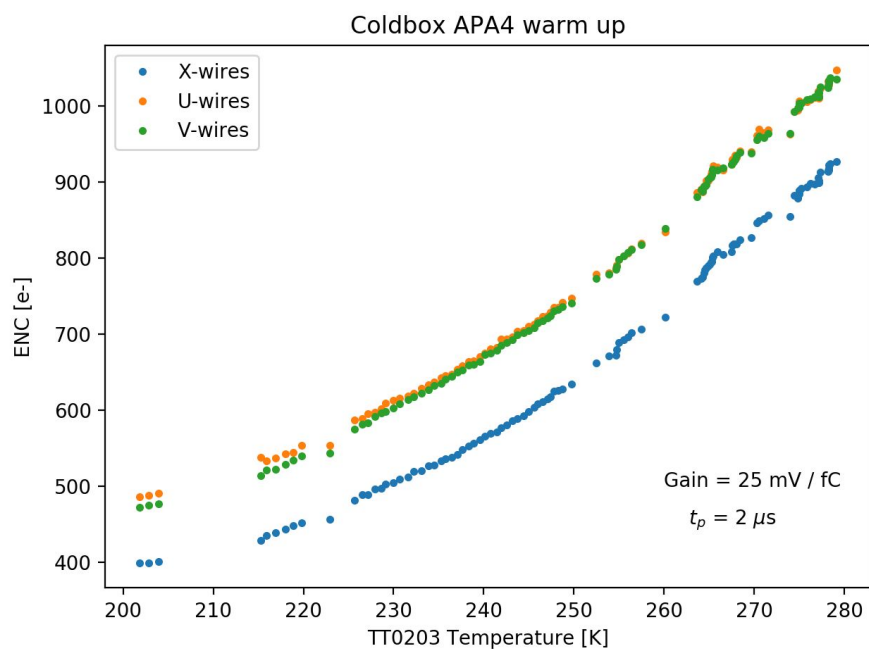


APA#4 ColdBox Test w/ DAQ

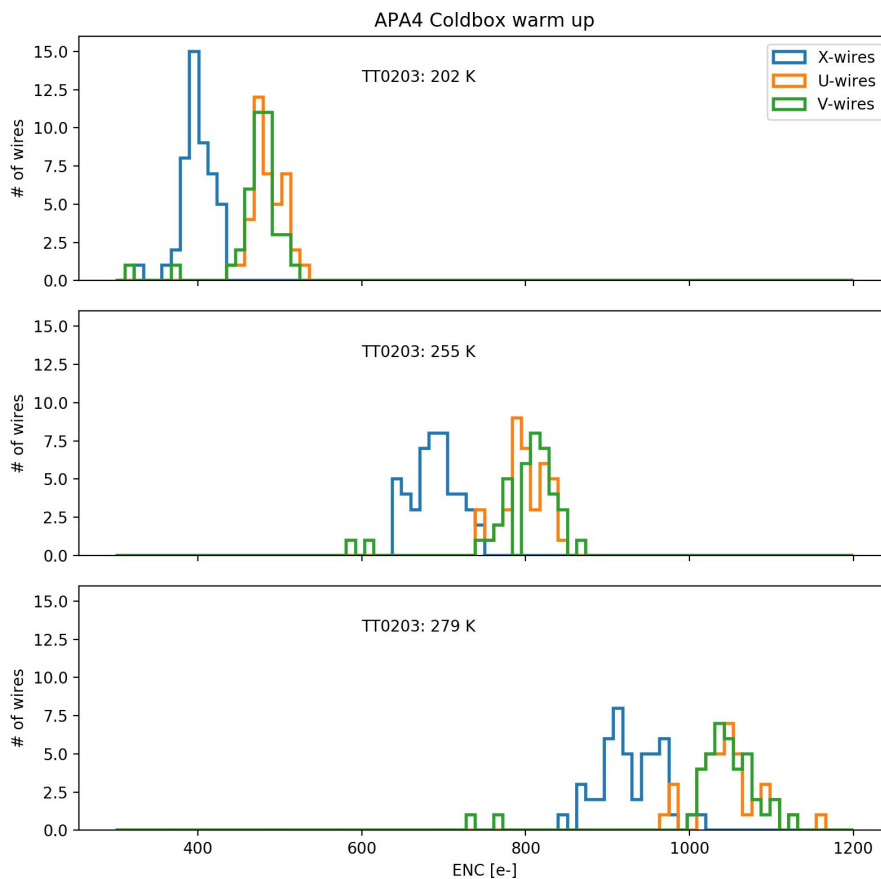
Patrick Tsang (SLAC)
Apr 5, 2018

APA#4 Coldbox Warm Up

<https://pdspelog.cern.ch/elisa/display/1891>



Tracked APA wire noises from 200K - 285K (Mar 23 ~10 am - midnight).



