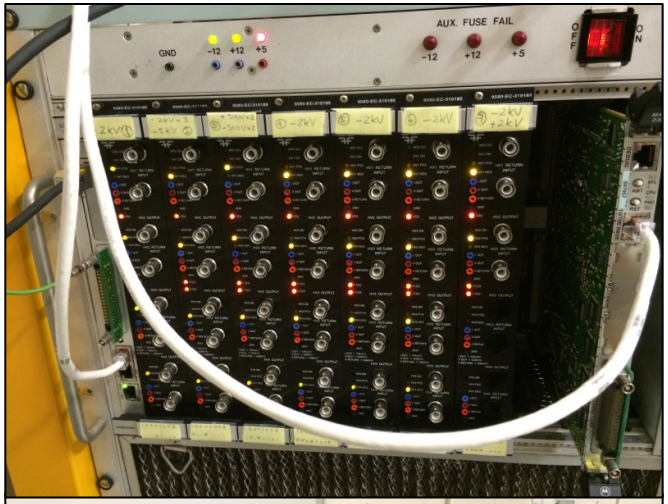
PMT tests at MCenter with ACNET power supplies

Will Foreman

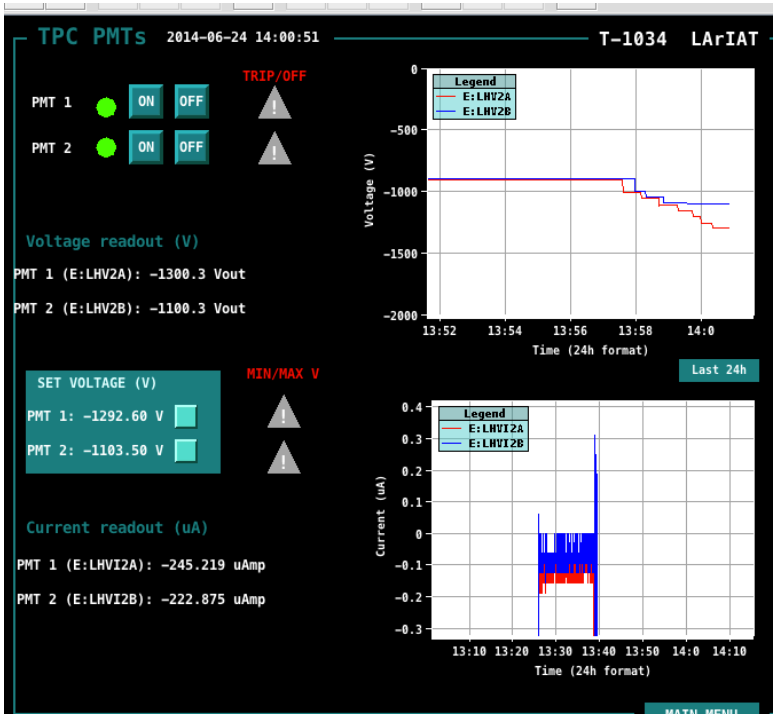
LArIAT Meeting

24 June 2014

PMT tests

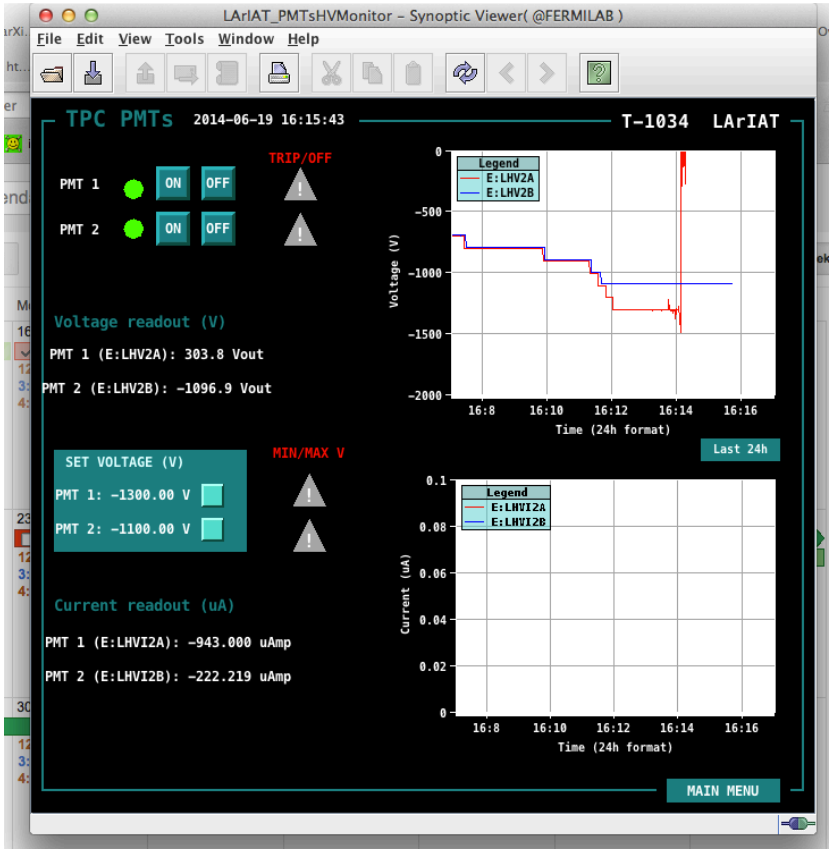


- Testing ACNET power supplies at MCenter
- Have full DAQ chain working on lariat-test01
- Supplies controlled by synoptic interface
  - Option to ramp-up HV in progress (Flor, Charlie)

