

DVDM-C&W

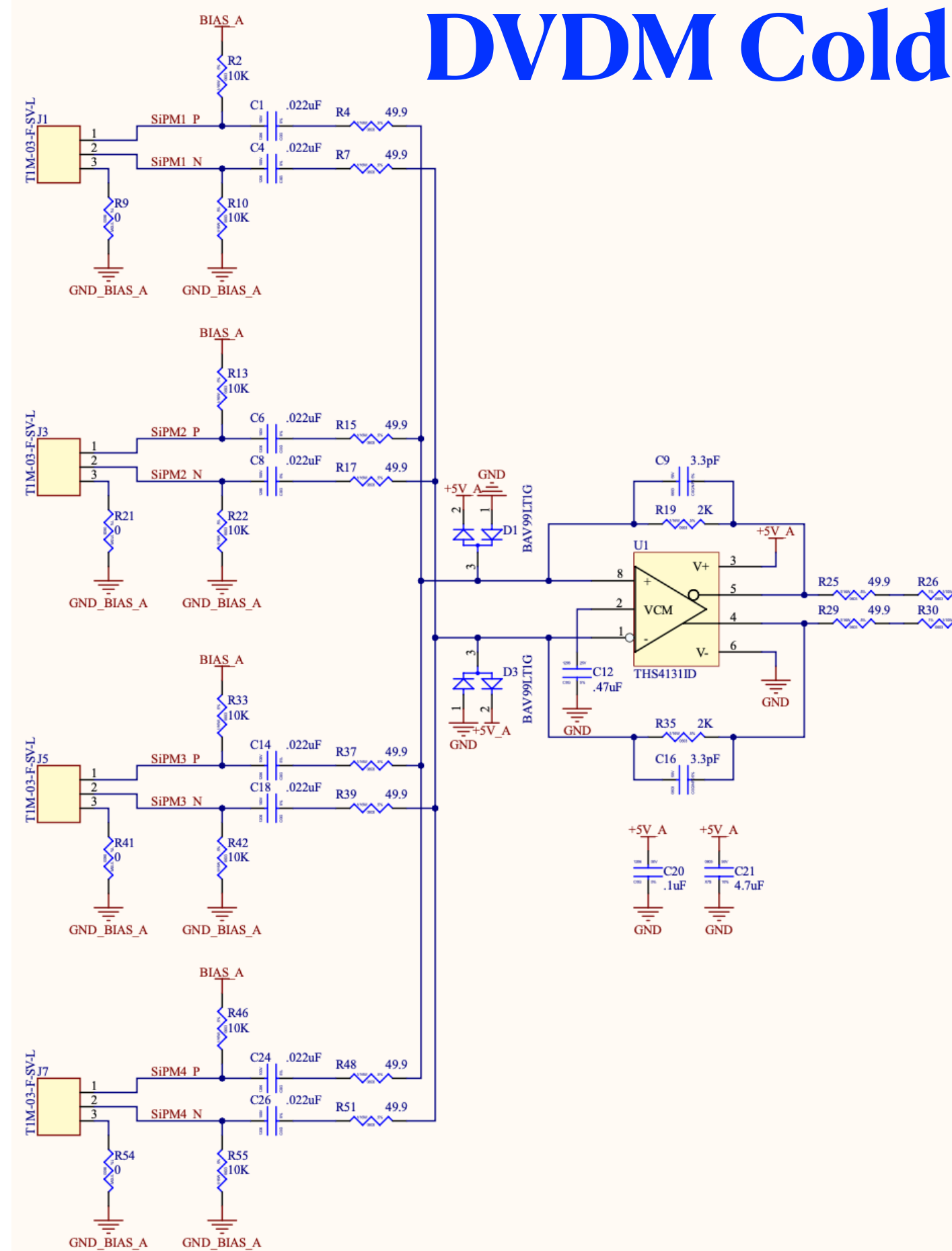
Validation Tests at UCSB

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June 