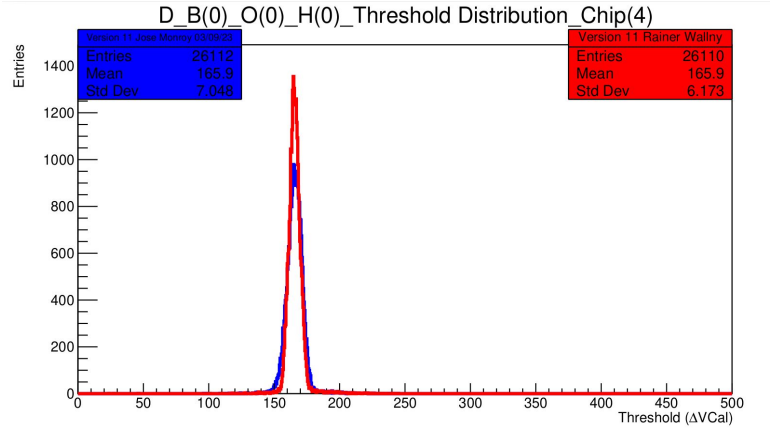
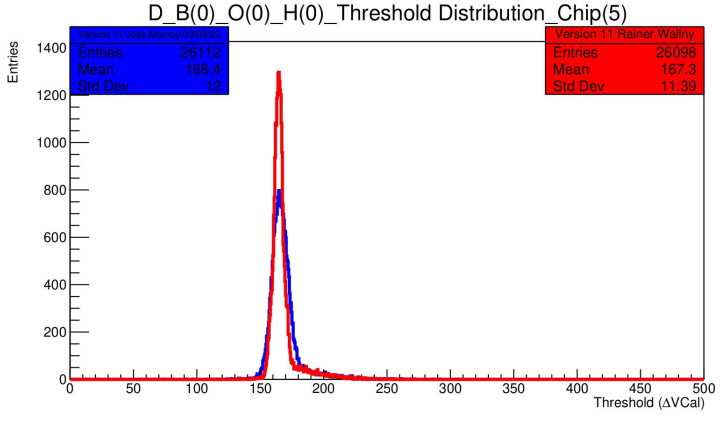
March 17 v11 by hand Comparisons

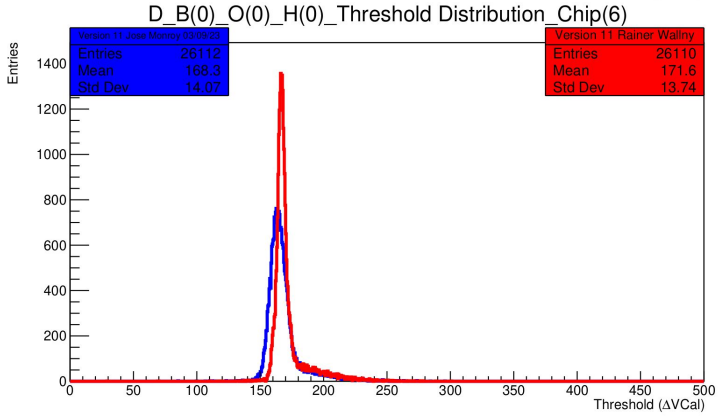
Joseph Grassi

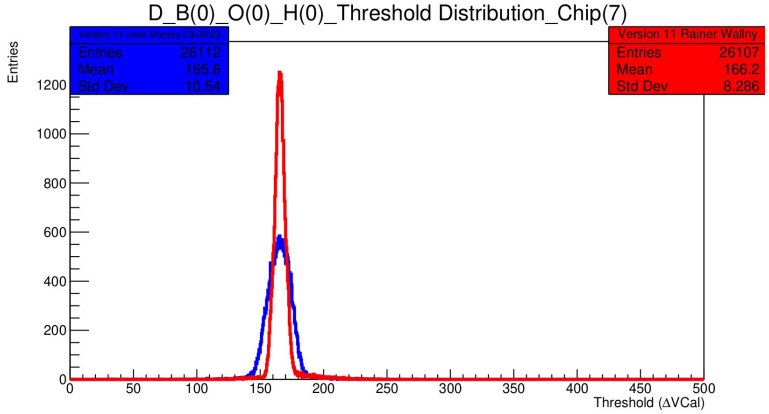
Chip 4 2000 e- scurve Rainer vs Jose
-Rainer followed slightly different procedure, included threqu before scurve

