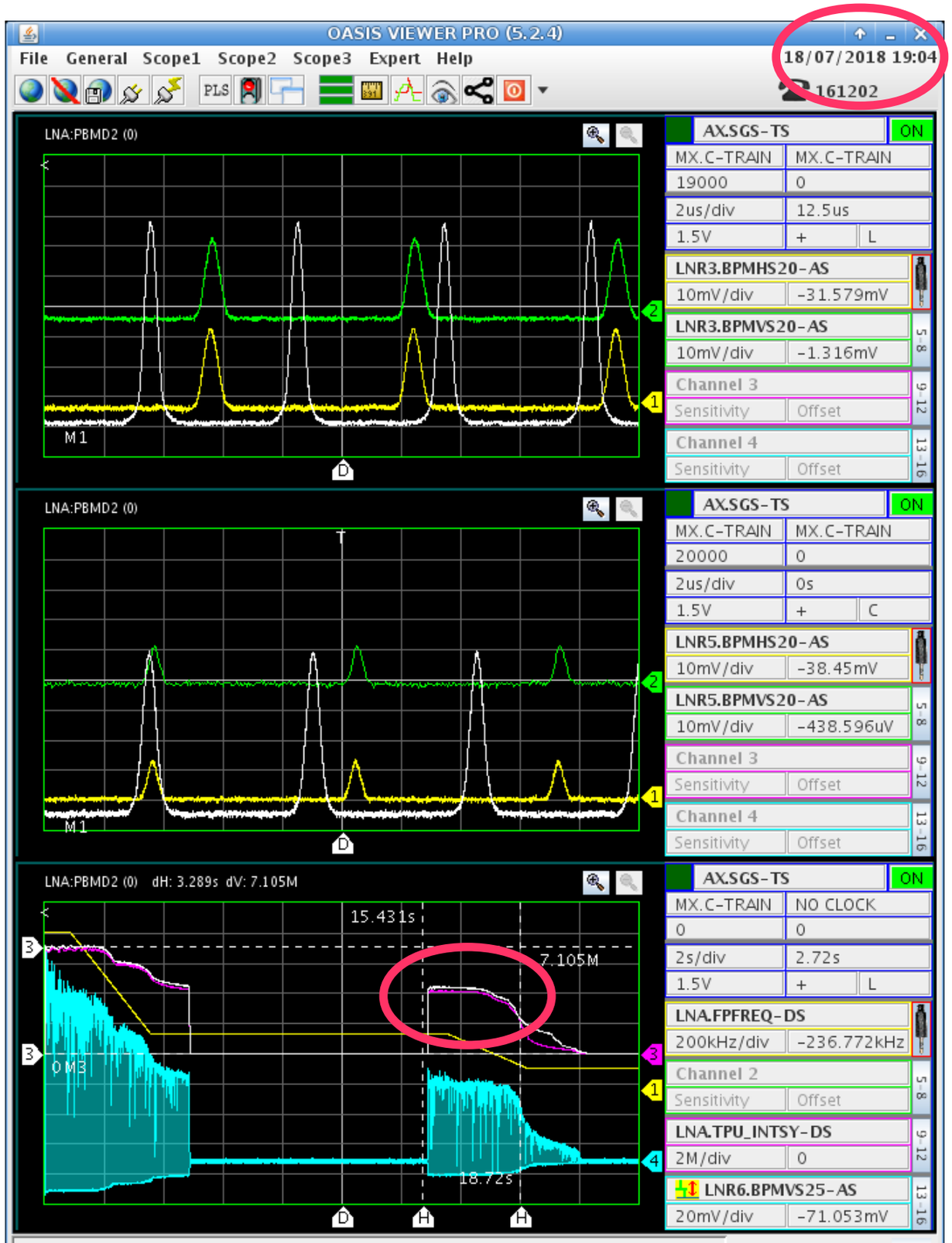
15 June



- Pbar reaching last plateau
- Losses starting in the middle of second ramp
- Tune ajusted to ~2.41/1.45 along the cycle
- Coupling minimized using skew quadrupoles:
  - Strenght needed increasing with Momemtum decreasing
- Orbit corrected along the cycle

