Stony Brook University

Cold and Warm Validation Data

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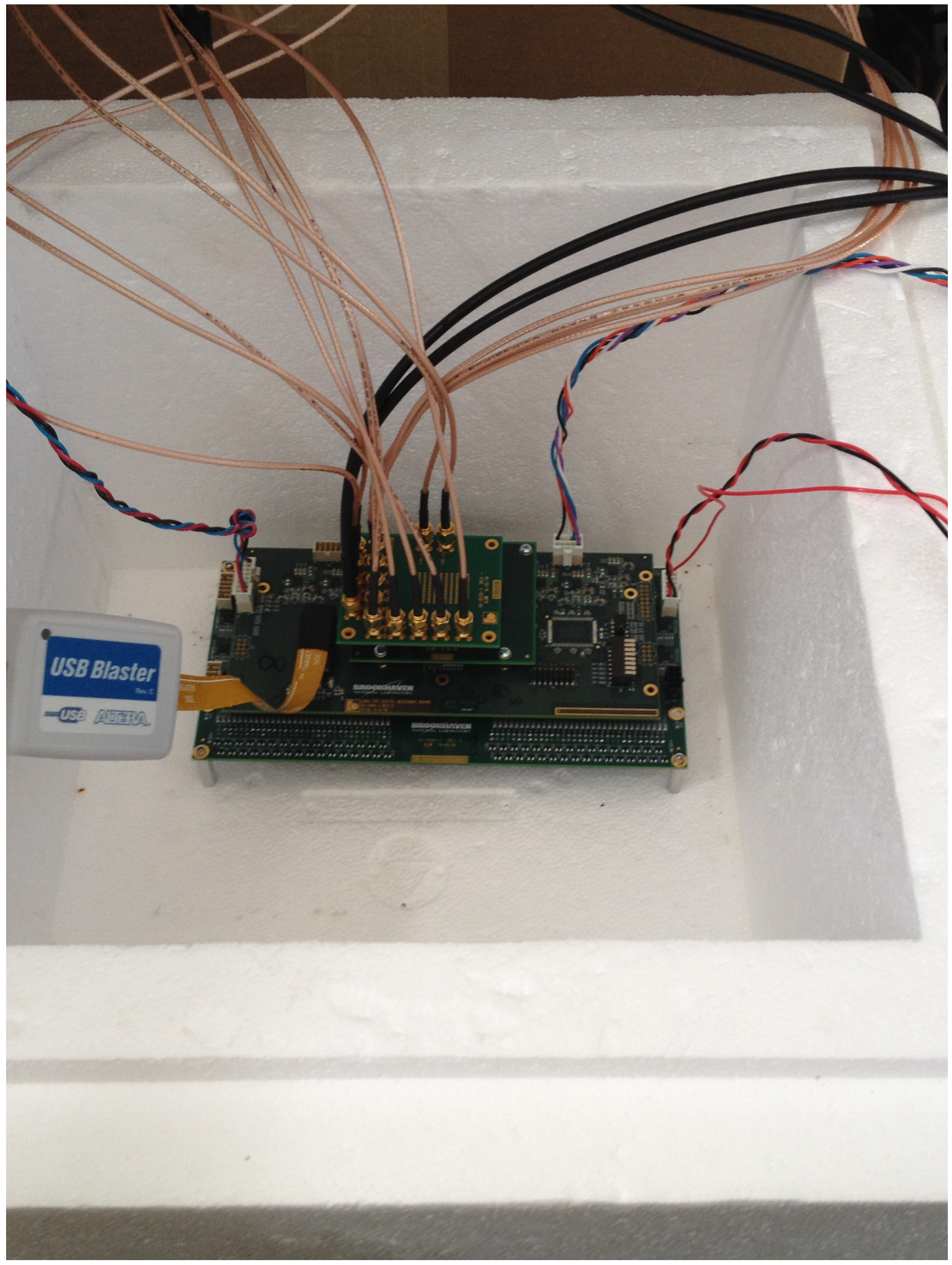
Cryo-Validation Data

- Board F11A11(Front End 11 and Analog board 11);
- Data taken in BNL in room and cryogenic temperatures.
- Validation data set: Baseline/Noise and internal injected pulses to calculate the gain in each channel.



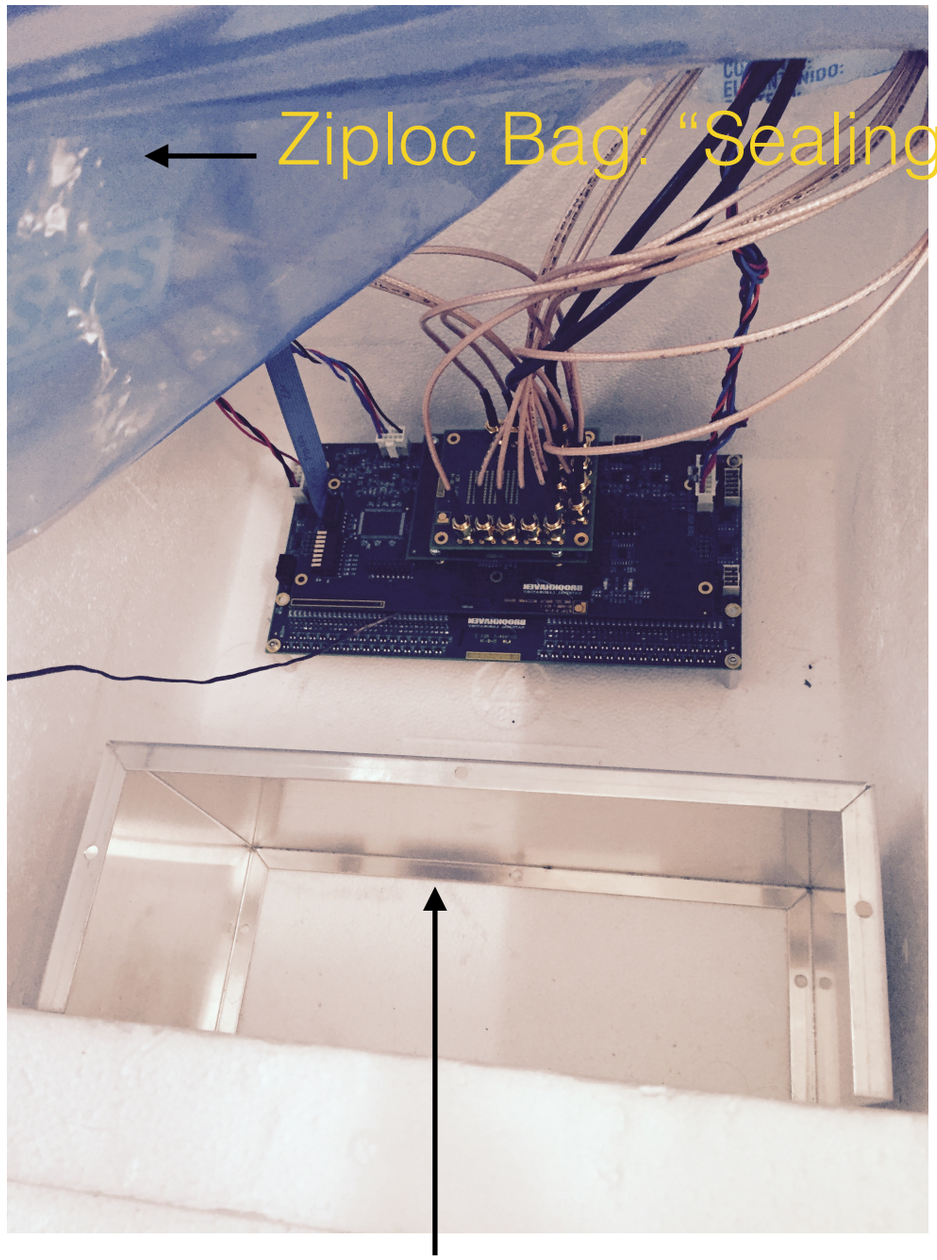
Procedure

- Take warm validation data: can the board be programmed? (I2C, PGP)

- Slowly cool down the temperature with nitrogen gas;

- Take cryo validation data: immediately after it's cold and about 15 min later;

- Check if it's still working after it's warm again (next day).