Rainer Path: F5/rw/check-v11/Results/Run000006_SCurve.root
Jose Path: F5/jm_quad/030923/Results/Run000007_SCurve.root



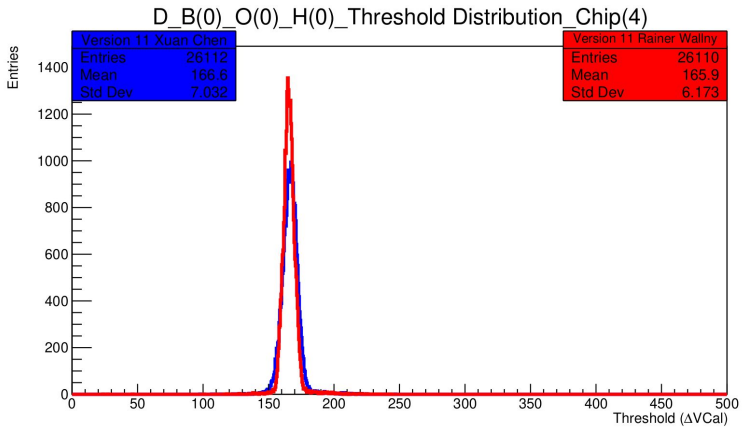


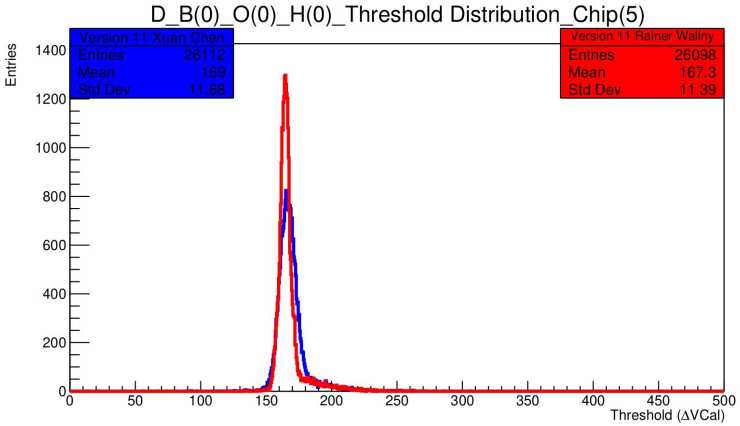


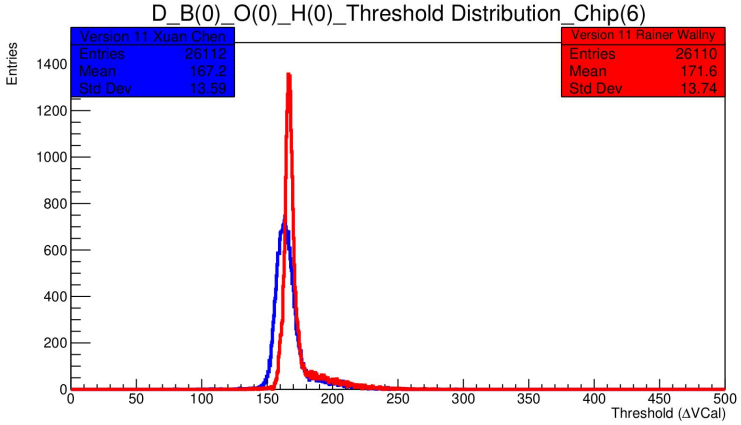


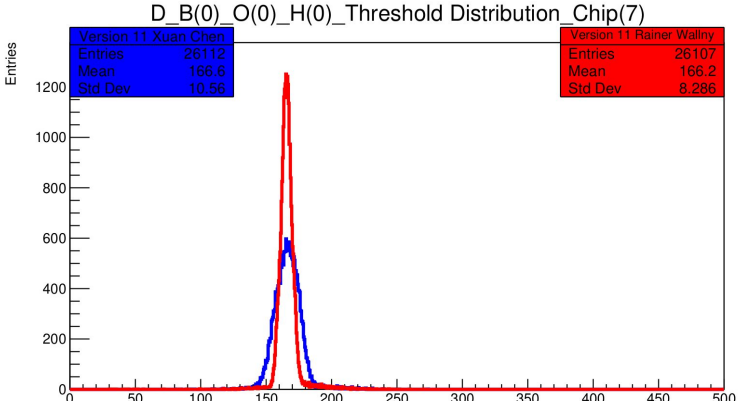
Chip 4 2000 e- scurve Rainer vs Xuan
-Rainer followed slightly different procedure, included threqu before scurve

Rainer Path: F5/rw/check-v11/Results/Run000006_SCurve.root
Xuan Path: F5/xuan/trim_f5_v11/Results/Run000010_SCurve.root