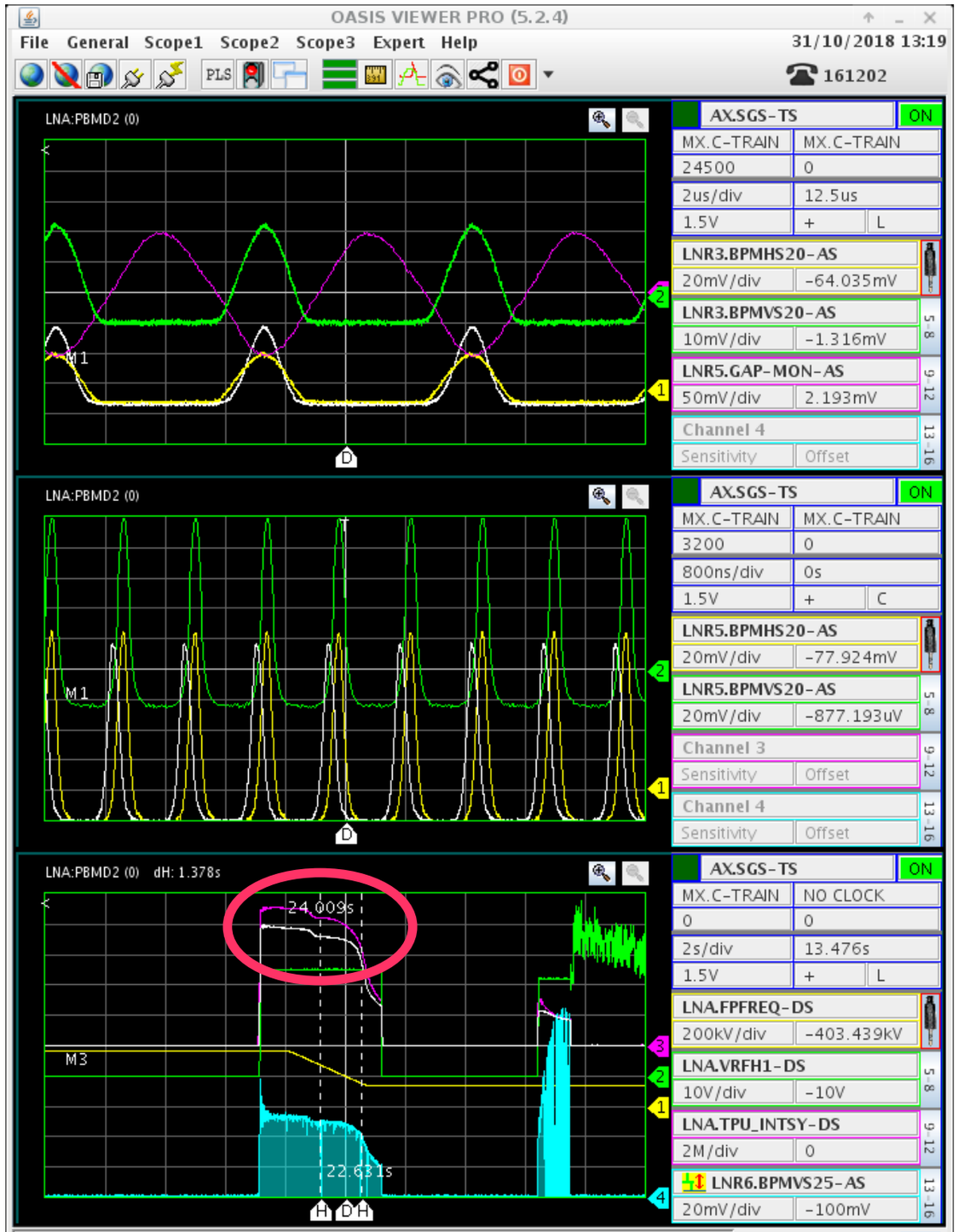
Reminder: 18 July

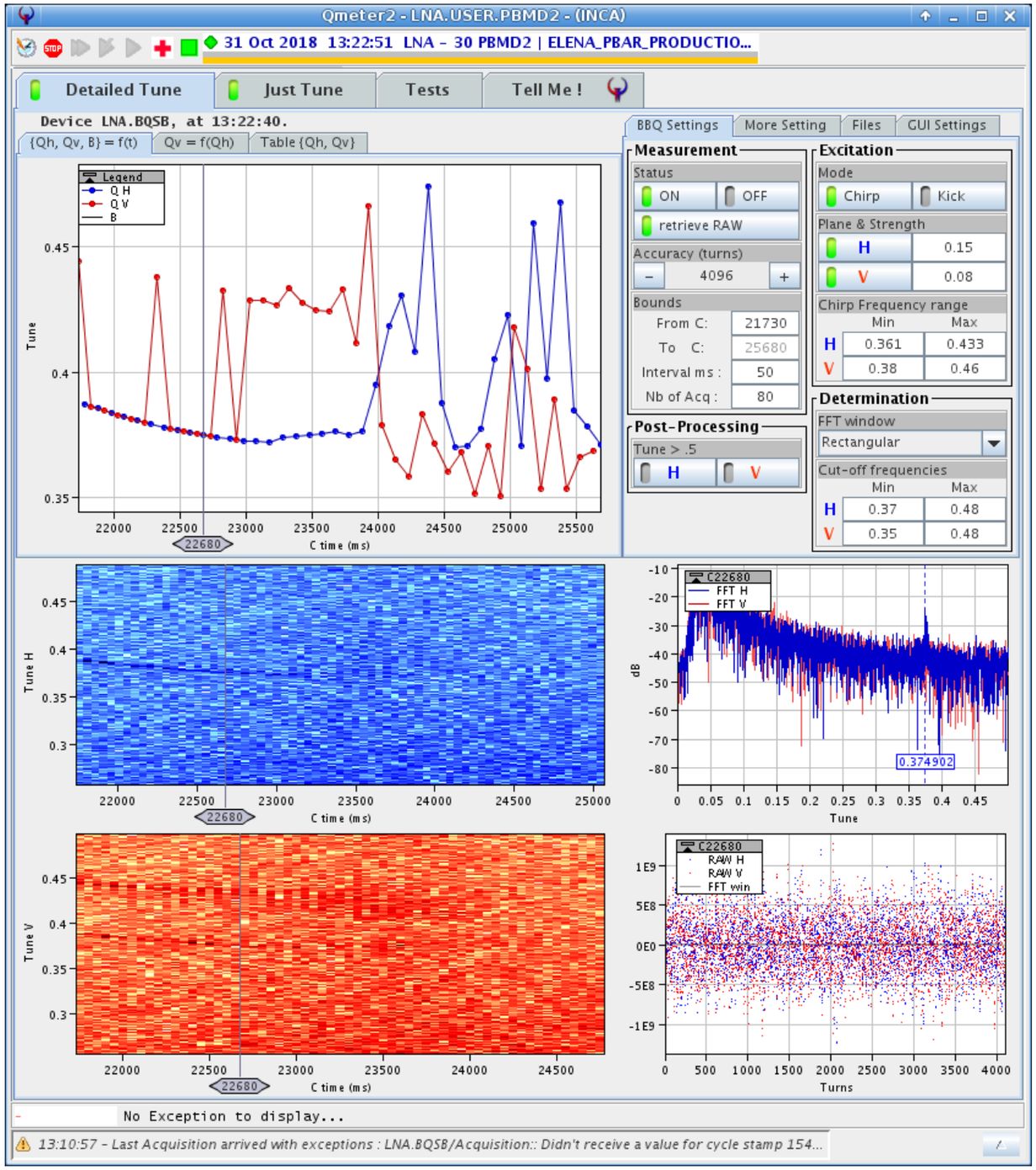




Same Quad settings as 18 July