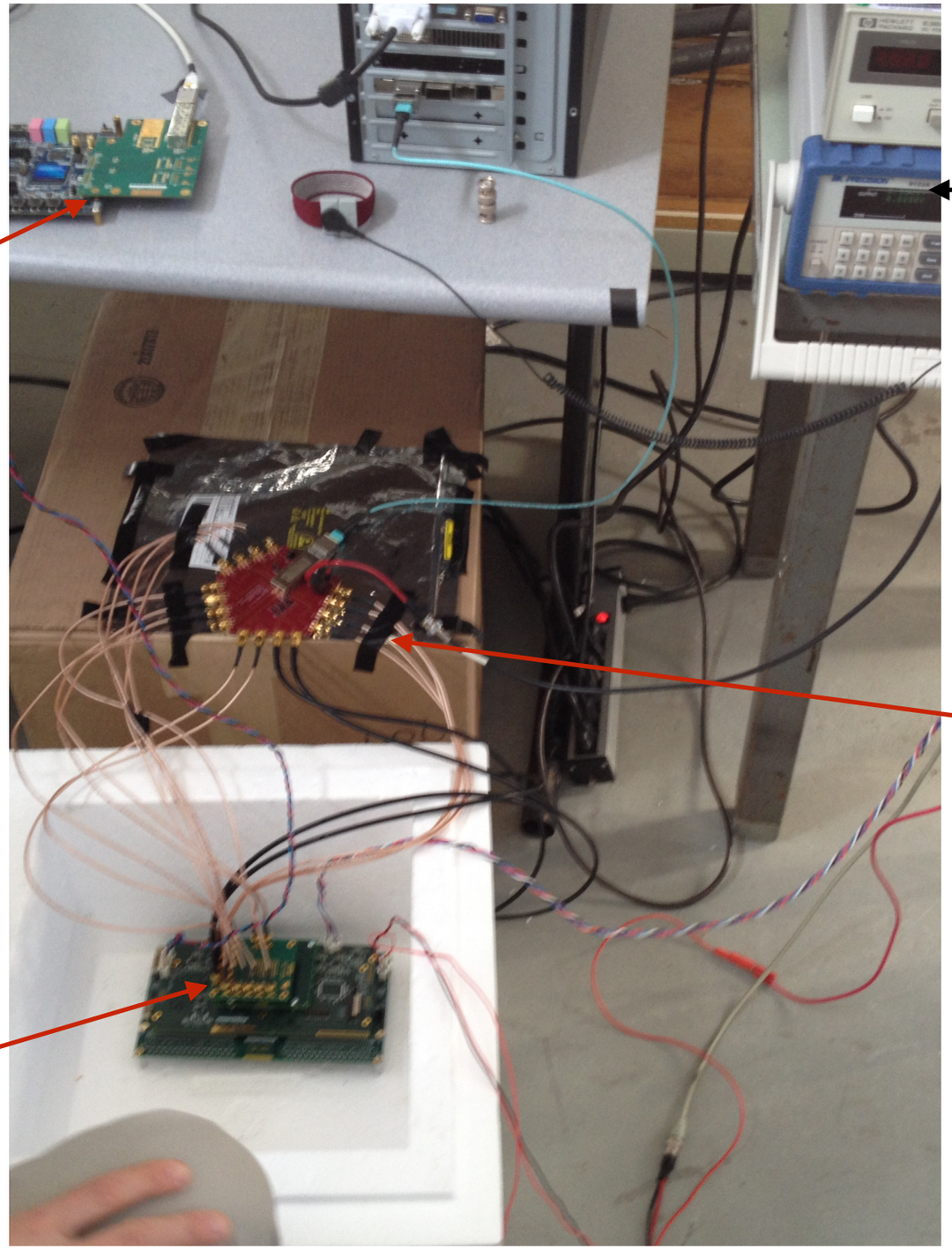


Metal Plate: just to avoid the nitrogen spray to hit the board directly.