7th, 2023

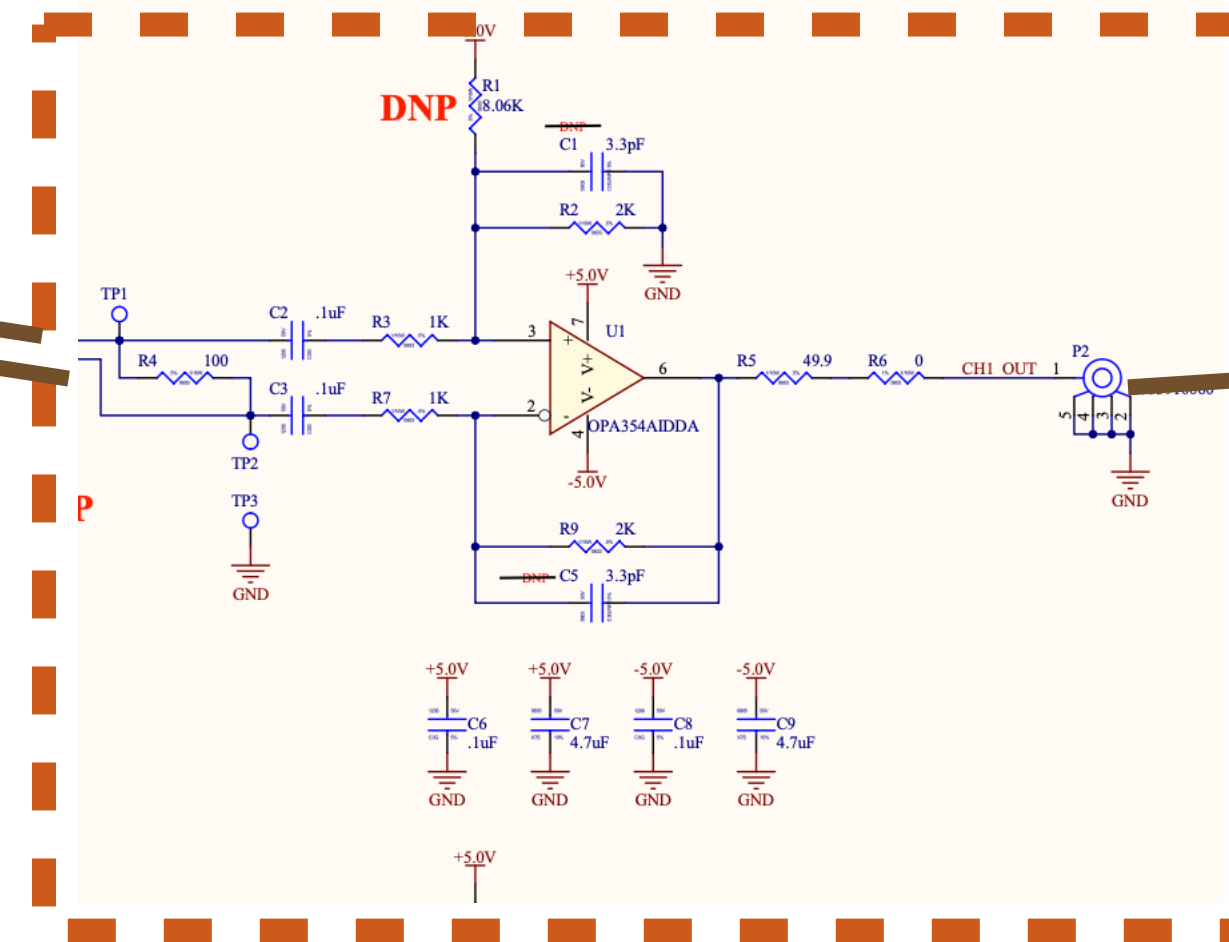
DVDM - C/W: VD style electronics for membrane modules readout.