Comparison w/ CE test

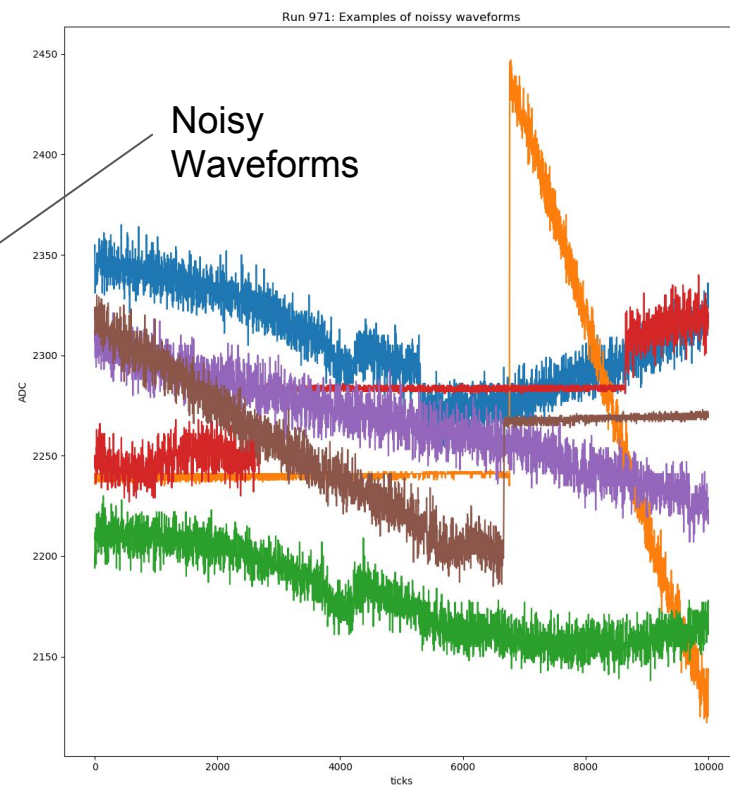
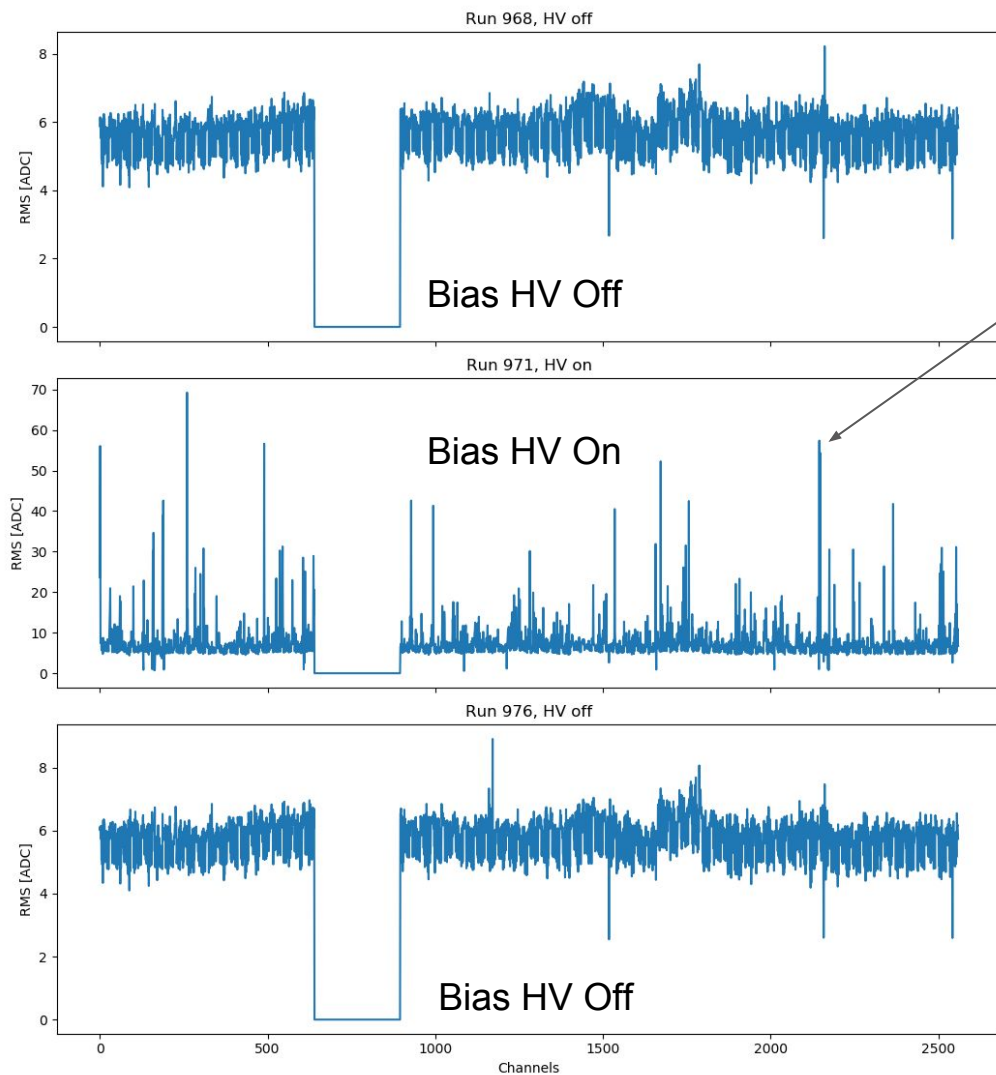