Test Stand

Evaluation Board - PC CON

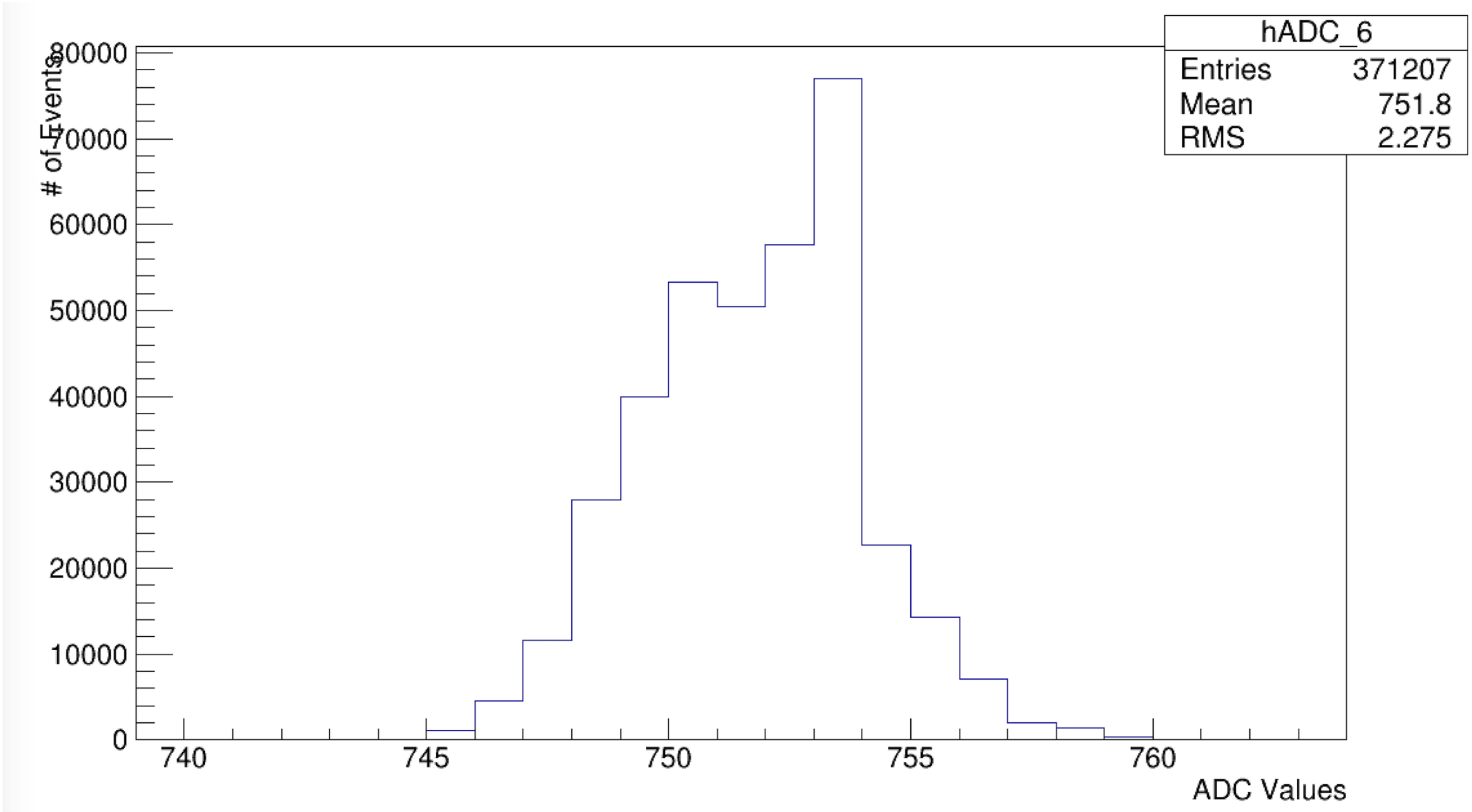
Blaster: programs the firmware



Power Supplies

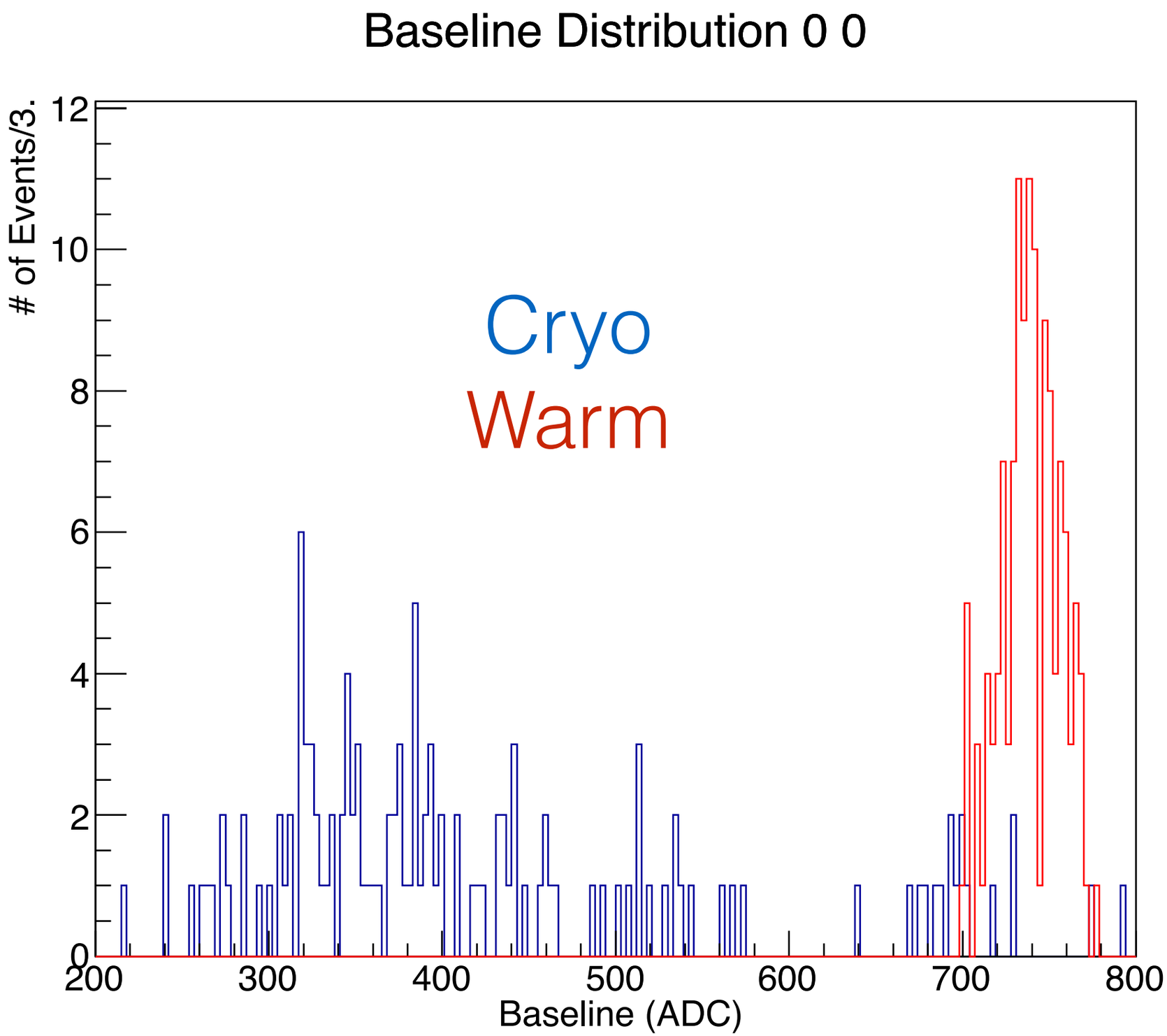
Optical Board

ADC Distribution of Chip3 - Channel 6



Mean: baseline;
RMS: noise.

Baseline Distribution of F11A11
Gain: 0 and Shaping Time: 0

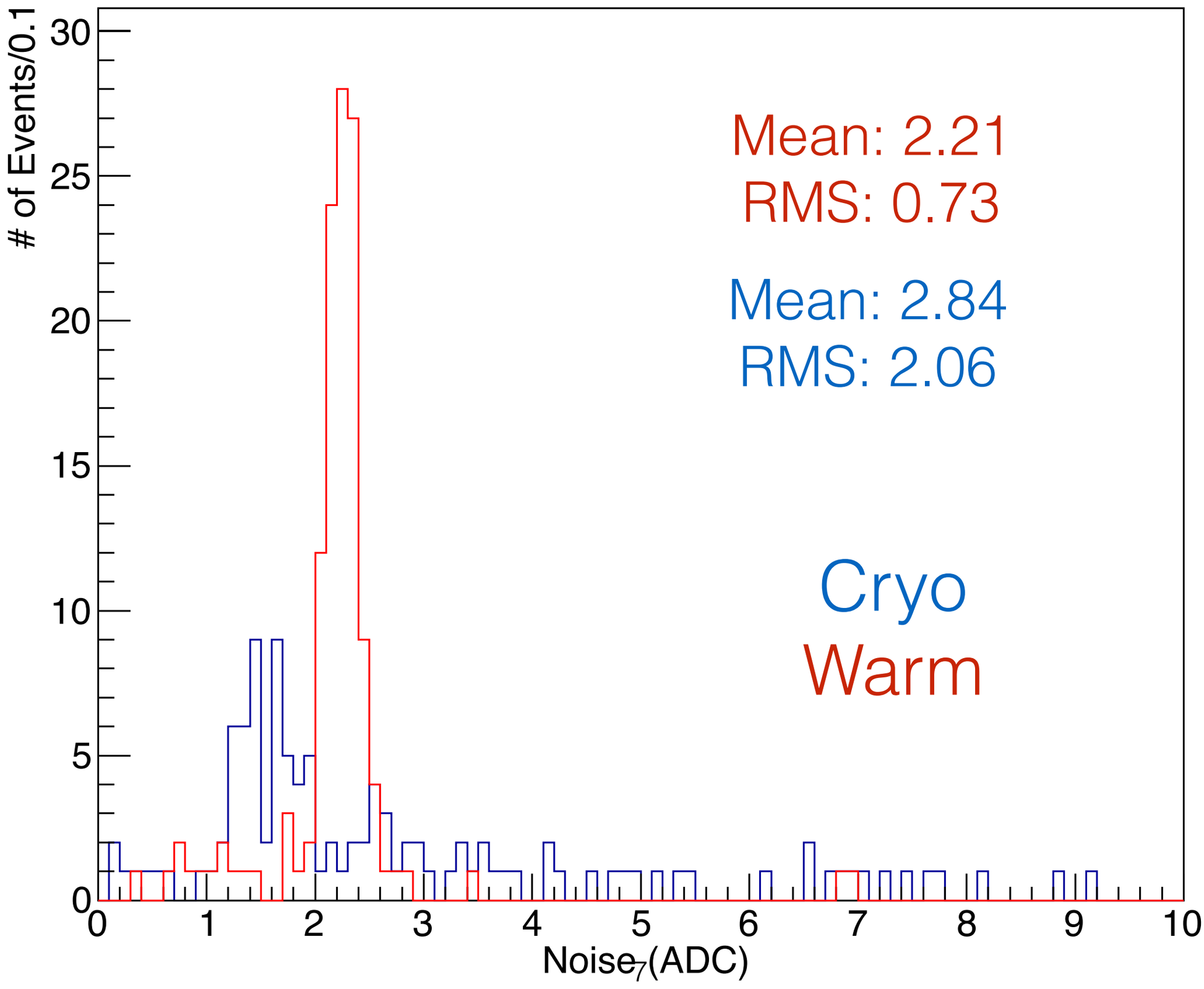


For Test
Cap ON.