- Power/Signal over copper
- VD style readout electronics:
 - 1st stage in cold (active ganging and amplification)
 - 2nd stage in warm (fully differential to single ended)
 - Signal from cold to warm across twisted pair



Twisted pair

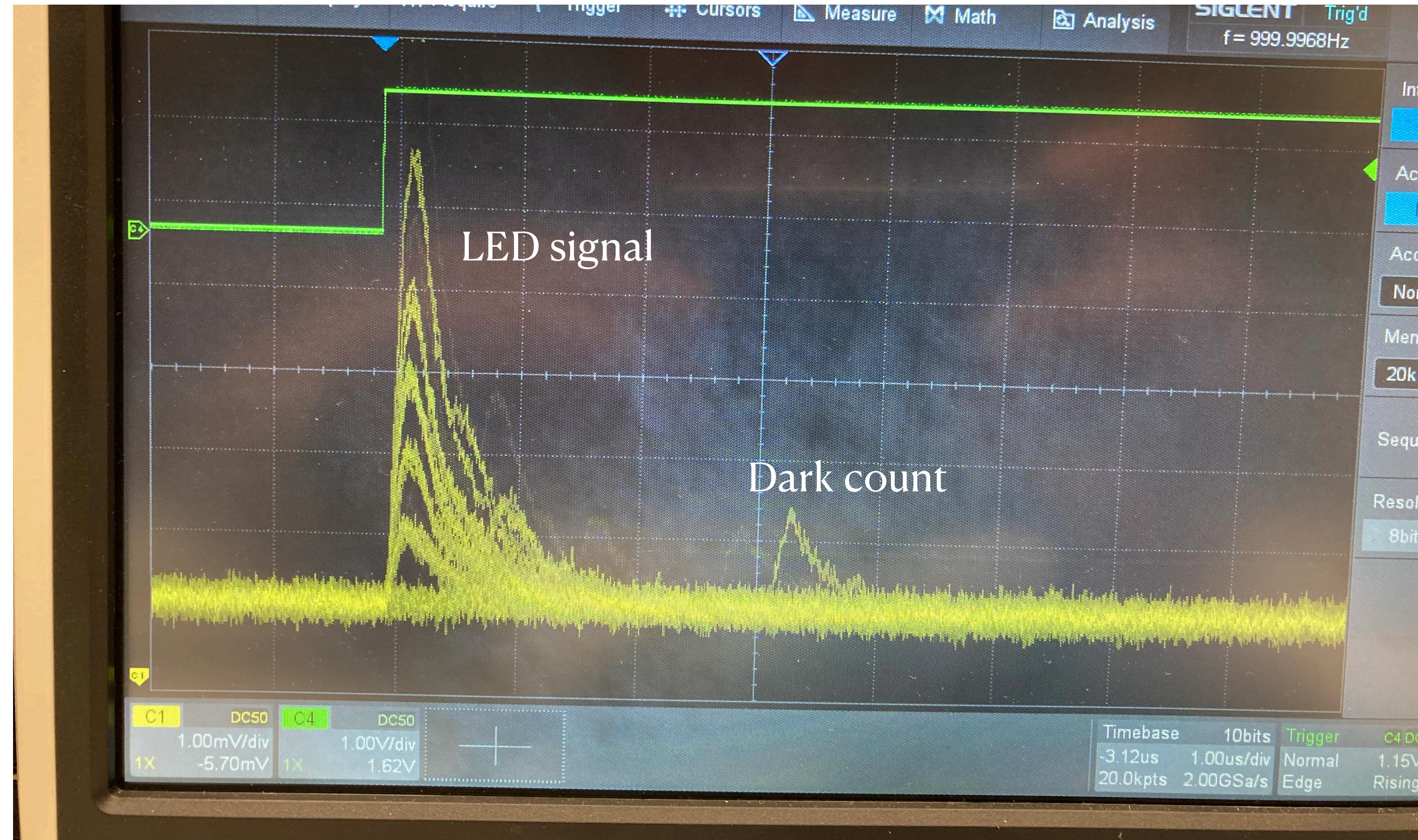
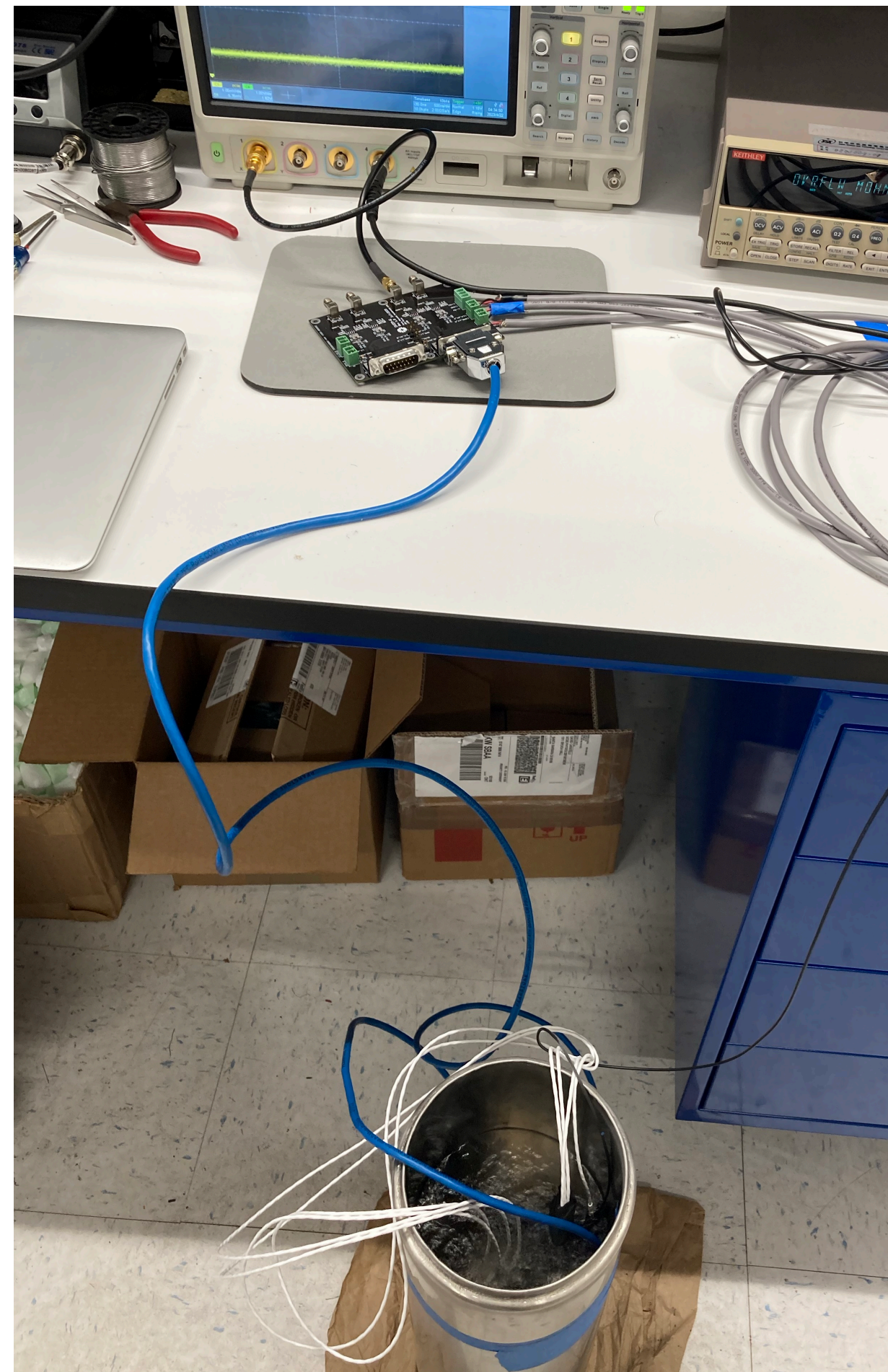
DVDM Warm