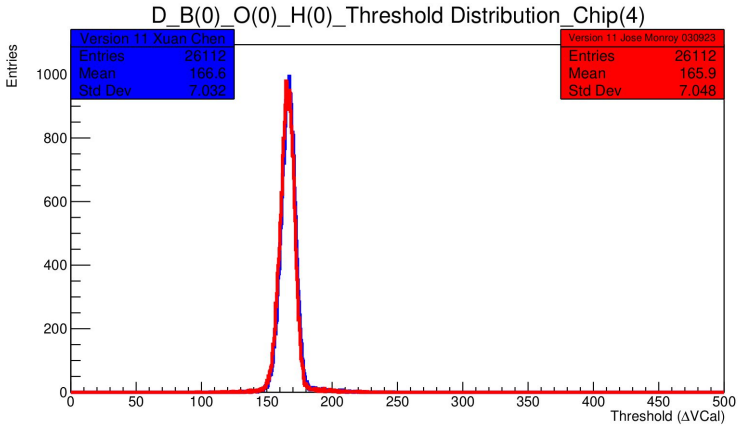


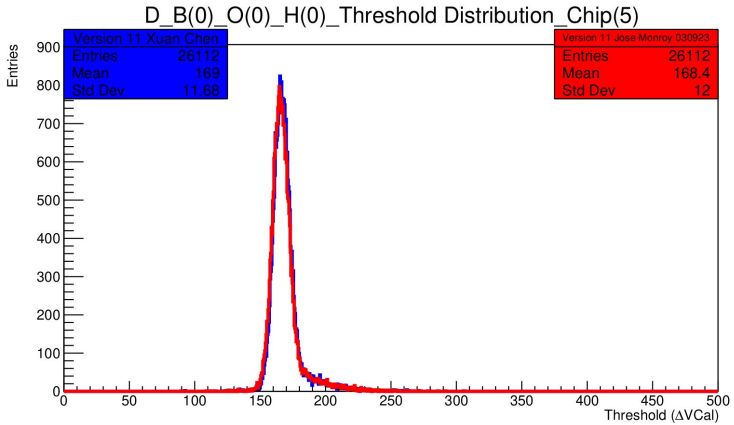


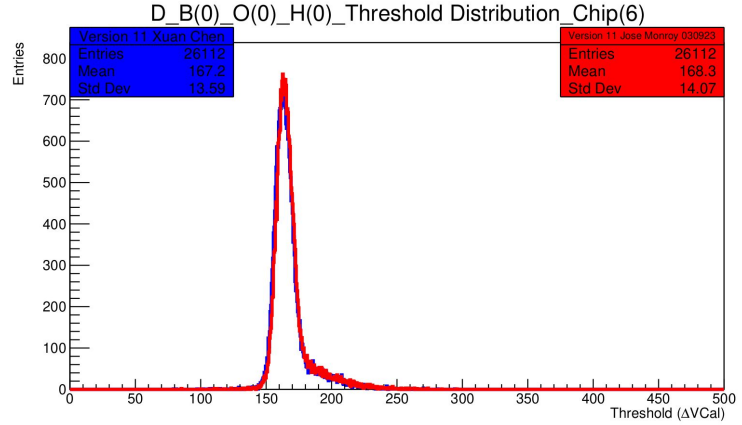


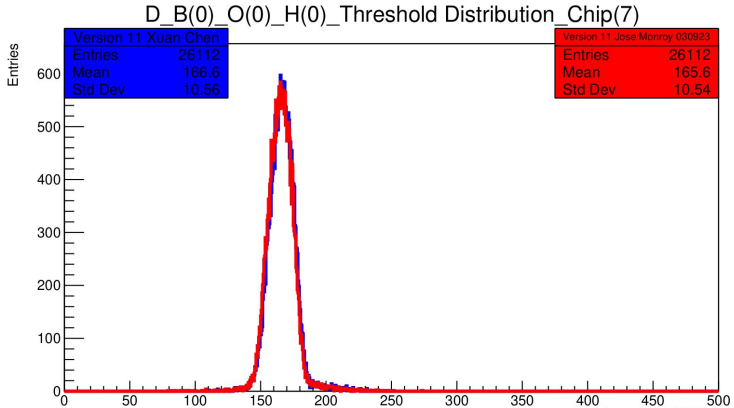
Chip 4 2000 e- scurve Xuan vs Jose, procedures identical from what I can tell

Jose Path: F5/jm_quad/030923/Results/Run000007_SCurve.root
Xuan Path: F5/xuan/trim_f5_v11/Results/Run000010_SCurve.root









Checking whether extra threshold equalization matters