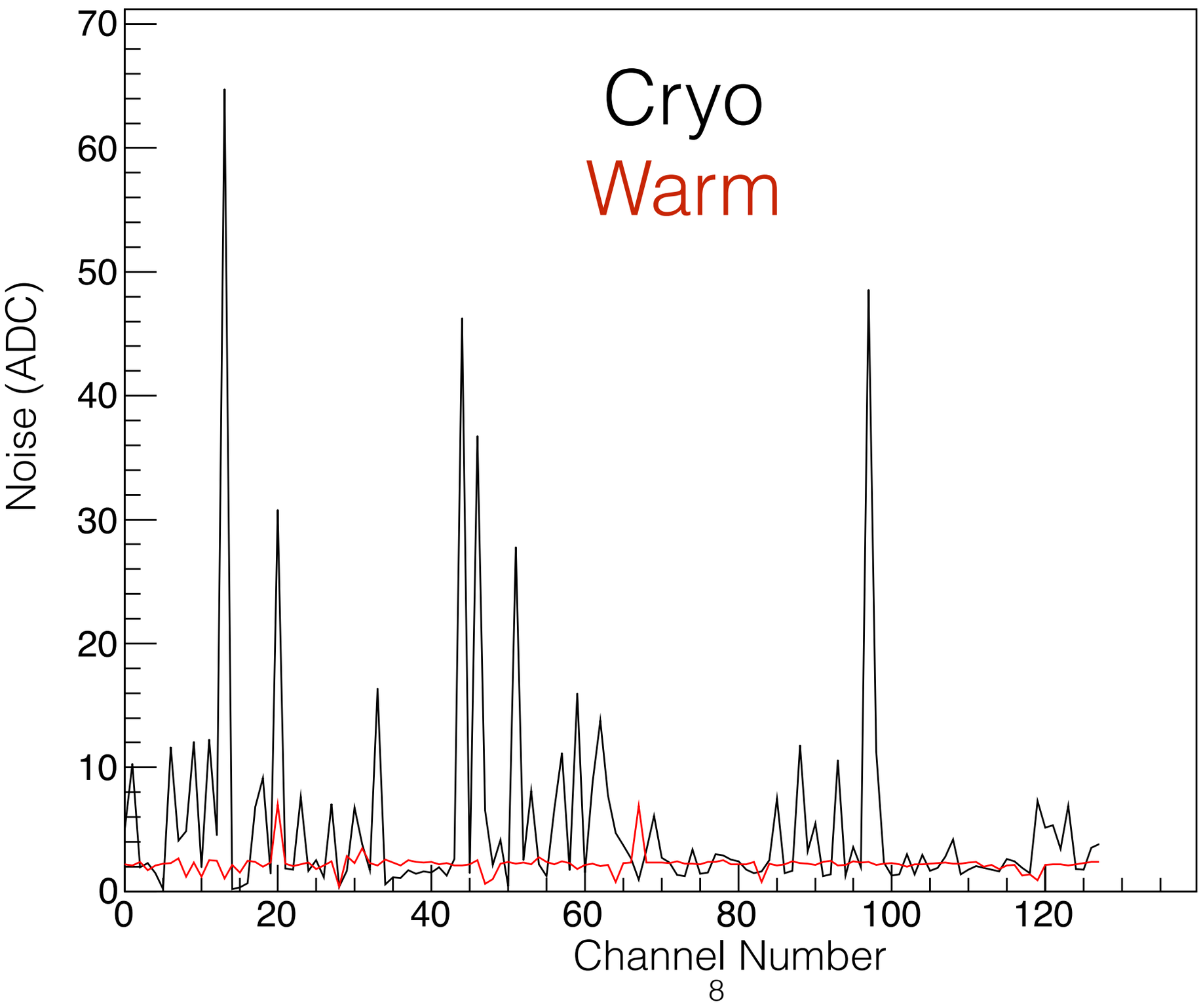
Larger Baseline
and
Concentrated
Mean: 739.1
RMS: 17.54