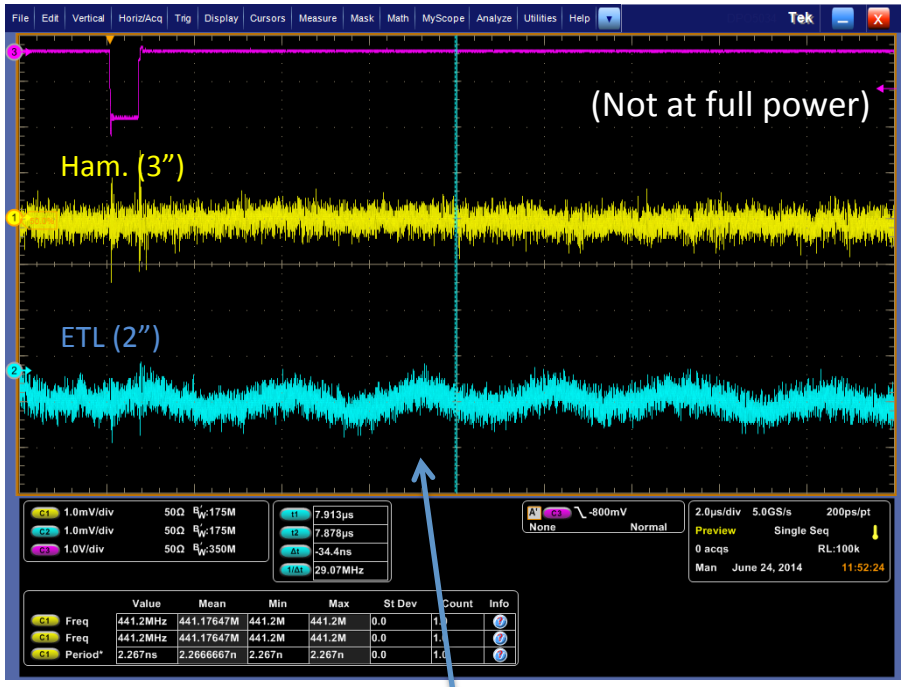


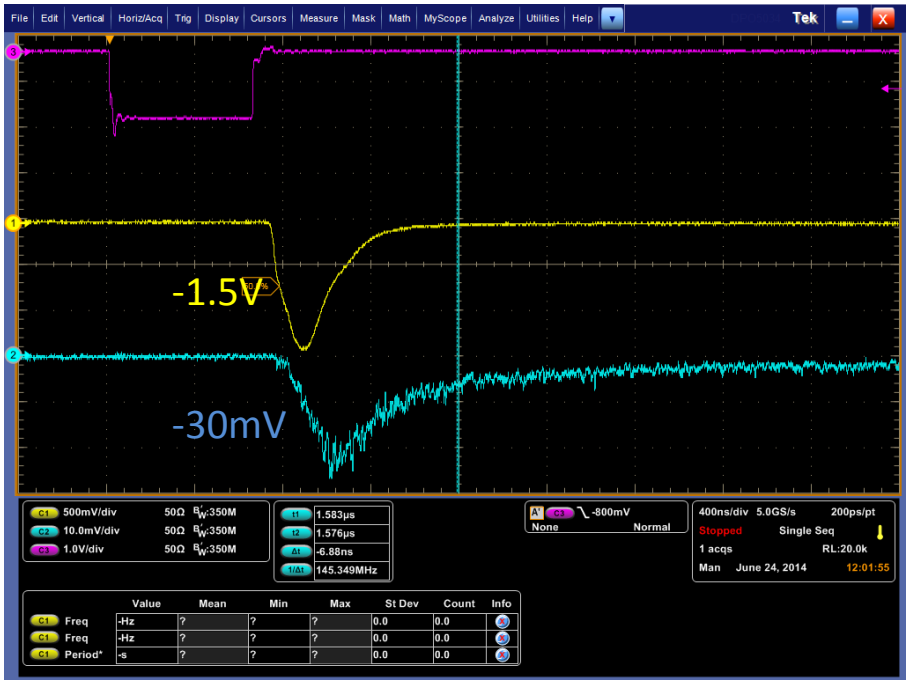
Hamamatsu trip

- Hamamatsu tripped while at full voltage last week
- Cause unknown…
  - Insulation on HV wire melted/burned slightly (large changes of current at sudden voltage step-ups…?)