Consistent noise measurements for APA#4 at cold.

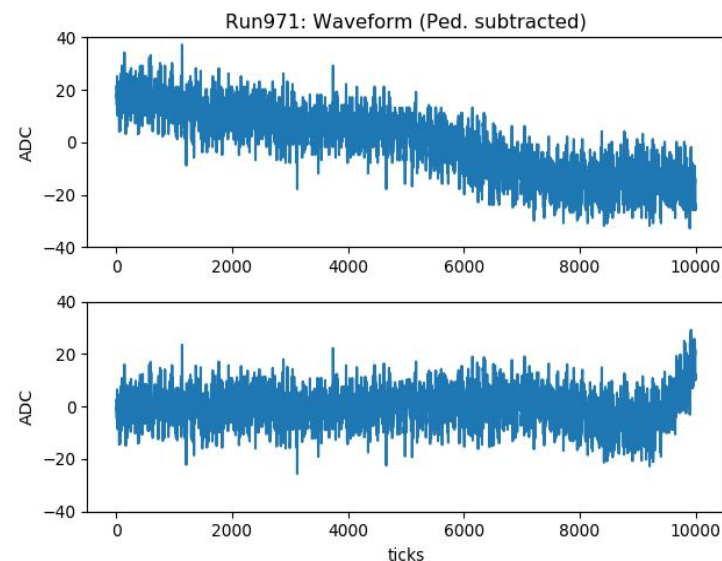
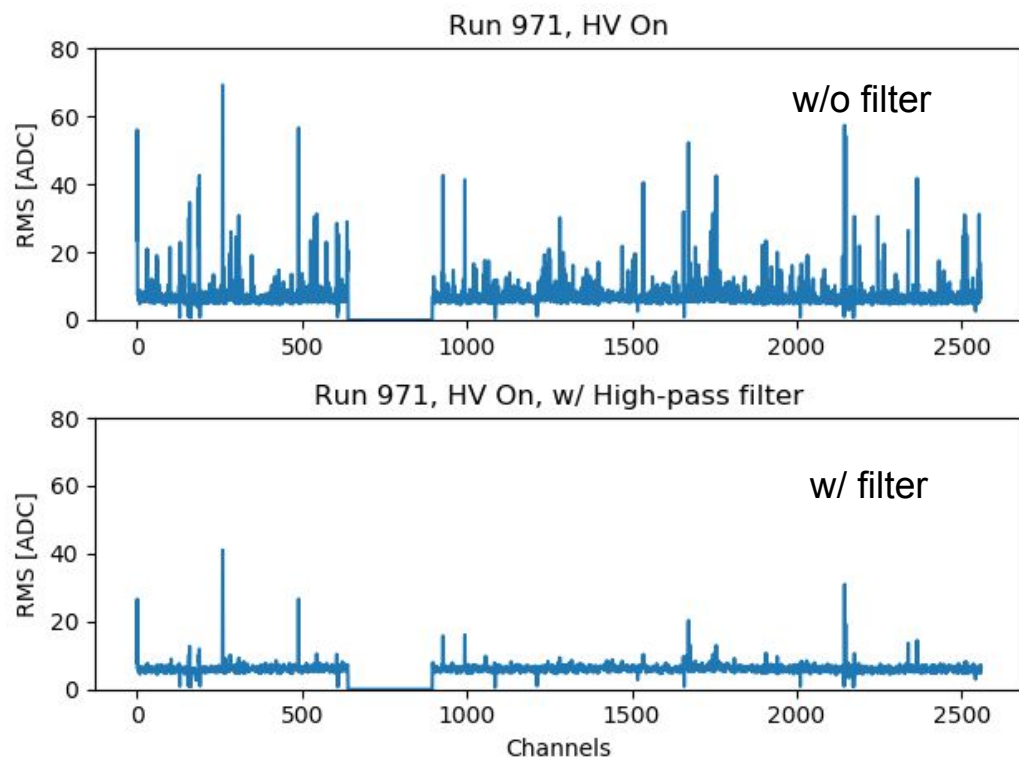
Note: Slightly different channel ordering in the above figures.