Smaller
Baseline
and Spread
Mean: 424.6
RMS: 133.2

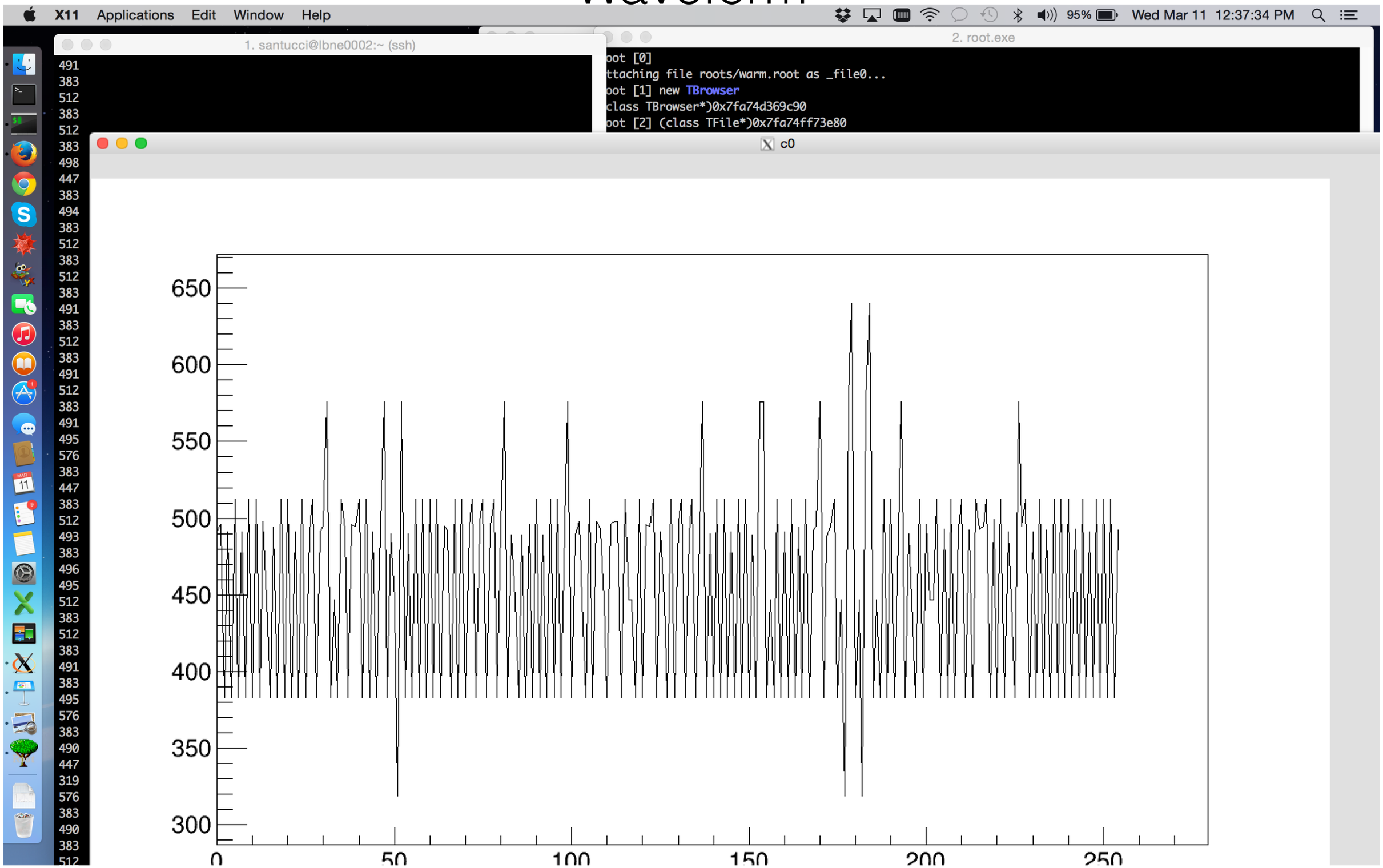
Noise Distribution of F11A11



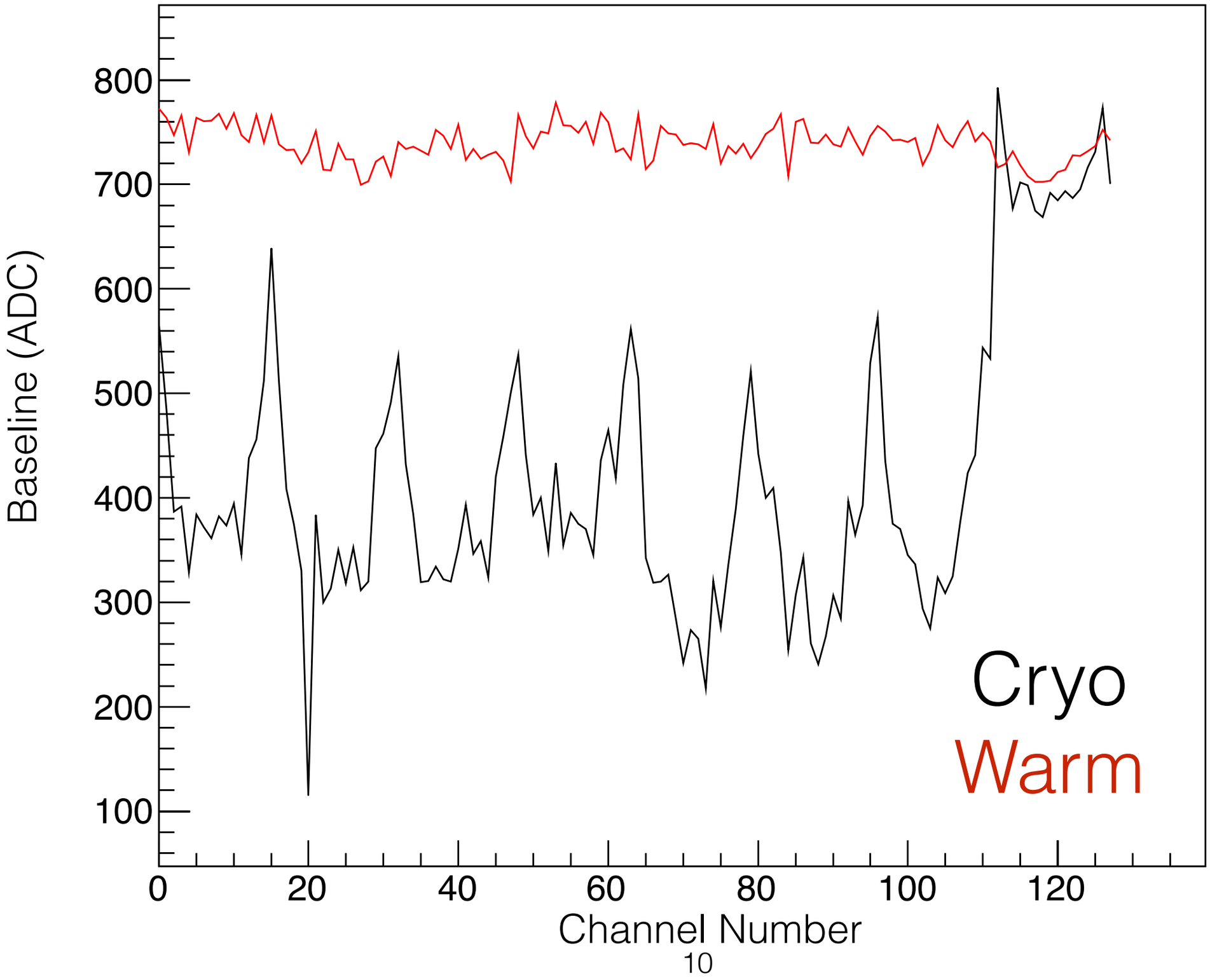
Mean Noise per Channel



Reason for Large Noise - Cryo Waveform