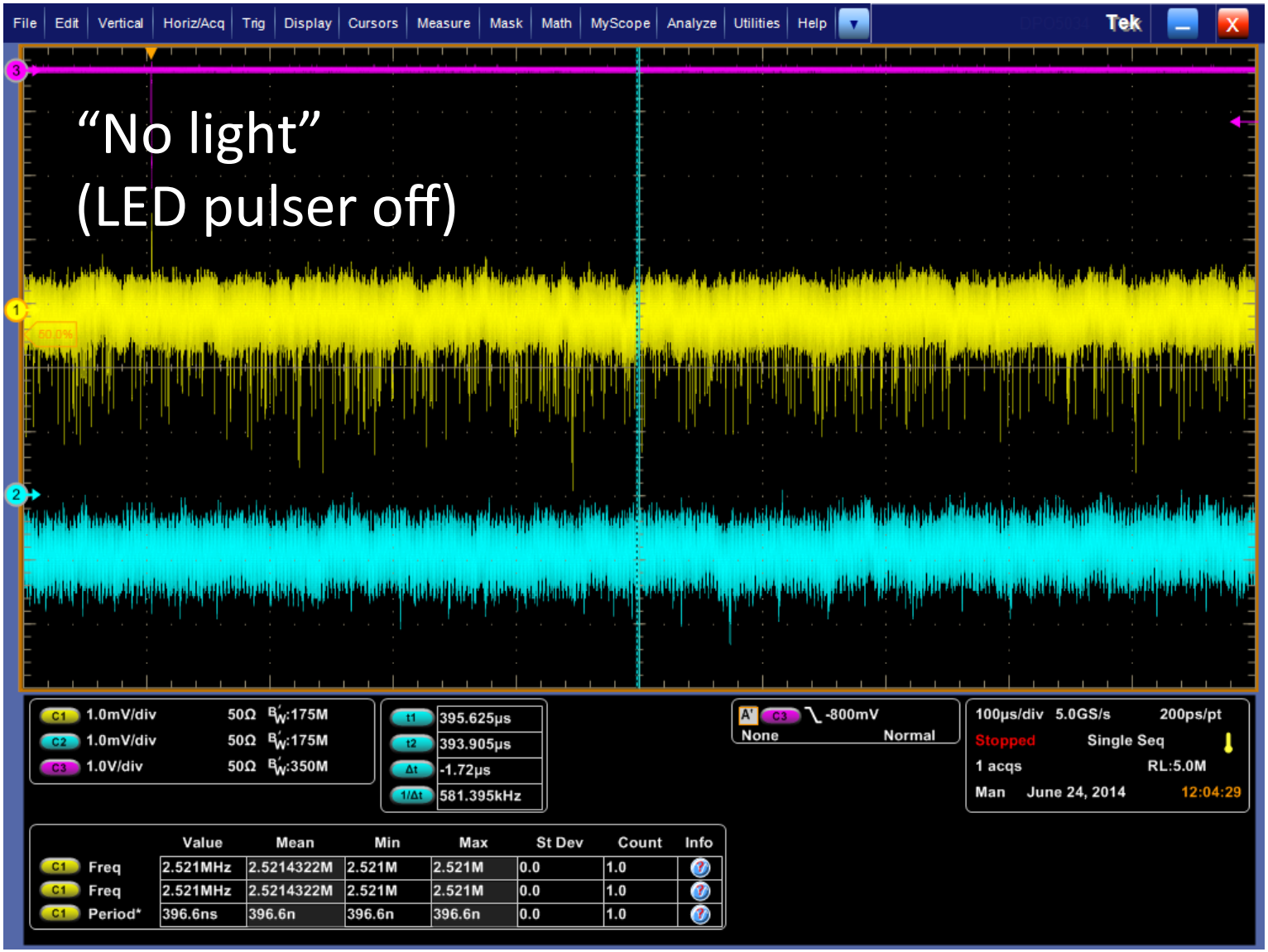
A few issues…