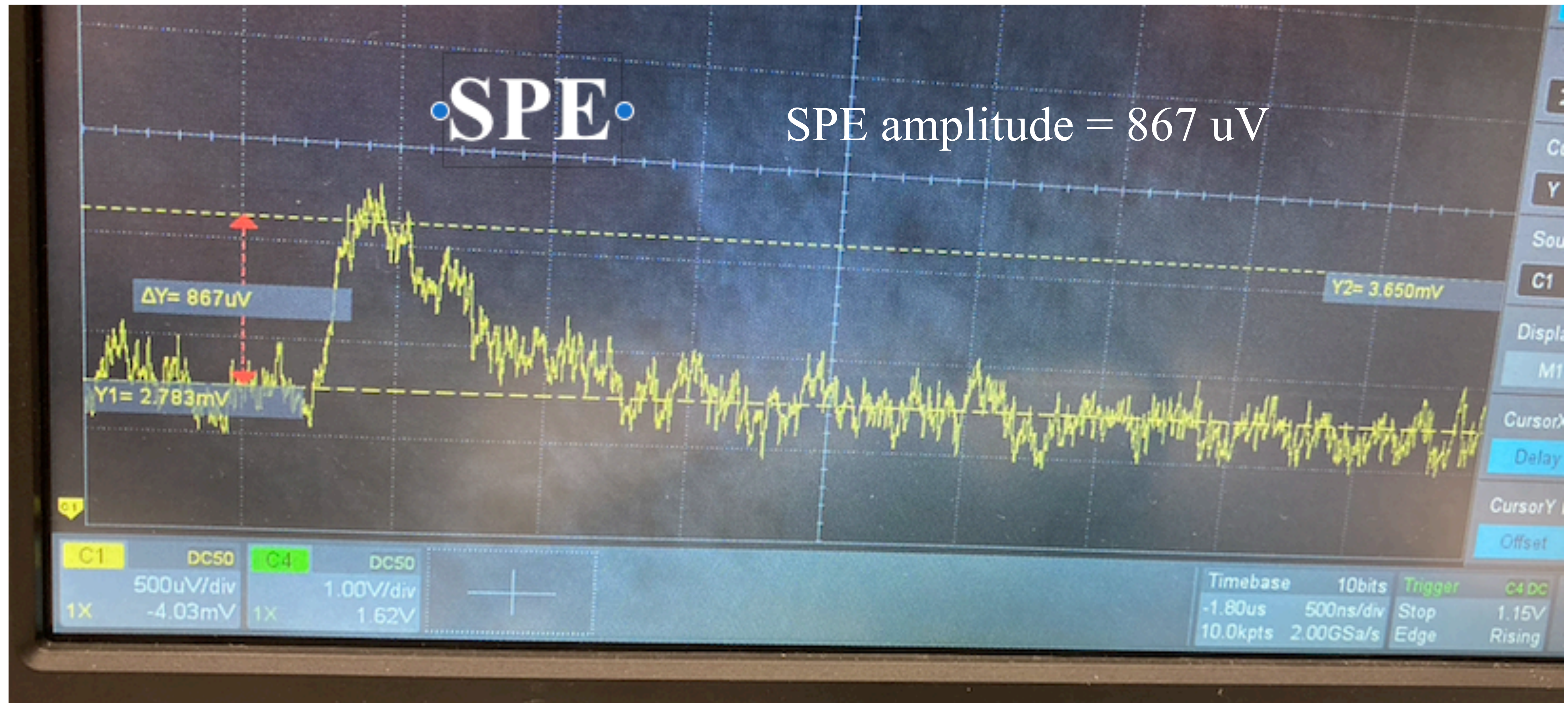
Oscilloscope
DC 50 Ohm

Cold stage is the same as DCEM 1st stage but components have different values
Warm stage is very similar to DCEM 2nd stage