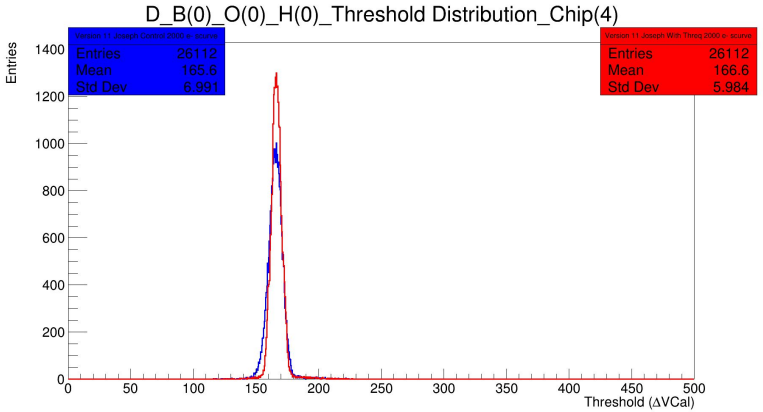
Control

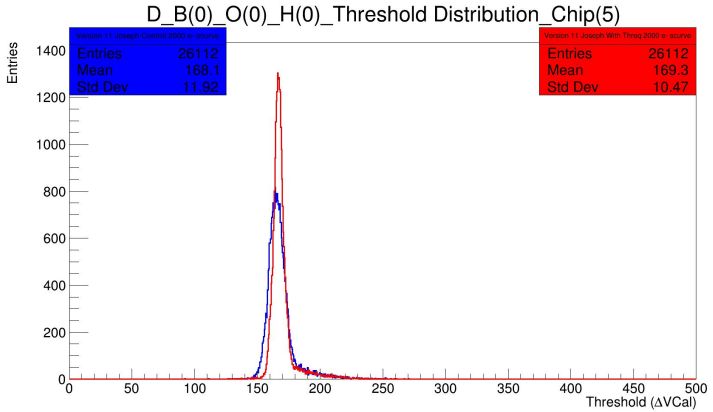
1) IV curve up to - 80V (stop at -100V)
2) pixel alive
3) thradj @3500 e- or so)
4) threqu
5) Scurve
6) [Noise]
7) thradj @2000 e-
8) Scurve
9) [Noise]
10) thradj @1500 e-
11) Scurve
12) [Noise]
10) thradj @1200 e-
10b) threqu [single step threshold adjust in v4.10]
11) Scurve
12) Noise
13) Gain scan