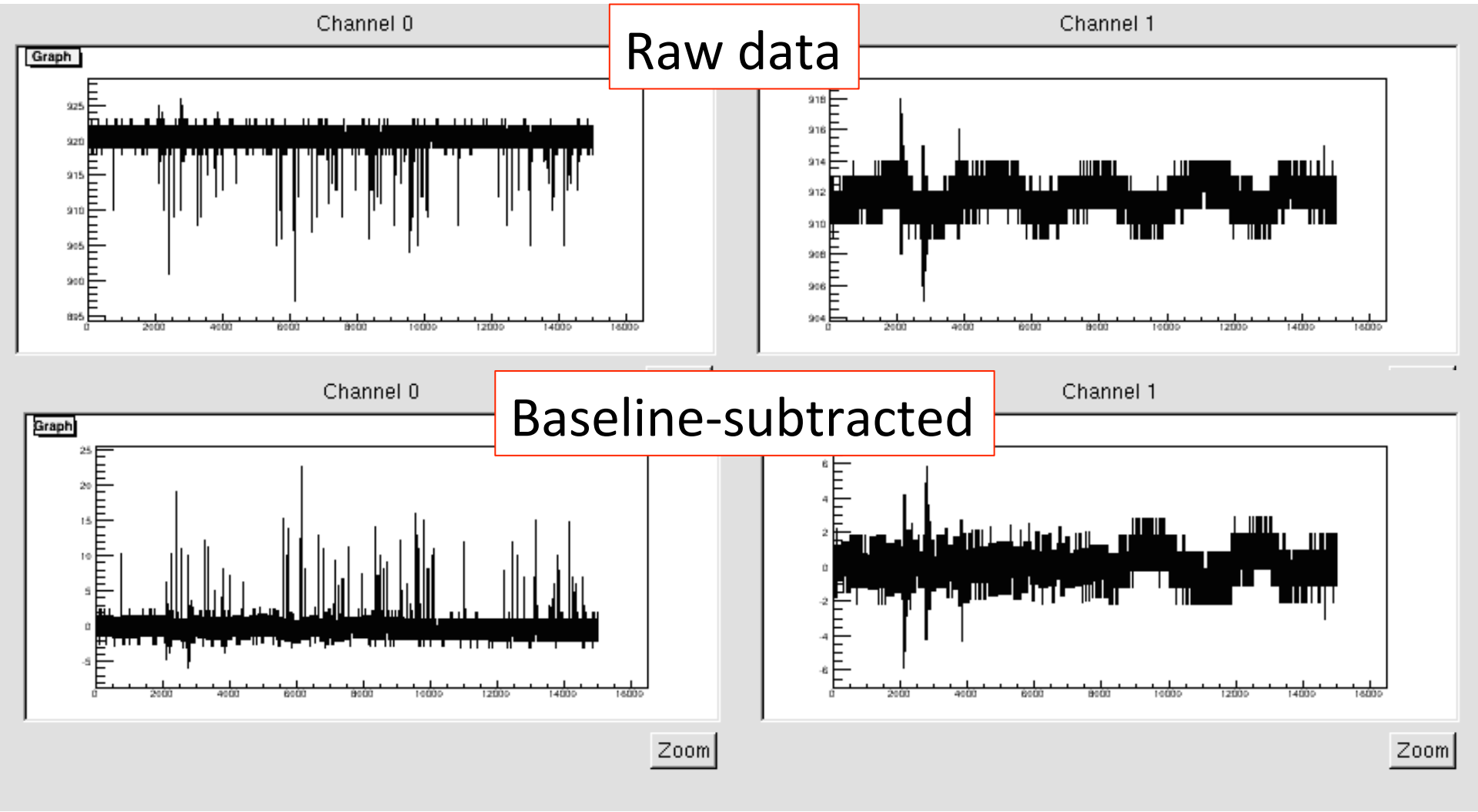


~300kHz noise in output of ETL (unrelated to supplies)