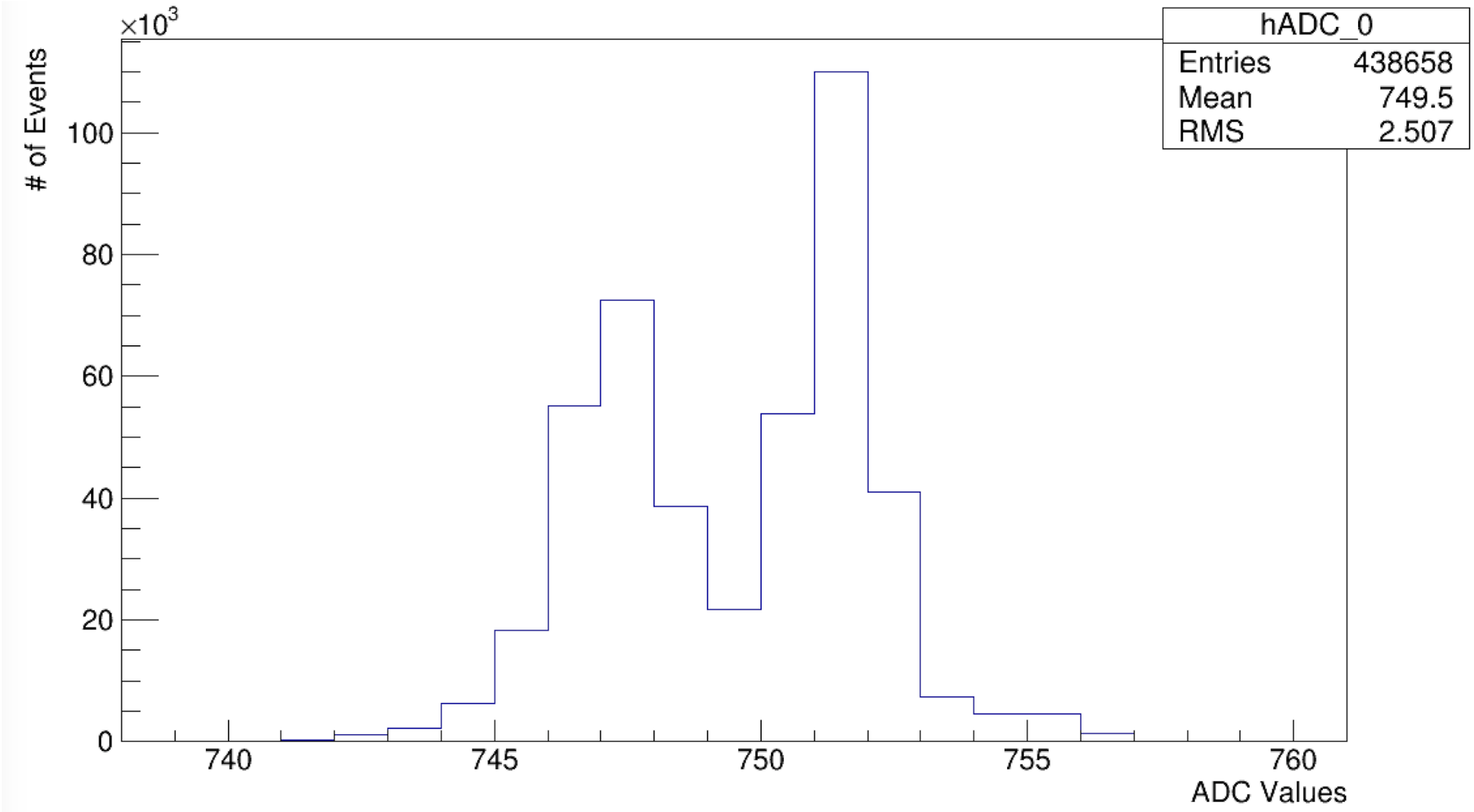


Mean Baseline per Channel



Extras

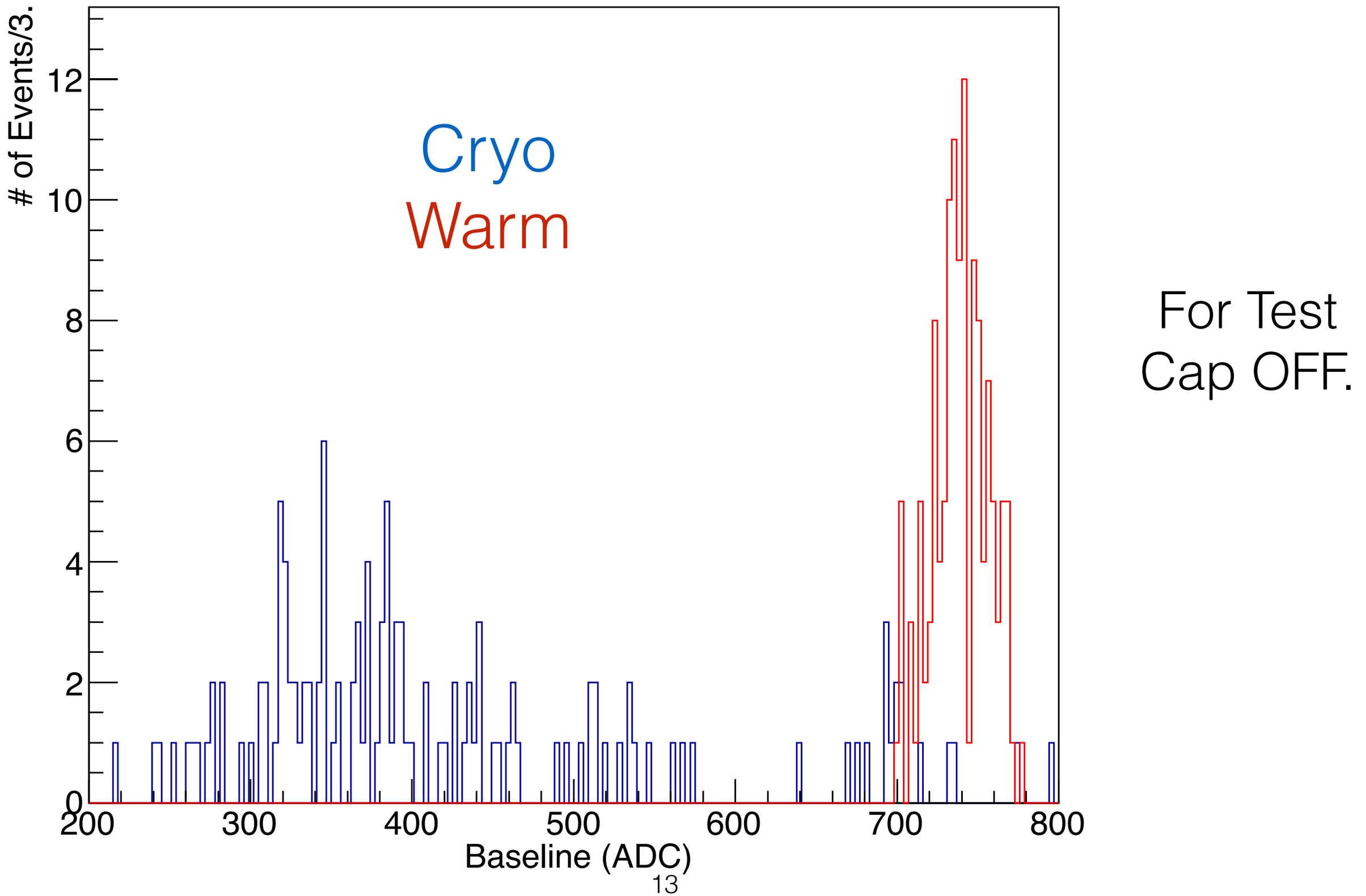
ADC Distribution of Chip3 - Channel 0 Stuck Bit Example



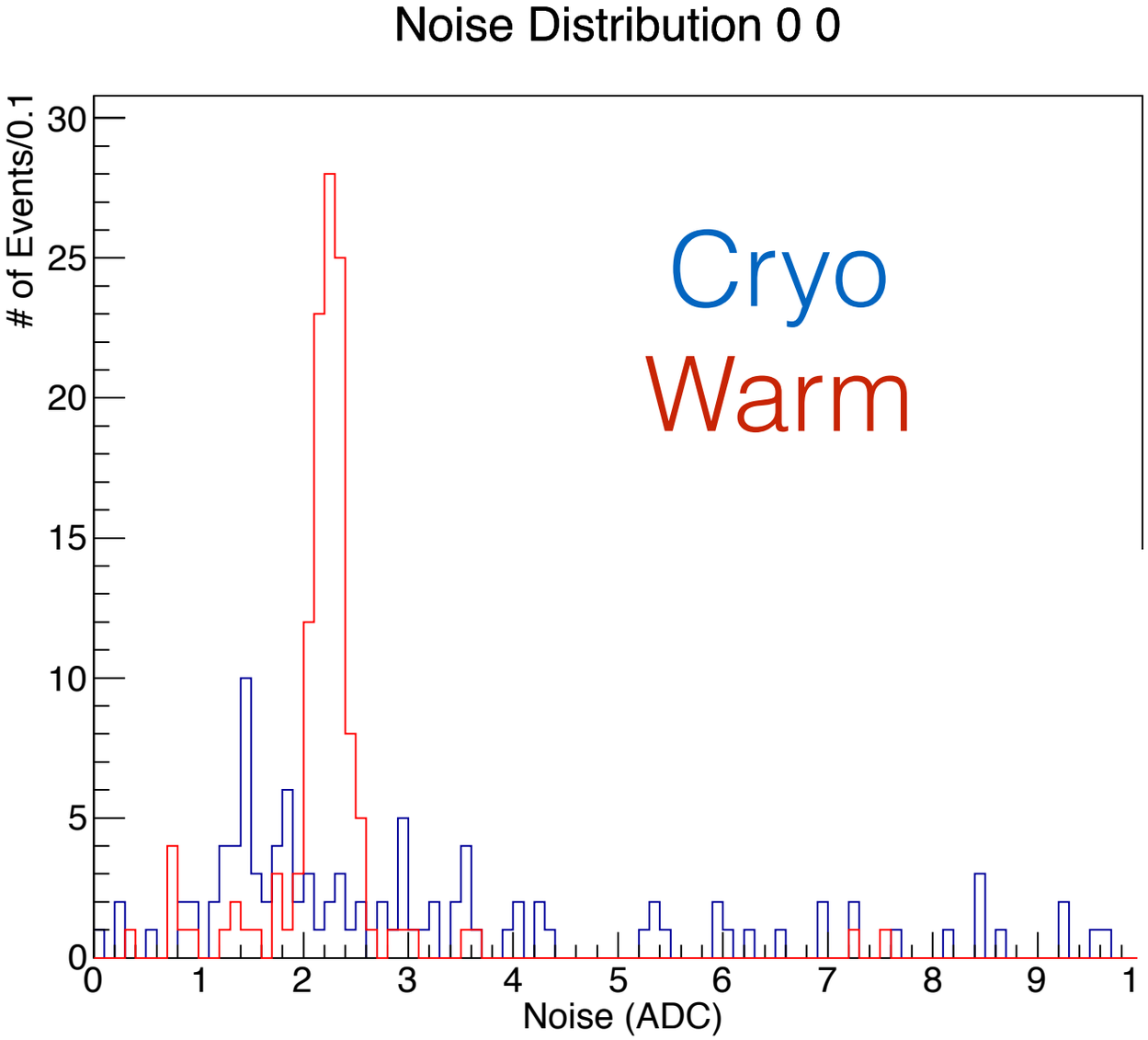
Mean: baseline;
RMS: noise.