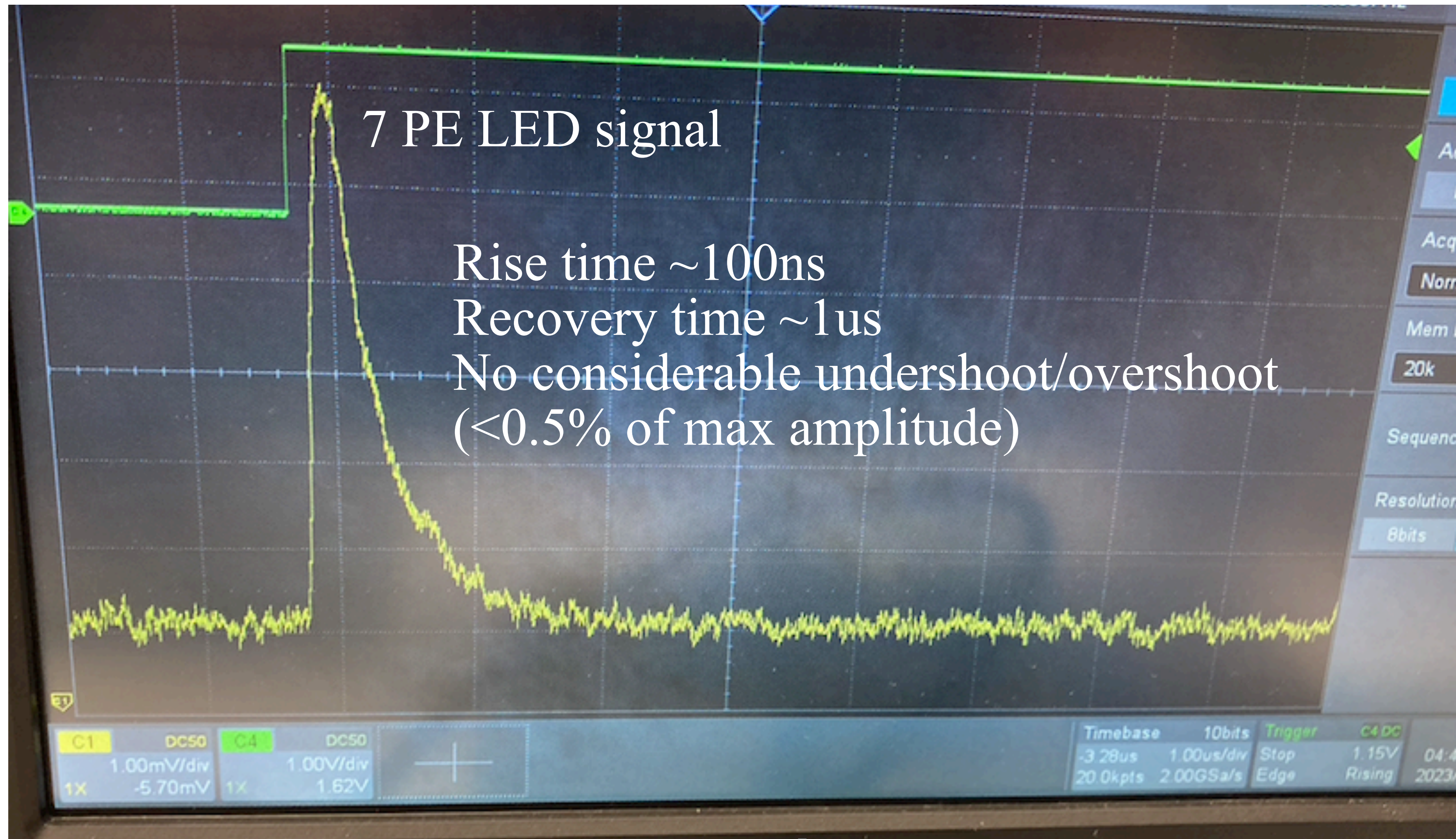
Test @UCSB: 4 flex in LN2, 48V bias



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Cold stage has a large gain and the saturation can occur before the full range is reached. Saturation is in the OpAmp output current.