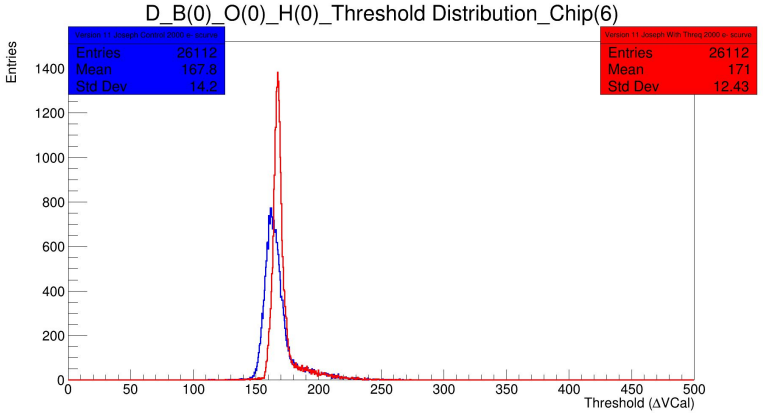
exthreq

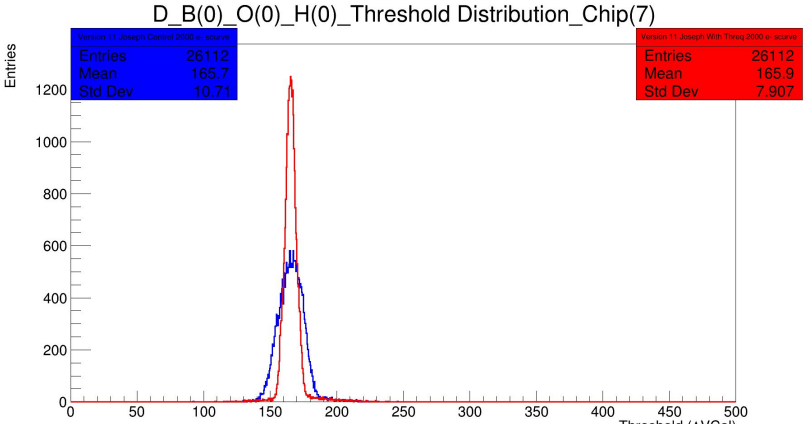
1) IV curve up to - 80V (stop at -100V)
2) pixel alive
3) thradj @3500 e- or so)
4) threqu
5) Scurve
6) [Noise]
7) thradj @2000 e-
7.5) threqu @2000 e-
8) Scurve
9) [Noise]
10) thradj @1500 e-
11) Scurve
12) [Noise]
10) thradj @1200 e-
10b) threqu [single step threshold adjust in v4.10]
11) Scurve
12) Noise
13) Gain scan

Result of this comparison (Joseph control vs Joseph w/ extra threqu)
Same thing as comparing Rainer's work with Xuan's and Jose's: An extra threqu at prior to 2000 e- has a significant effect on the SCurves.



