

SVT Testing Update

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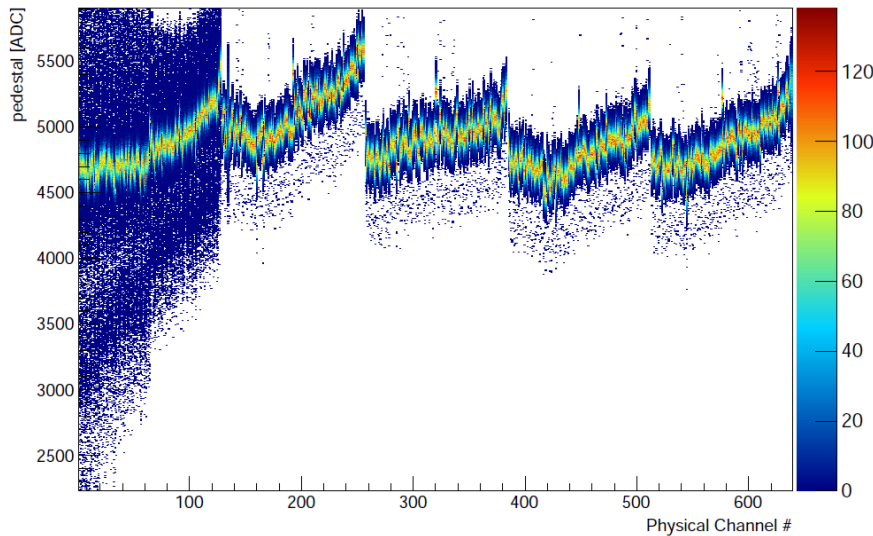
August 9, 2013

Heavy Photon Search DAQ Meeting

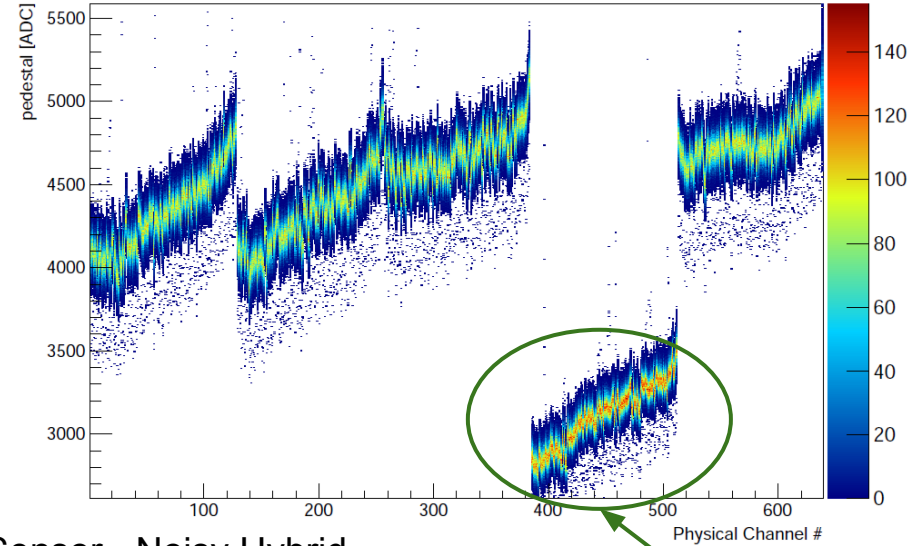
Sensors With Issues During Test Run

- Three sensors were found to have issues during the test run

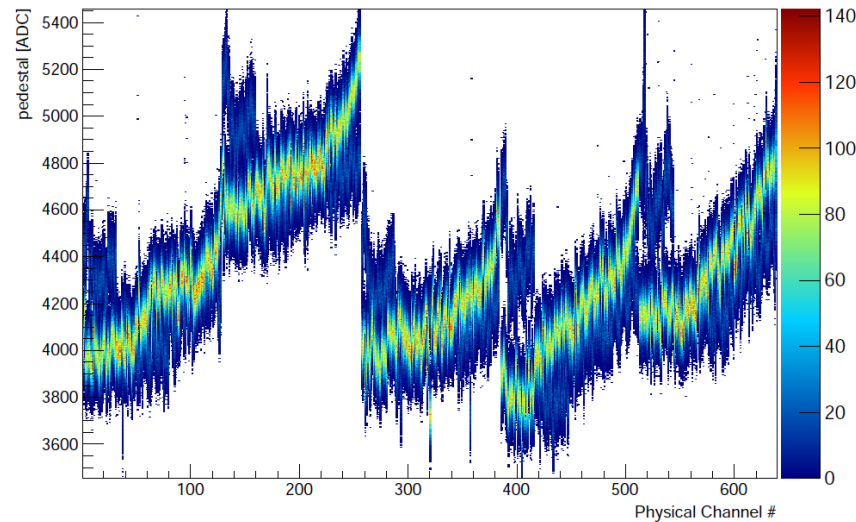
Top Layer 2 - Stereo Sensor - Noisy Chip