Board @ UCSB:

Saturation ~ 1.5 V

SPE = 0.86 mV per PE

Full range ~ 1700 PE

Board @ CERN:

SPE ~ 2 mV

Similar saturation

Full range ~ 750 PE

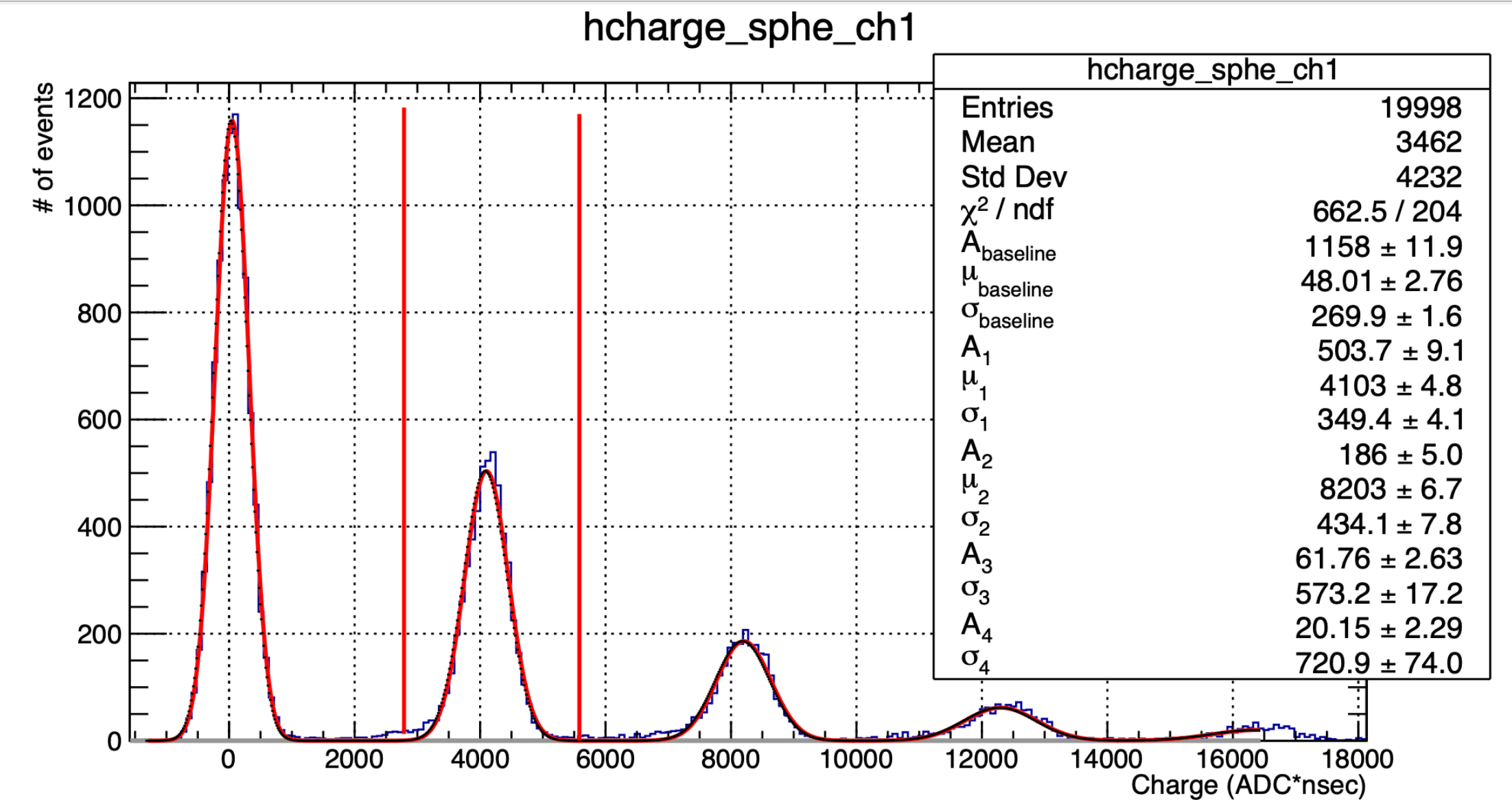
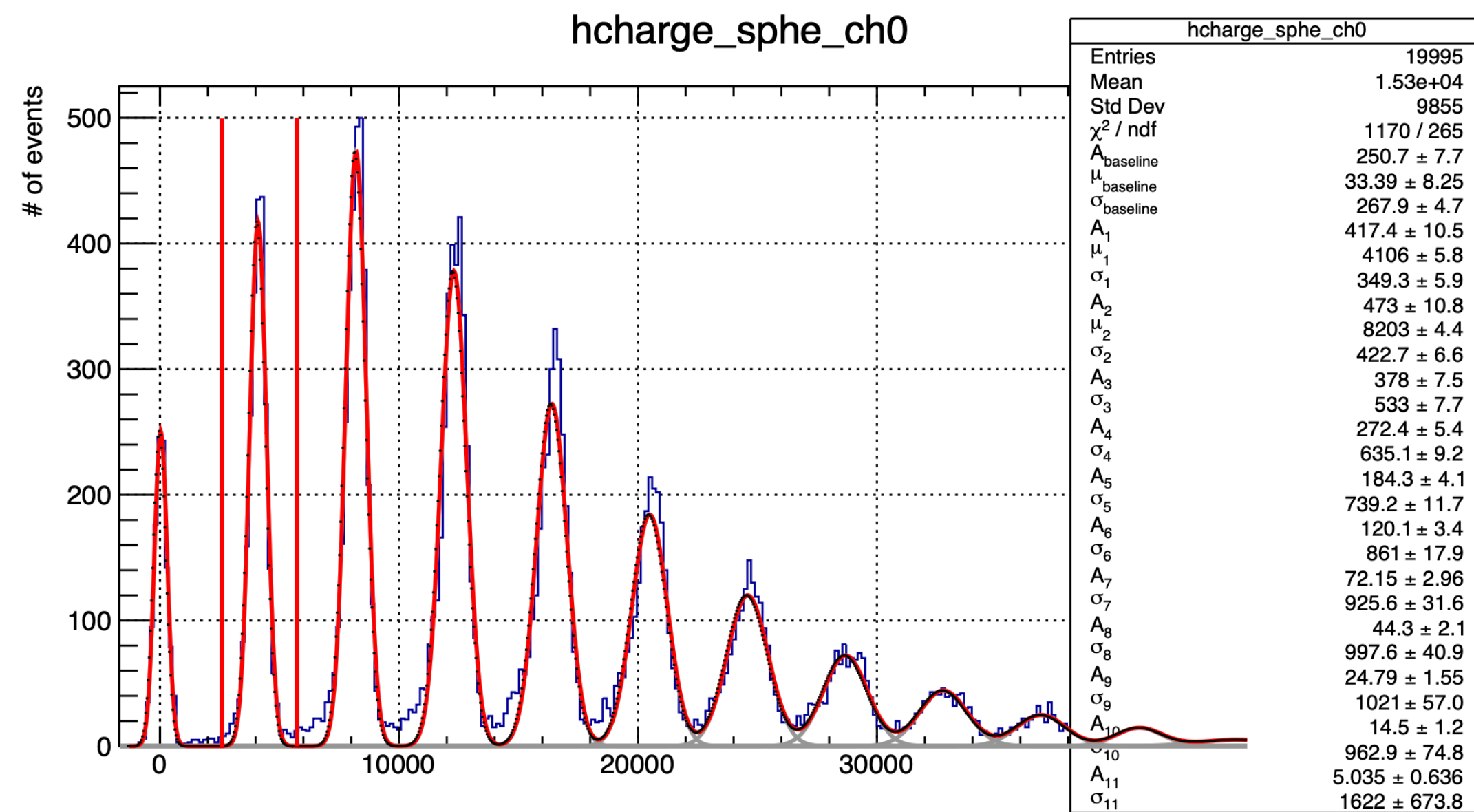
Differences are due probably to imprecision in components values (board are hand populated with some problems)



- Increasing the bias of the DVDM-C from +5V to +6V the OpAmp saturation increase of $\sim 30\%$.
- A second step is to reduce the OpAmp gain of 30% - 50%

Test @CERN: 4 flex in LAr

- Both channels shows a SNR ~ 15 .
- Configuration have been modified to increase the full range.



Thanks Manuel and Sam to have performed test and analysis at CERN