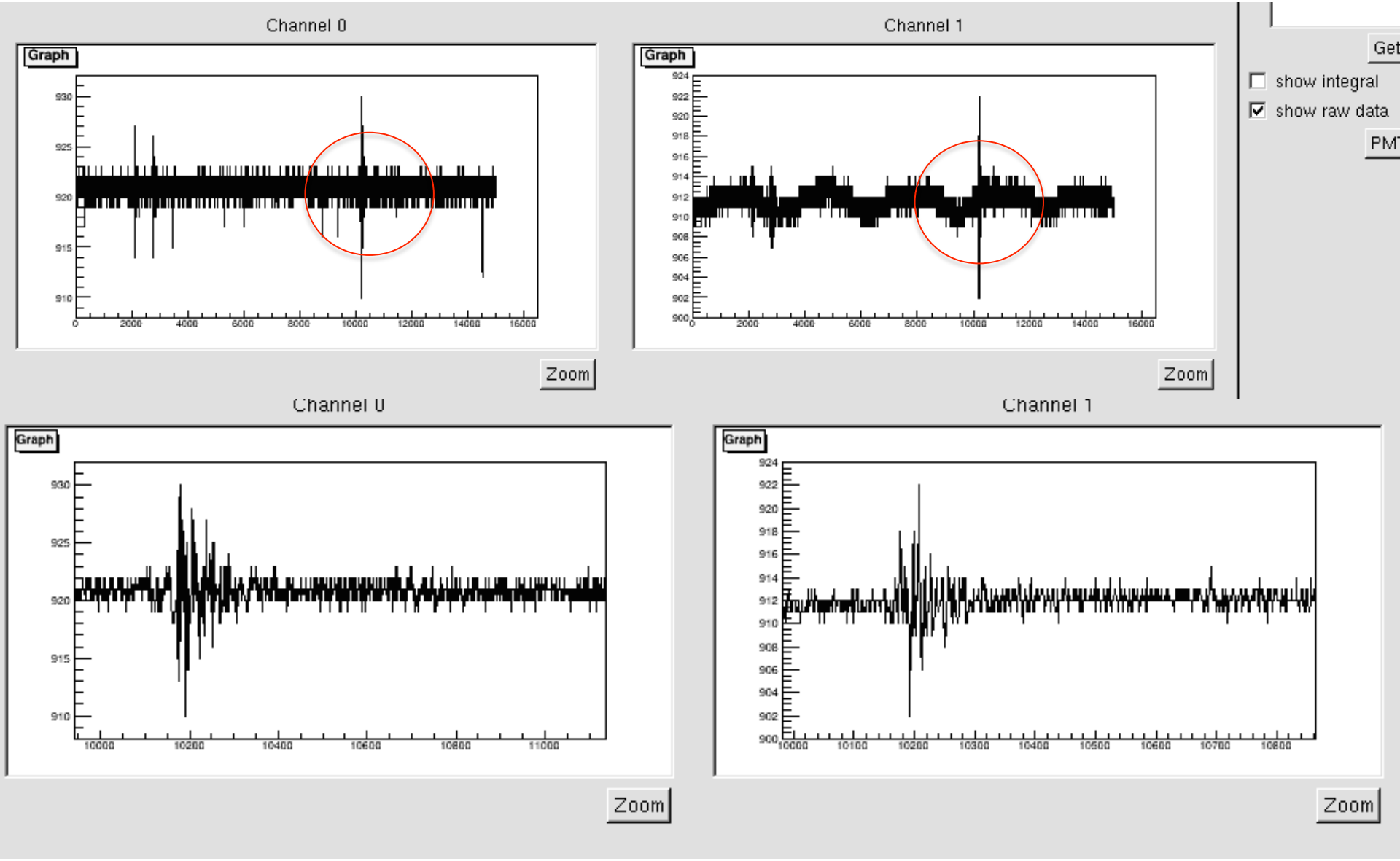
Hamamatsu over-sensitive to light levels…