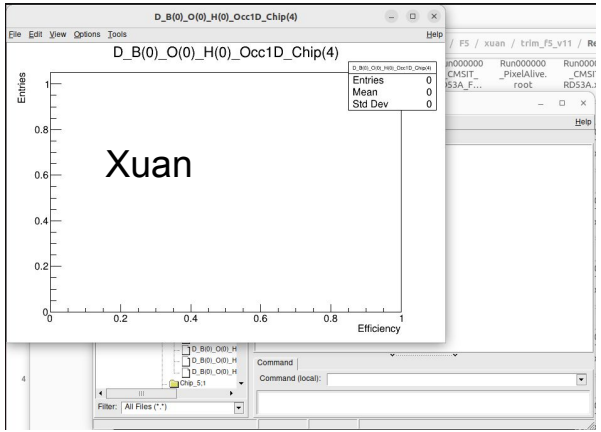


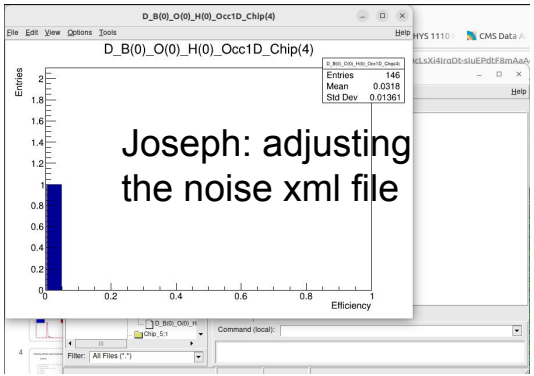


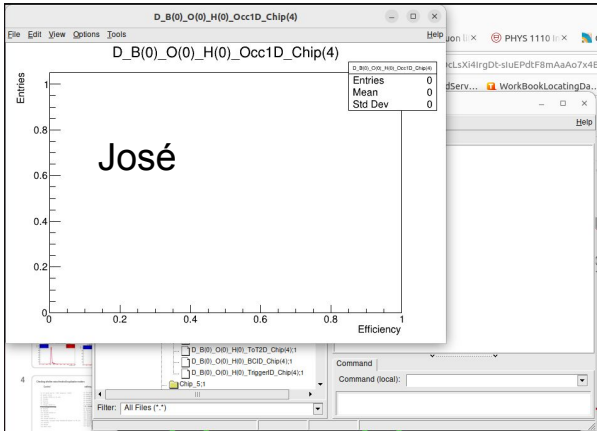


Have we been doing by hand Noise Scans wrong?

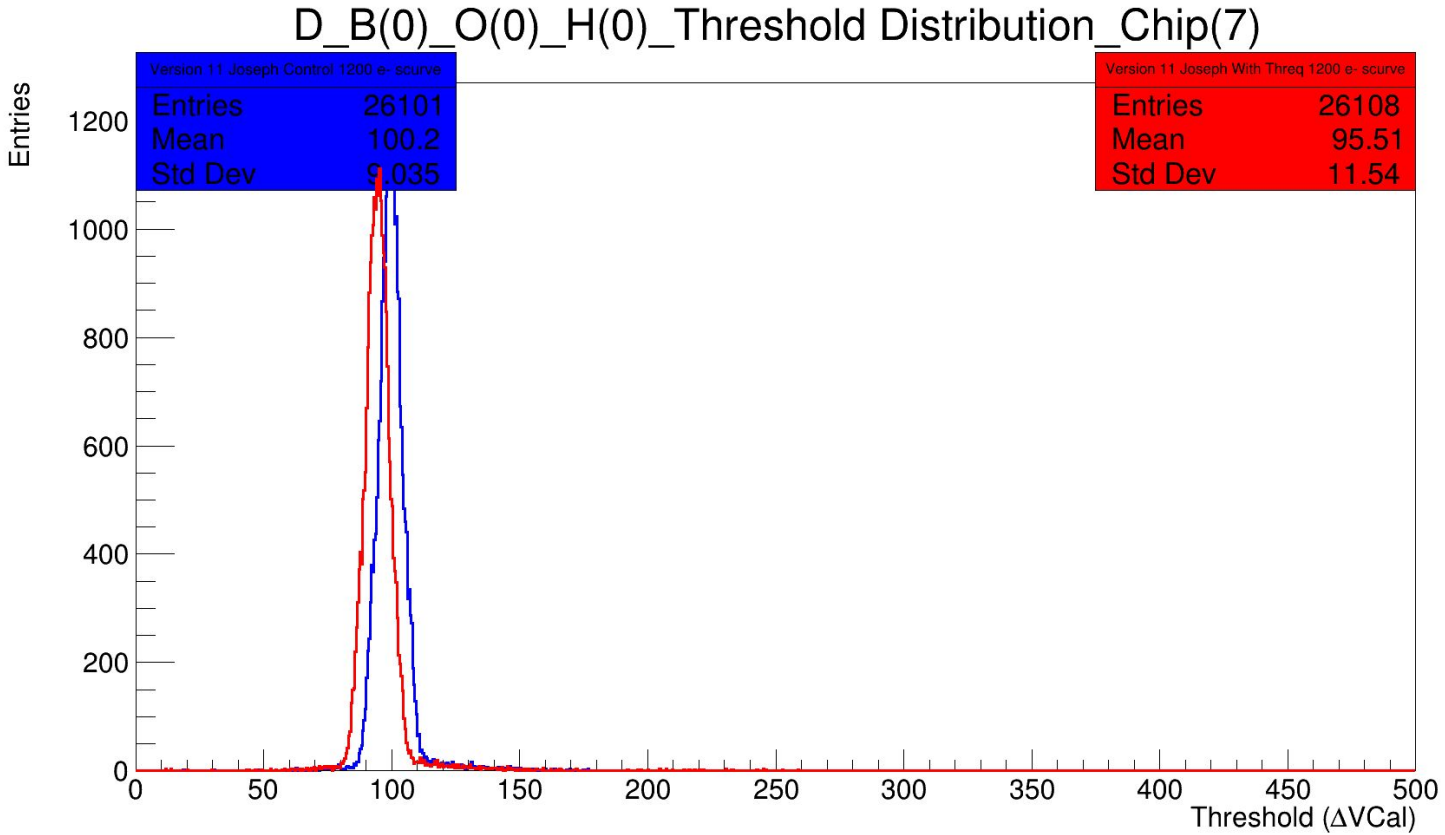
- Consistently get empty root files
- 0 average occupancy
- CMSIT-RD53A-noise.xml file for these typically has TargetThr 2000 and VThreshold_LIN = 400 always, no matter where in the sequence the noise scan is run
- This seems a little concerning