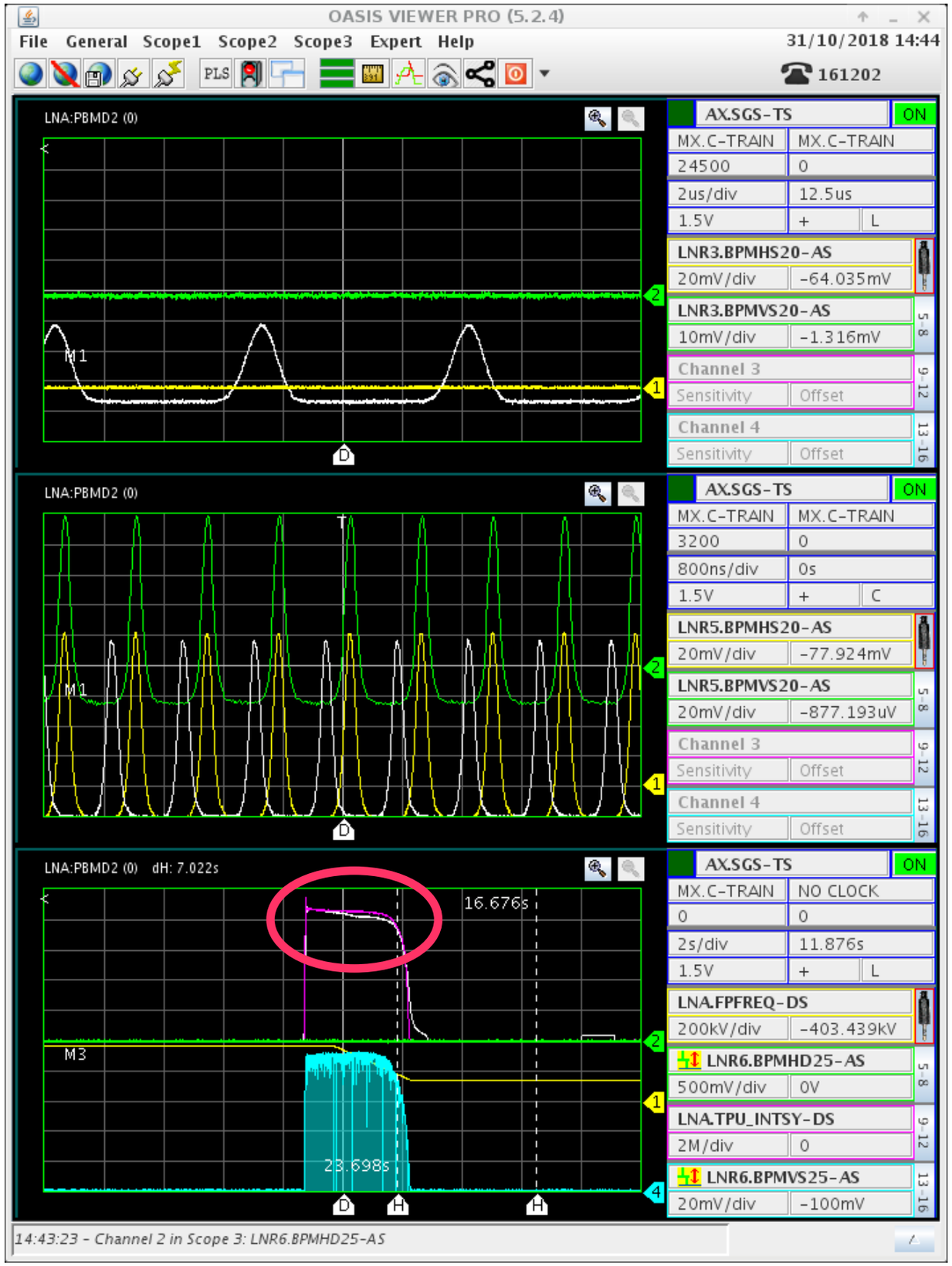
Current on Quads on FT as 18 July, Skew as 31 Oct, intermediate points introduced at the end removed.