File Edit Vertical Horiz/Acq Trig Display Cursors Measure Mask Math MyScope Analyze Utilities Help
Tek
"No light"
(LED pulser off)
C1 1.0mV/div 50Ω BW:175M
C2 1.0mV/div 50Ω BW:175M
C3 1.0V/div 50Ω BW:350M
t1 395.625µs
t2 393.905µs
Δt -1.72µs
1/Δt 581.395kHz
A' C3 -800mV
None Normal
100µs/div 5.0GS/s 200ps/pt
Stopped Single Seq
1 acqs RL:5.0M
Man June 24, 2014 12:04:29
Value Mean Min Max St Dev Count Info
C1 Freq 2.521MHz 2.5214322M 2.521M 2.521M 0.0 1.0
C1 Freq 2.521MHz 2.5214322M 2.521M 2.521M 0.0 1.0
C1 Period* 396.6ns 396.6n 396.6n 396.6n 0.0 1.0

ETL baseline



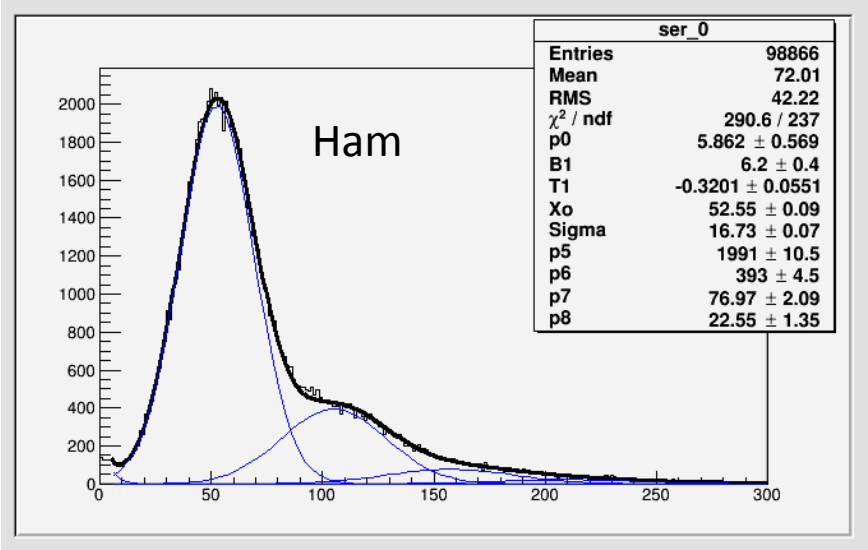
Periodic electronic noise

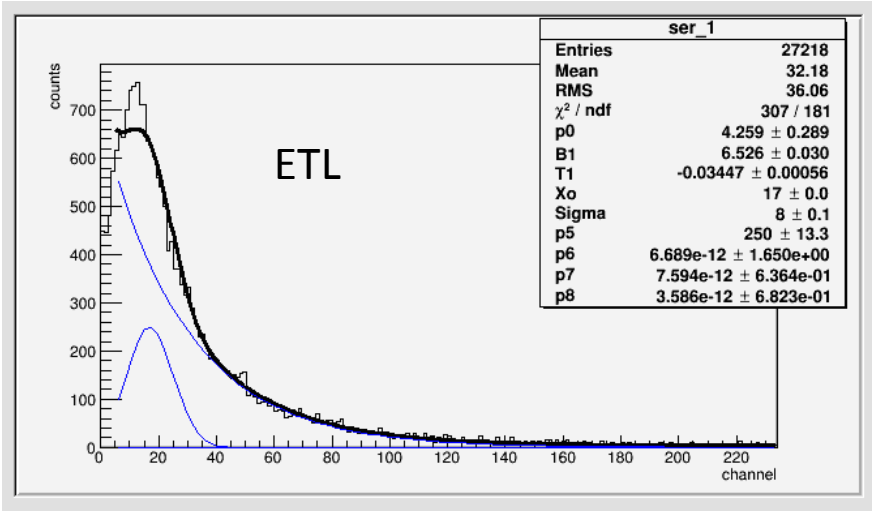


- Hamamatsu (despite all the noise) seems to resolve SER that rises with HV as expected, though slightly lower than before

- With baseline problems, no SER convergence for ETLs…

- Will test spare Hamamatsu next, try to resolve ETL baseline…





Test fit into cryostat

Planning a way to install and support the holder…

- May build a G10 disk mounted to PMT holder (on base-side)