Top Layer 3 - Axial Sensor - Baseline Shift



Bottom Layer 2 - Stereo Sensor - Noisy Hybrid

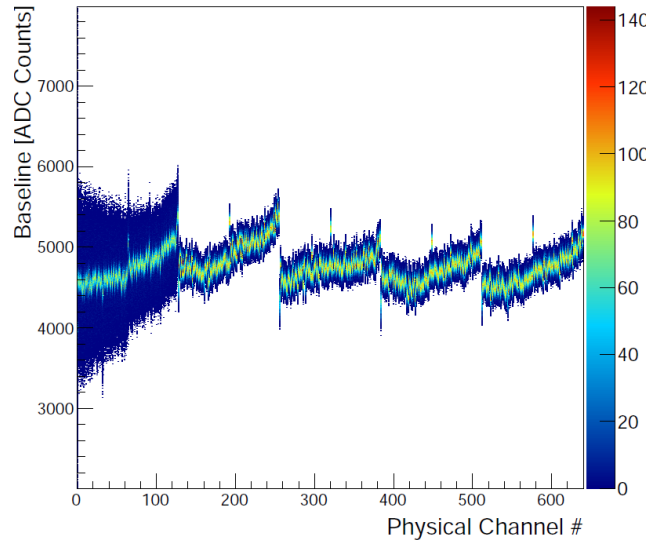


~ 80% occupancy
observed during data
taking

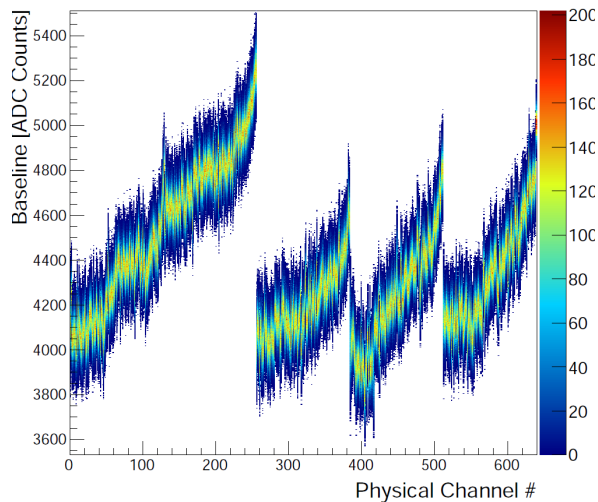
Revisiting the Sensors

- Only the noisy chip on the top layer has been reproducible

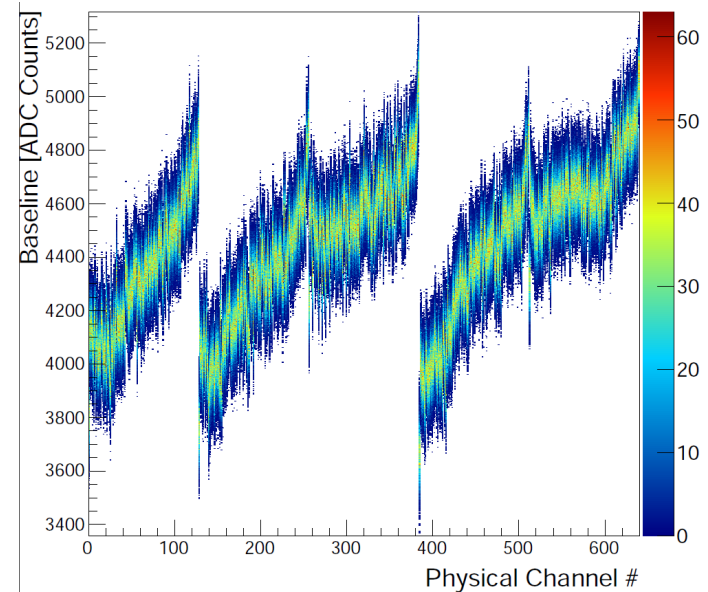
Top Layer 2 - Stereo Sensor - Noisy Chip