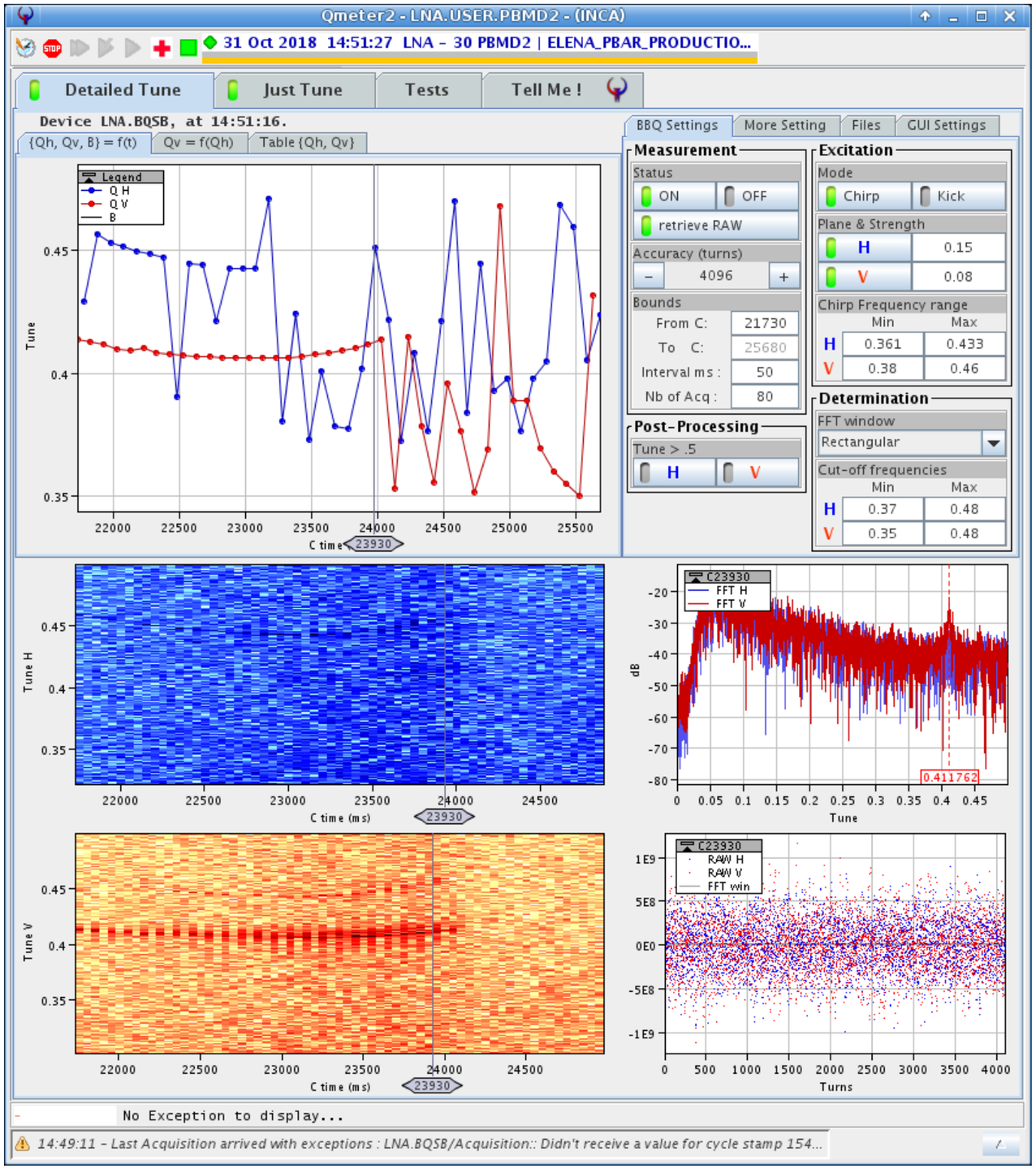




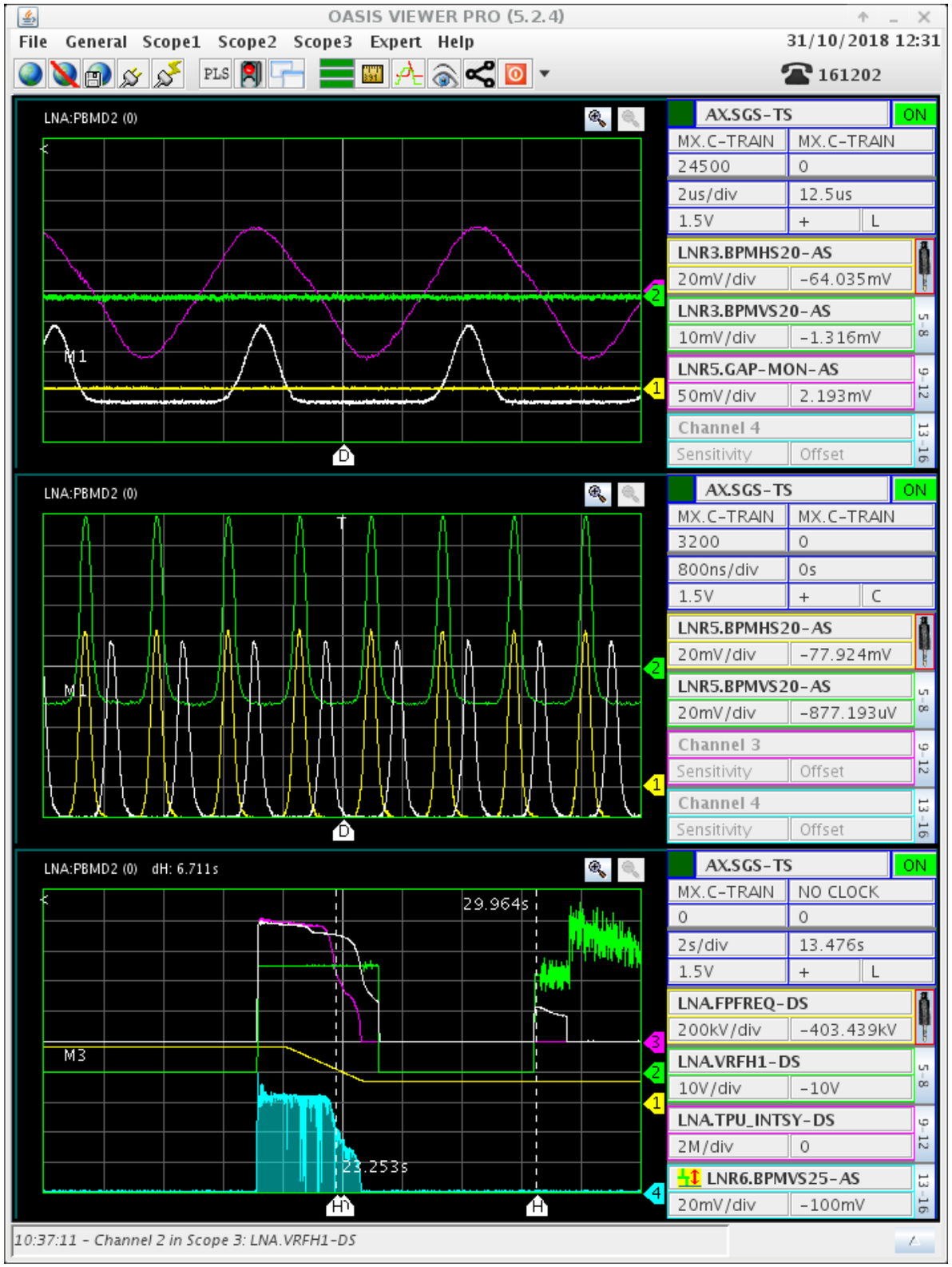
Attempt with Qh/QV 0.42/0.44

1h test with only changed QFNS current (coupling not optimized)