Not very reliable.
Need to apply cut!

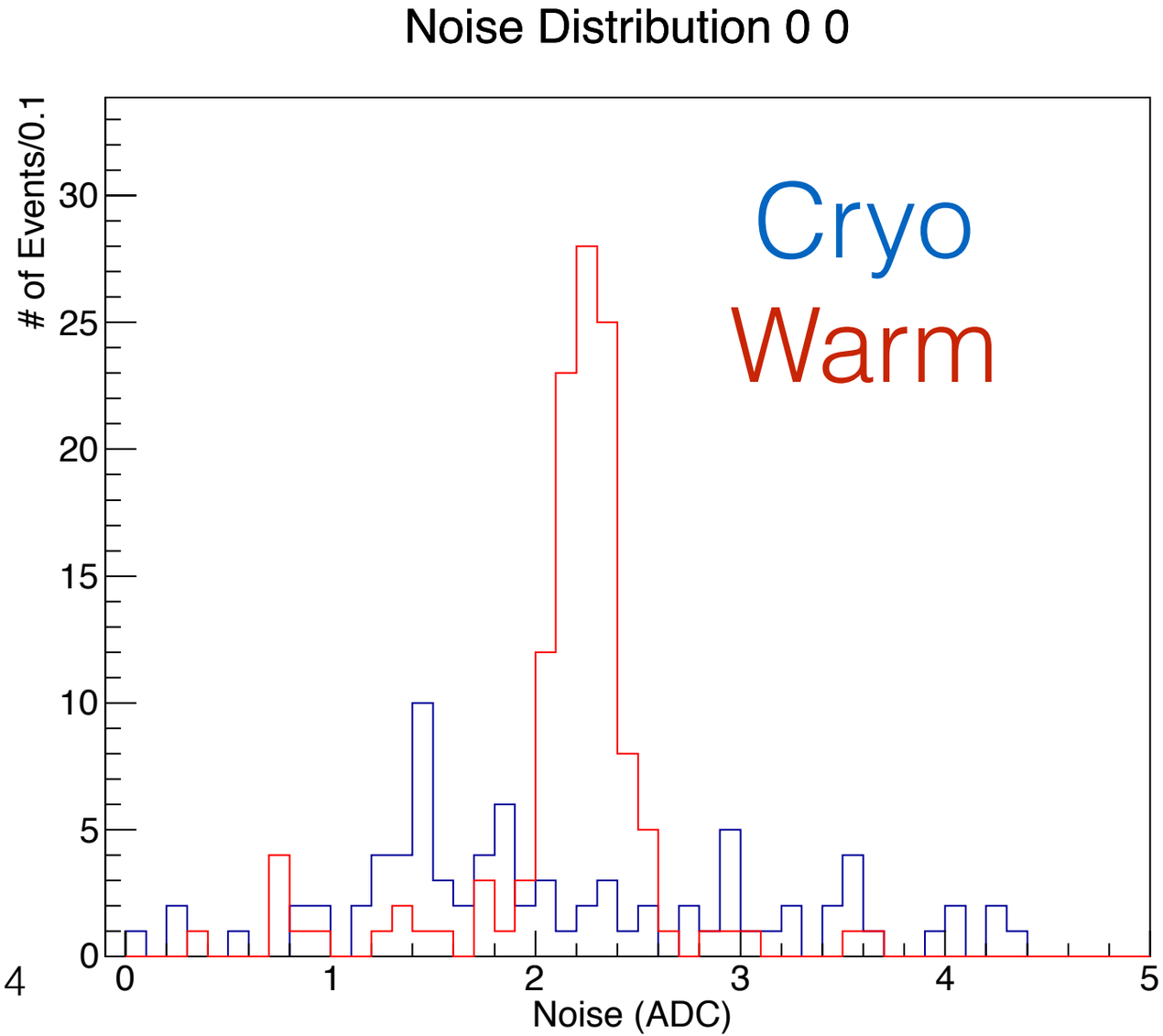
Baseline Distribution of F11A11



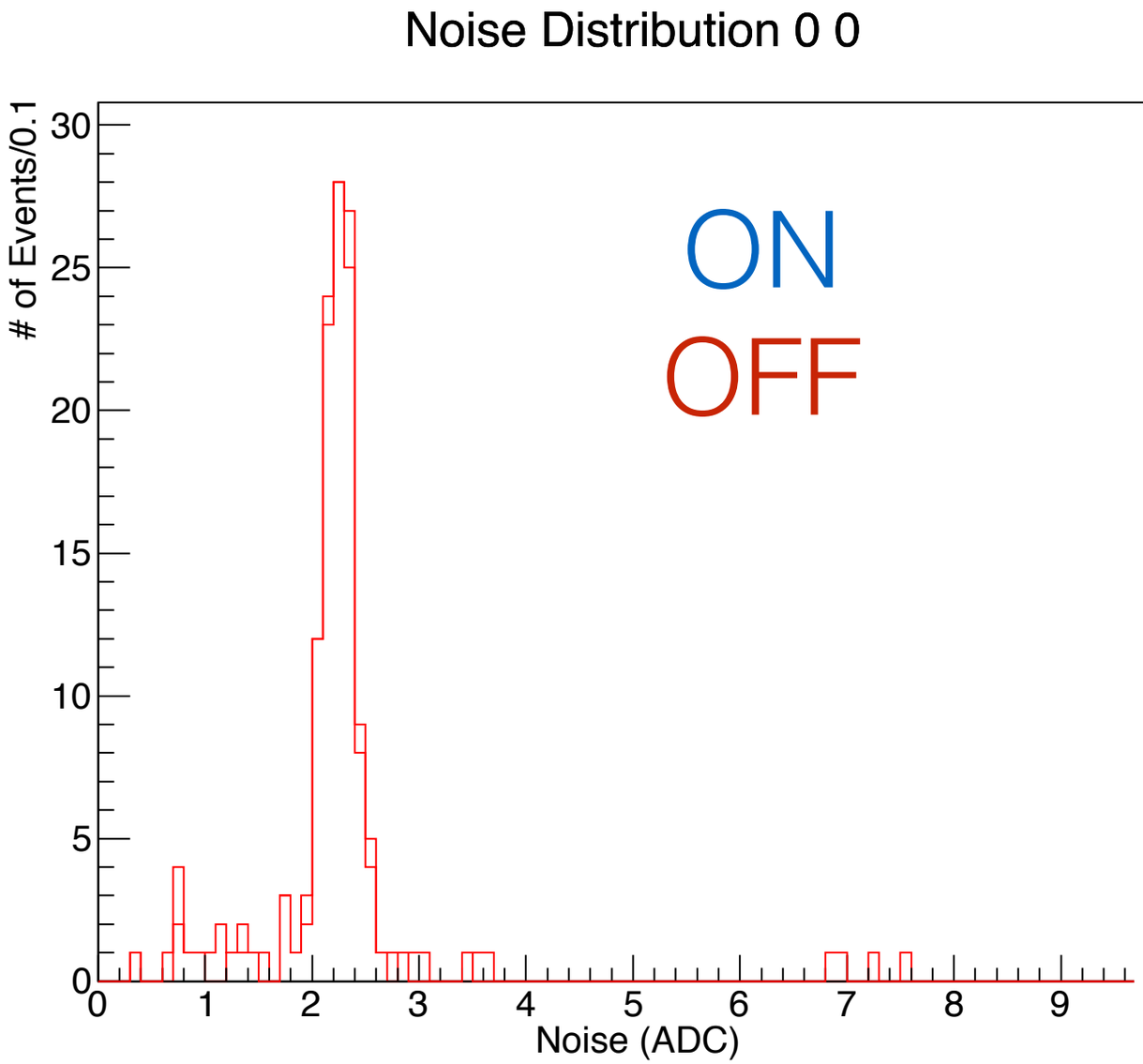
Noise Distribution of F11A11



For Test
Cap OFF.