The extra threshold equalization seems to marginally effect the trim all the way down to 1200 e-



Query about Scurve displayed thresholds: Neither scurve has chip 7 (or any chip) with an average threshold this low

```
|00:54:00|I|Average threshold for [board/opticalGroup/hybrid/chip = 0/0/0/4] is 96.7 (Delta_VCal)
|00:54:00|I|    --> Highest threshold: 265.2 (Delta_VCal)
|00:54:00|I|Average threshold for [board/opticalGroup/hybrid/chip = 0/0/0/5] is 98.7 (Delta_VCal)
|00:54:00|I|    --> Highest threshold: 285.3 (Delta_VCal)
|00:54:00|I|Average threshold for [board/opticalGroup/hybrid/chip = 0/0/0/6] is 100.0 (Delta_VCal)
|00:54:00|I|    --> Highest threshold: 289.0 (Delta_VCal)
|00:54:00|I|Average threshold for [board/opticalGroup/hybrid/chip = 0/0/0/7] is 5.9 (Delta_VCal)
|00:54:00|I|    --> Highest threshold: 266.7 (Delta_VCal)
|00:54:00|I|    --> Current calibration saved the configuration file for [board/opticalGroup/hybrid/chip = 0/0/0/4]
|00:54:00|I|    --> Current calibration saved the configuration file for [board/opticalGroup/hybrid/chip = 0/0/0/5]
|00:54:00|I|    --> Current calibration saved the configuration file for [board/opticalGroup/hybrid/chip = 0/0/0/6]
|00:54:00|I|    --> Current calibration saved the configuration file for [board/opticalGroup/hybrid/chip = 0/0/0/7]
|00:54:00|I|    --> SCurve saving histograms...
|00:54:05|I|Closing result file: Results/Run000013_SCurve.root
|00:54:05|I|>>> Destroying interfaces <<<
|00:54:05|I|>>> Interfaces  destroyed <<<
|00:54:05|I|@@@ End of CMSIT miniDAQ @@@
```