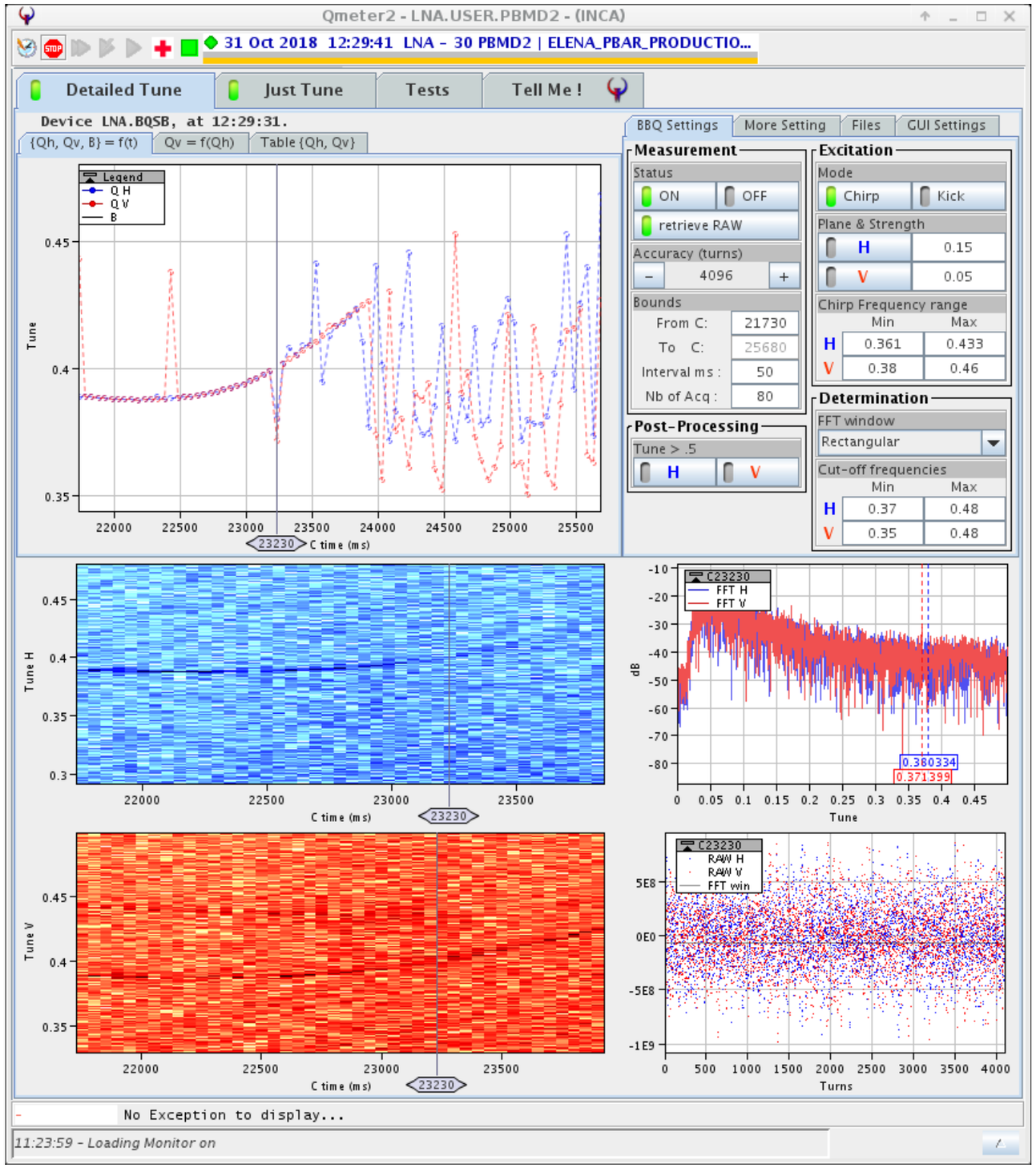




“Constant” K along cycle



Tune along 2nd ramp



Summary

- **Cycle with almost nominal length and E-cooler ON**
- Investigation of the loss during last ramp:
  - Tried another working point (2.38/1.44)→ better transmission
    - Working point for Hminus at 100 keV was measured to 2.44/1.38 → could be worth to be tested
  - Added intermediate plateau to optimize tune/coupling
    - Orbit also corrected back to orbit at intermediate plateau
    - Tune recorrected after each orbit correction
    - Not managed (beam time over!) to complete optimization between plateau at 17 MeV/c and ejection plateau

Plan end of July

What we tried

- **Optimization of the working point :**
  - **Always above diagonal (QV>QH): 0.38/0.44, 0.41/0.45**
  - **Trying keeping K constant, changing with energy, keeping measured tunes values cosntant**
  - **Best working point for good transmission is an hybrid**
- **Changed ramp length, rounding length**
- **Added intermediate plateaus to optimized tunes/coupling/orbit all along the ramp**
  - **Extra points introduced finally removed → losses still there**
- **Also many tests with radial loop (Better to ask Davide for reporting)**
  - Start of loss is changed, but loss still there