Bottom Layer 2 - Stereo Sensor



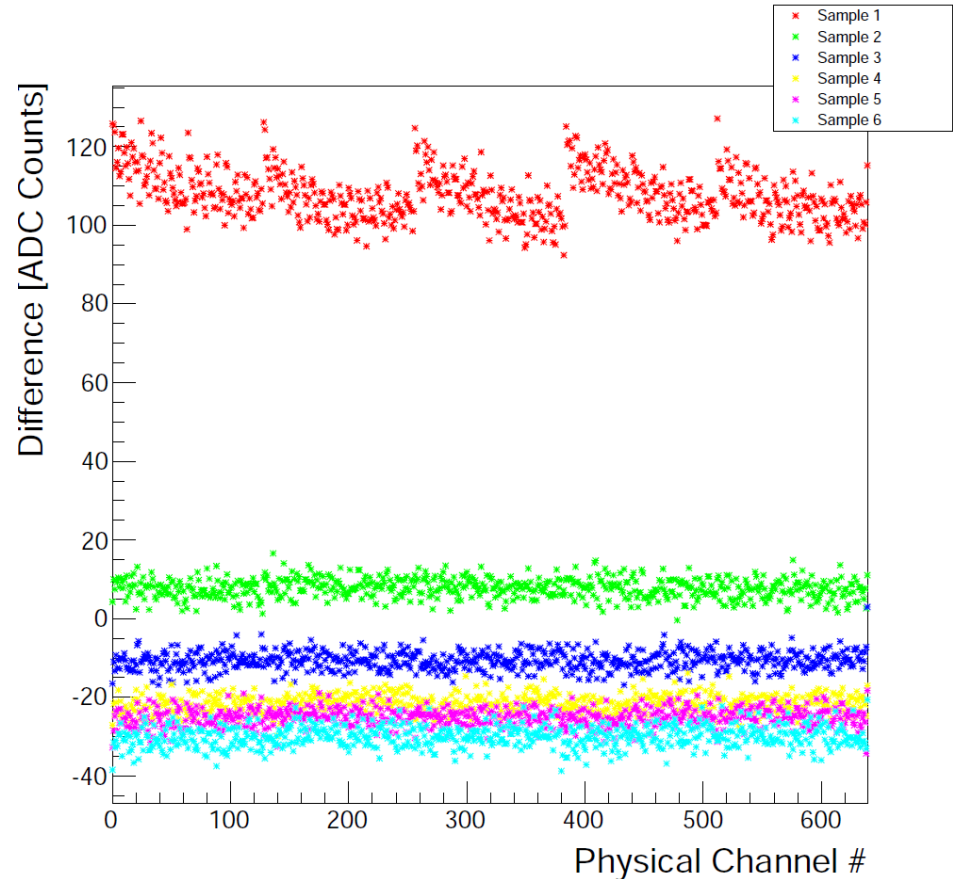
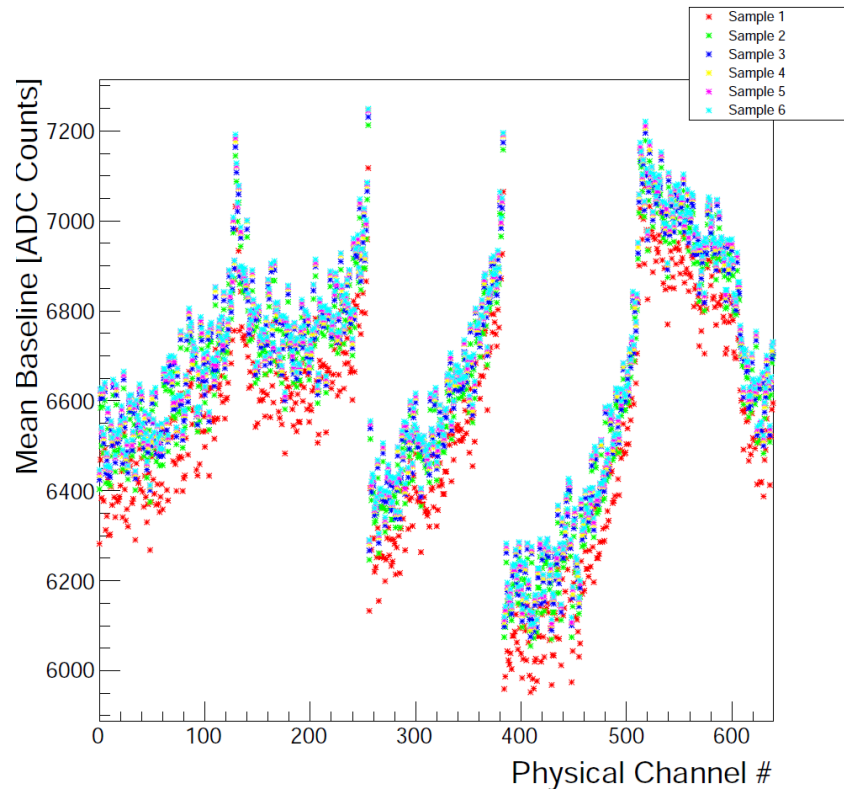
Top Layer 3 - Axial Sensor



- Was the baseline shift caused by a misconfigured chip we didn't catch?
- Was the noisy sensor caused by faulty grounding, the "black box" or a faulty DPM?

Sample to Sample Shifts

- Baseline sample 1 of FPGA 5, Hybrid 1 in the current setup has an abnormally large shift as compared to the other samples
 - Typical shifts are observed to range from 10-20 ADC counts
- The behavior is present when testing both top and bottom SVT volumes



Sample to Sample Shifts

- The shifts are causing tails to show up in the pedestal distributions
- Individual samples are as expected
- Noise looks fine but the Shaper signal shape is a bit strange and has a lower amplitude than expected