Noises from Bias HV

<https://pdspelog.cern.ch/elisa/display/1734>



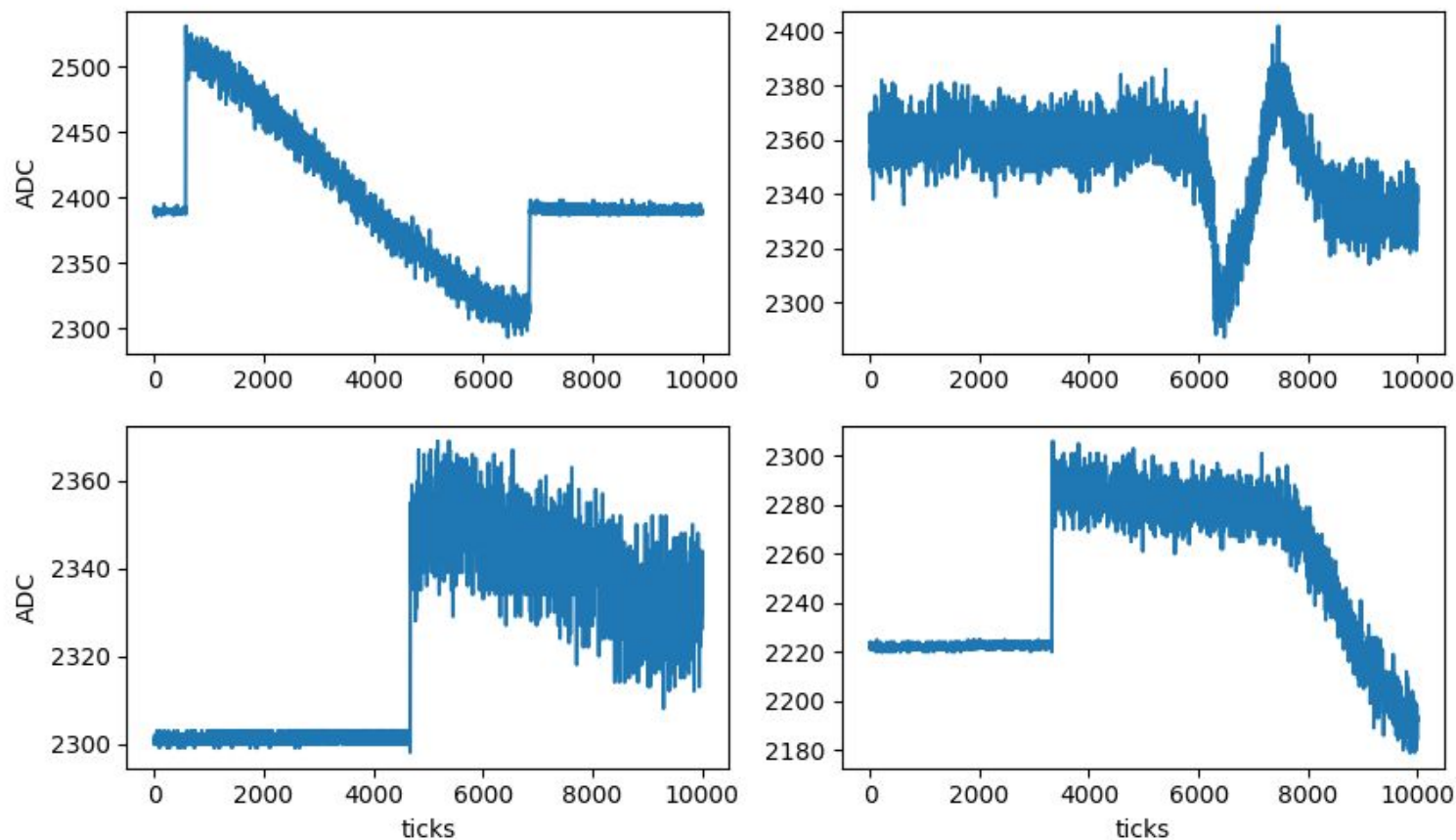
Low Frequency Noise from Bias HV



Example waveform
Before / after high pass filter

A 500 Hz high-pass filter is suggested by CE experts to remove low frequency noise from bias HV.

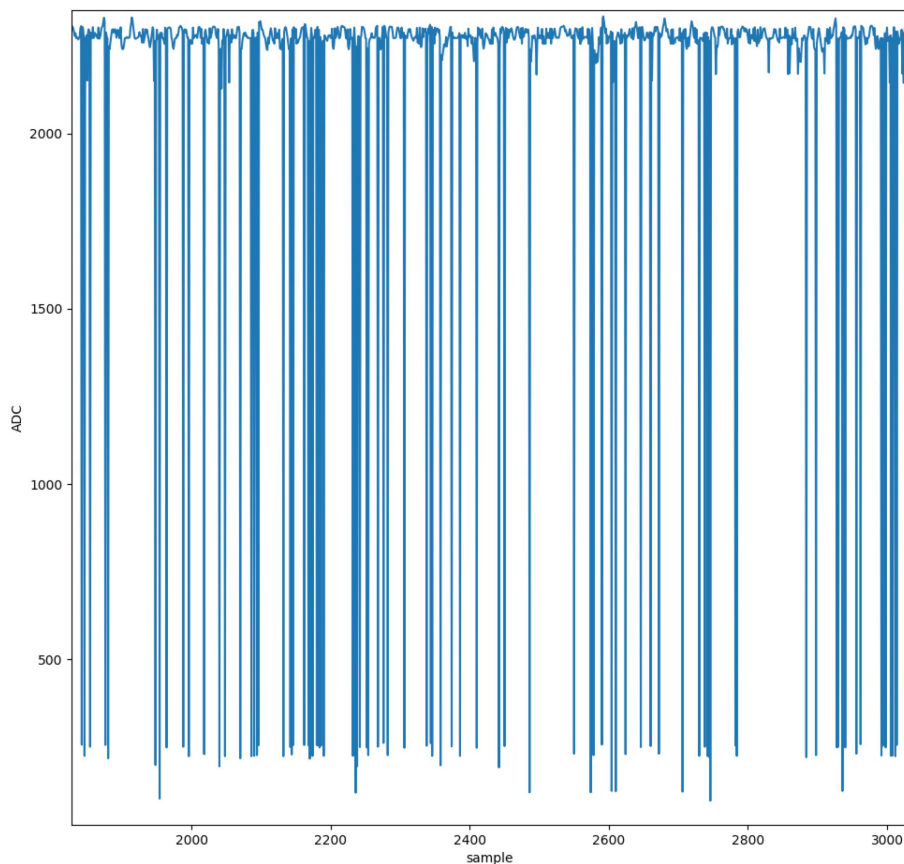
“Jumpy” Noises from Bias HV



Other than the low frequency noise from bias HV, here are some examples of “jumpy” waveforms. Reason unknown - maybe due to leakage current.

Sidenote: On FEMB ADC Sync. Phase

Example waveform of bad ADC sync. phase



Noticed before cooling (Mon. 3/19)

Oscillating high-low ADC values

-> high rms in some channels

Was fixed at the beginning of cold period.

Seems alright during warm-up.

Reappeared at room temperature
(we saw it on Monday following complete warm-up)

Summary

- Demonstrated noise measurements for APA#4 in coldbox with ProtoDUNE-SP DAQ
- Results are consistent with standalone test
- Noises from bias HV are under investigations
- Additional tests with different CE settings are planned for APA#5 in coldbox