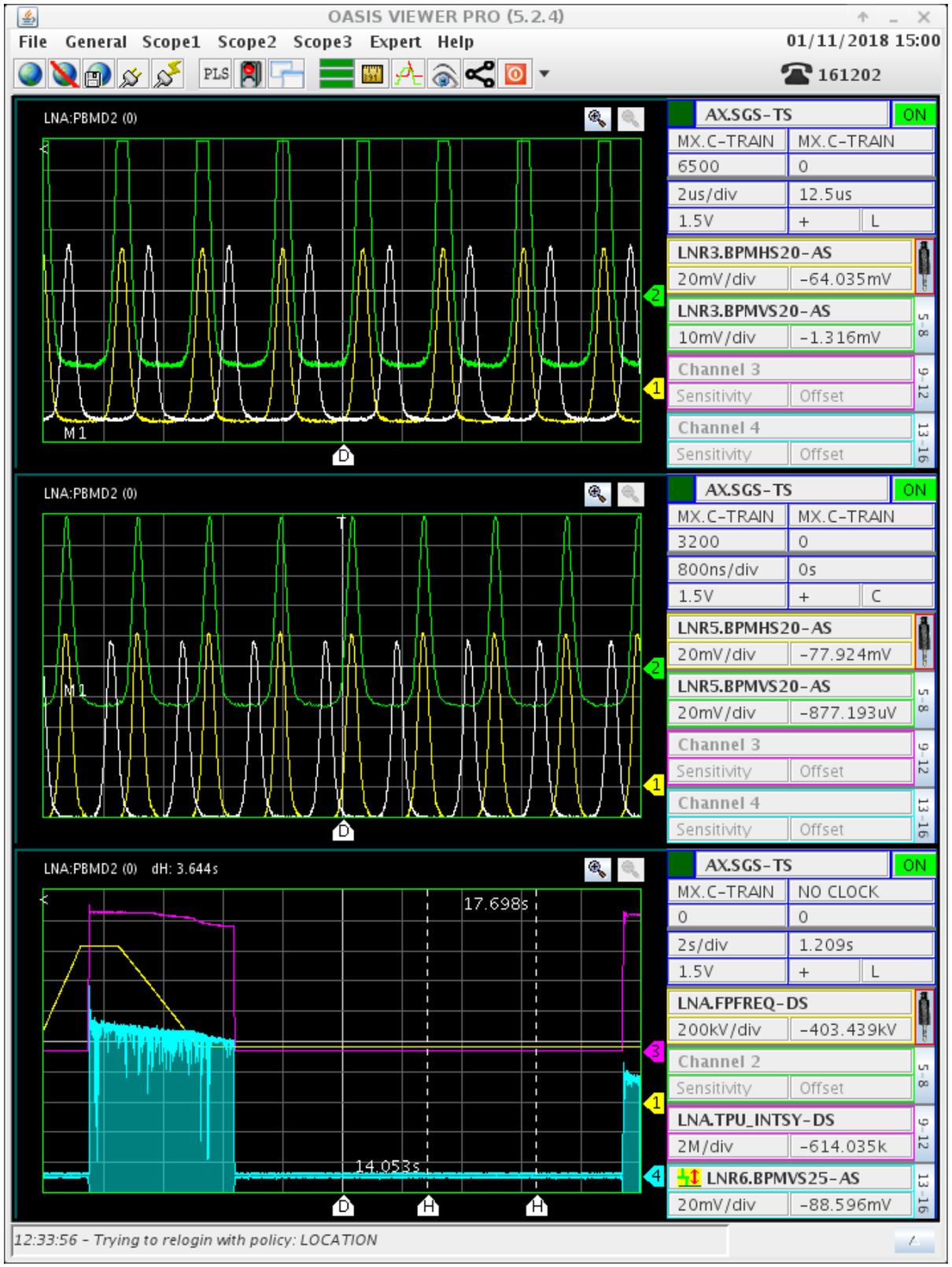
Many attempts/data to be analysed

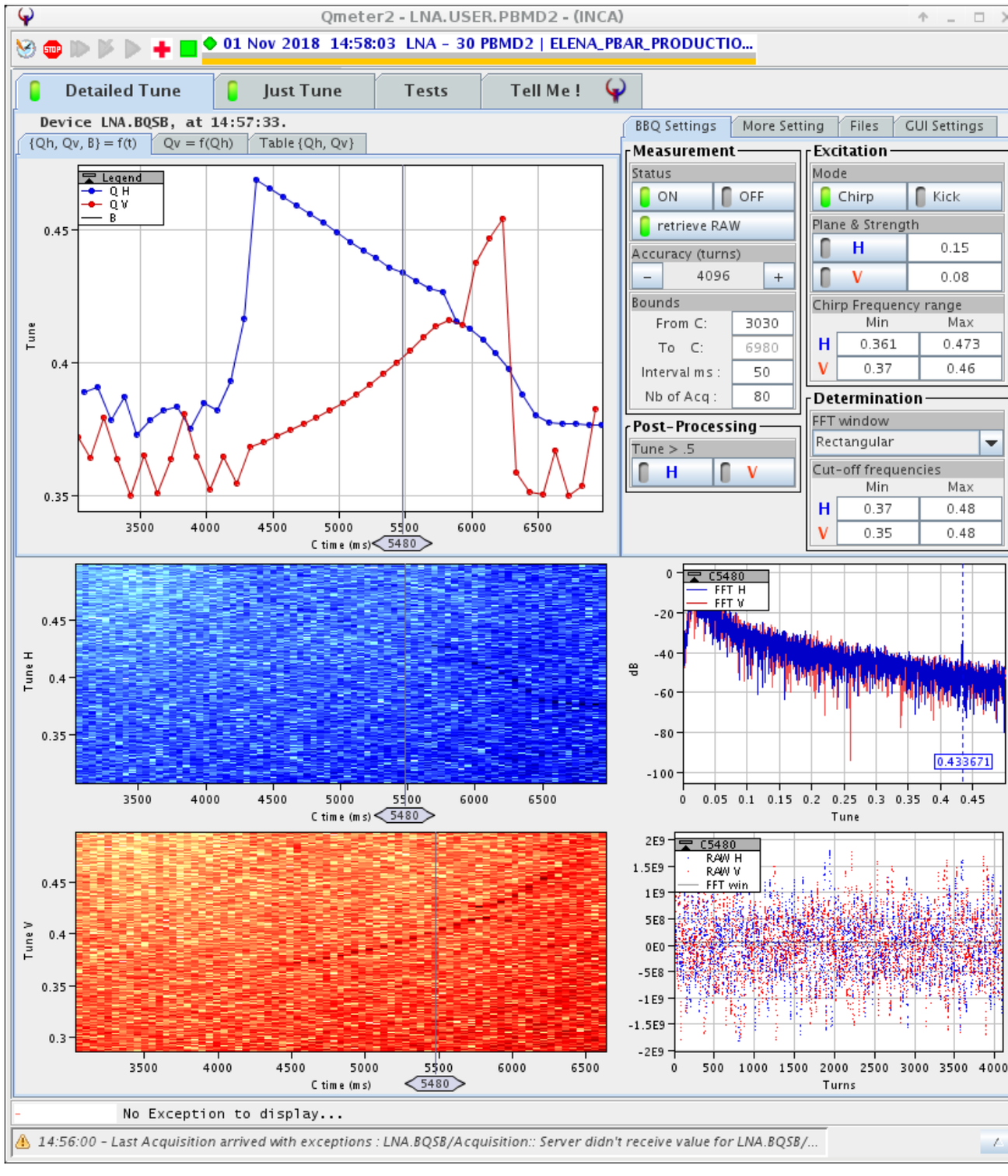
Next step?

- Try a working point below diagonal: 0.44/0.38?
  - Estimate ~ 2hours for proper test and coupling optimization
- Optimization of E-cooler magnetic system/orbit at 100 keV?
  - Estimate 2 hours
- Introduce Sextupoles?
  - Could be done “tranparent” with other activities?

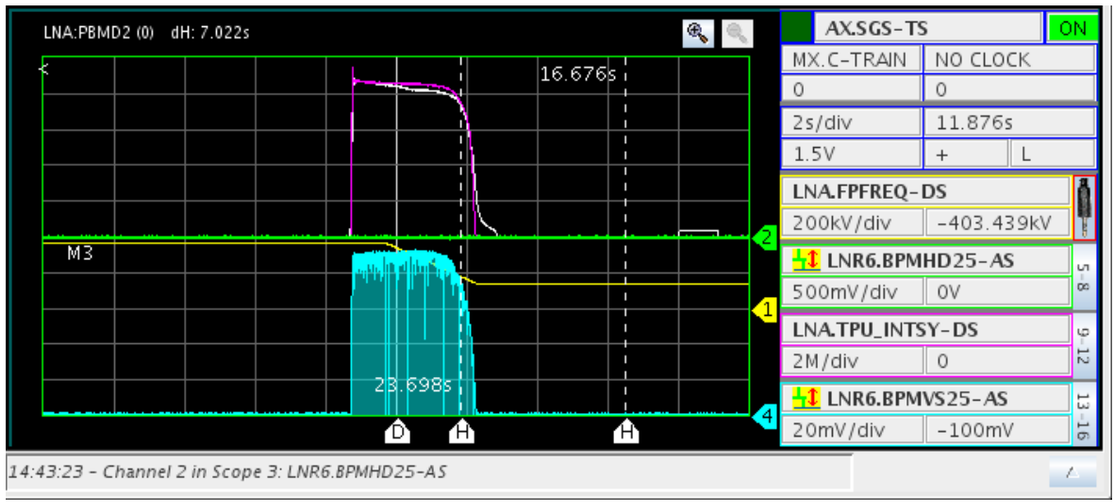
Test 0.45/0.38

Tune along 1st ramp

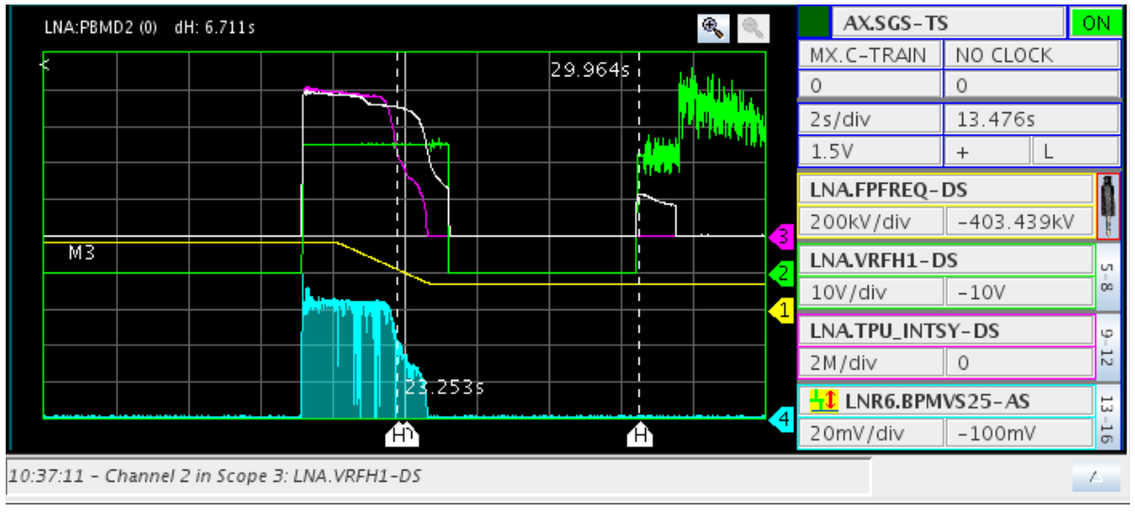




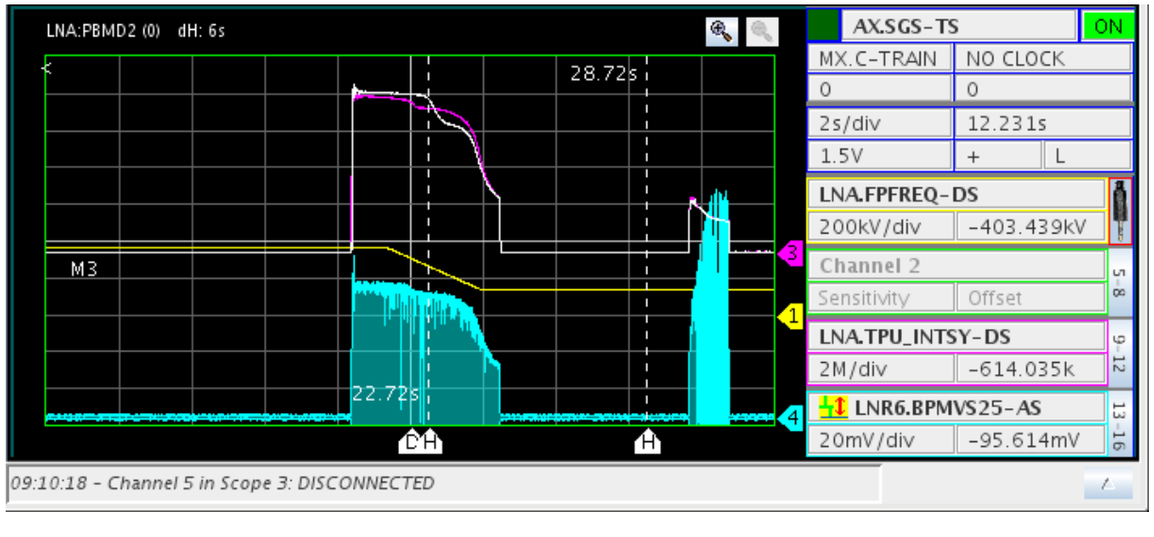
Comparison



Tunes Qh/Qv = 0.42/0.44



Constant K along cycle



QV changed at 35 MeV