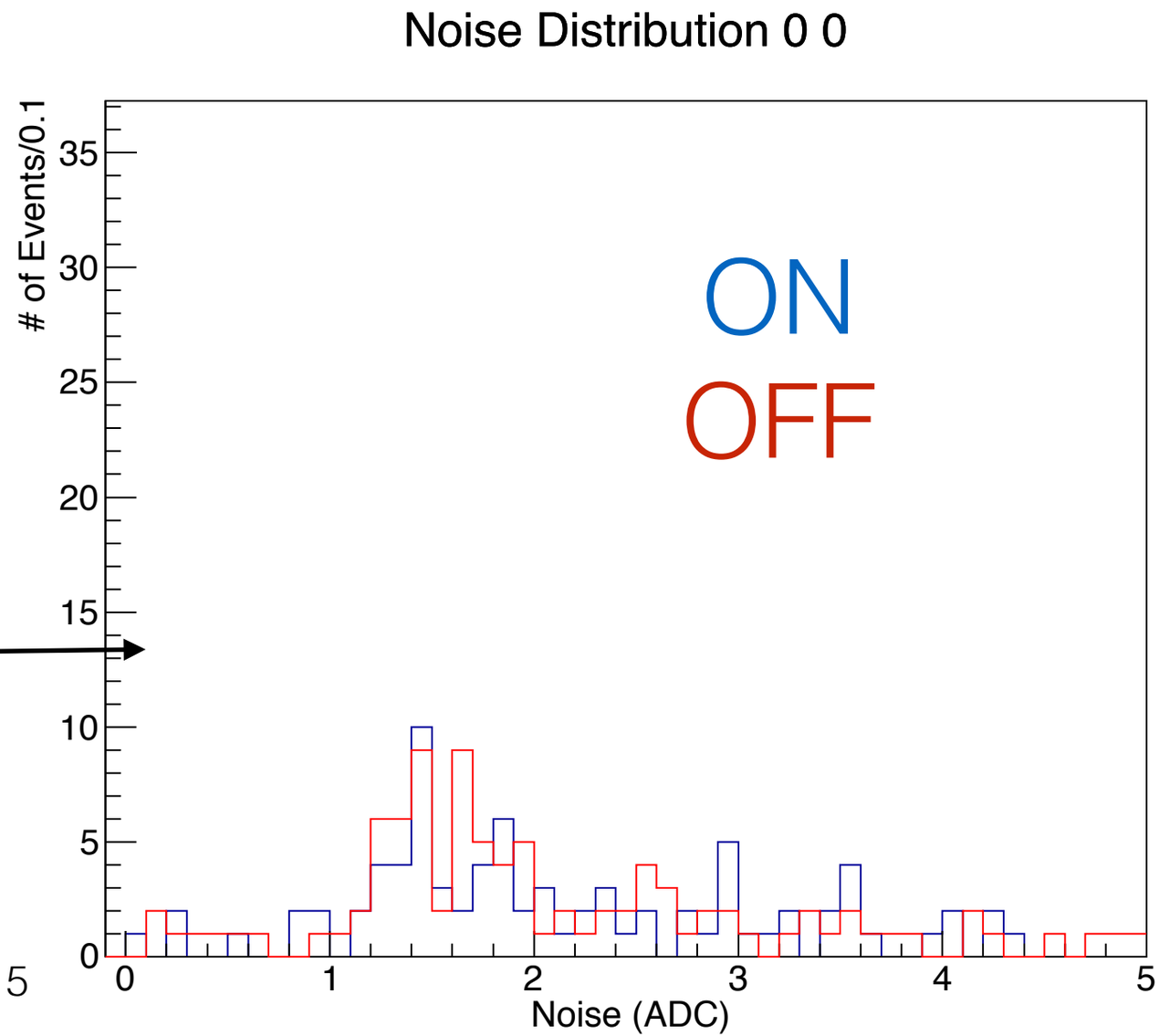


Noise Distribution of F11A11

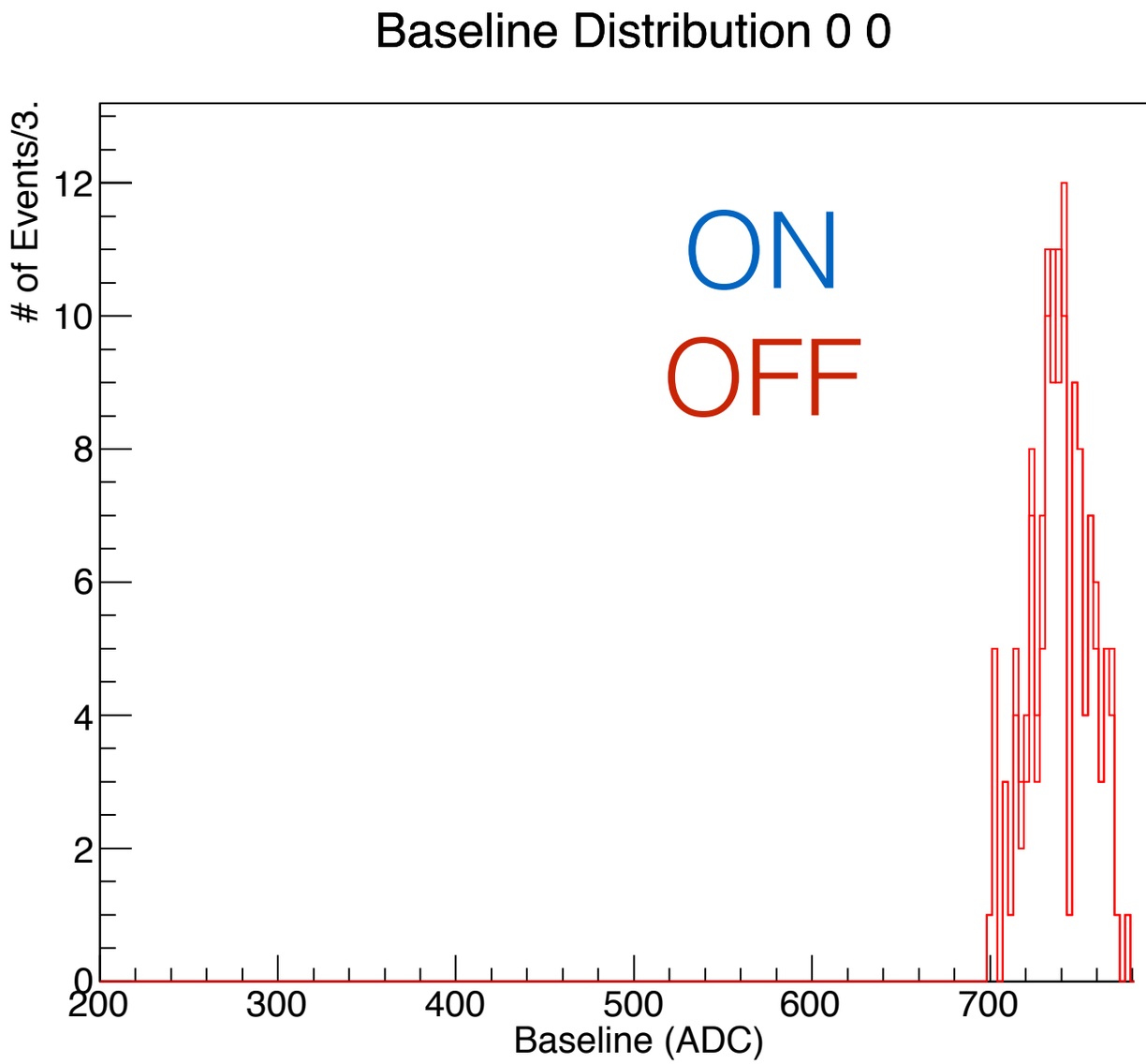


WARM

CRYO

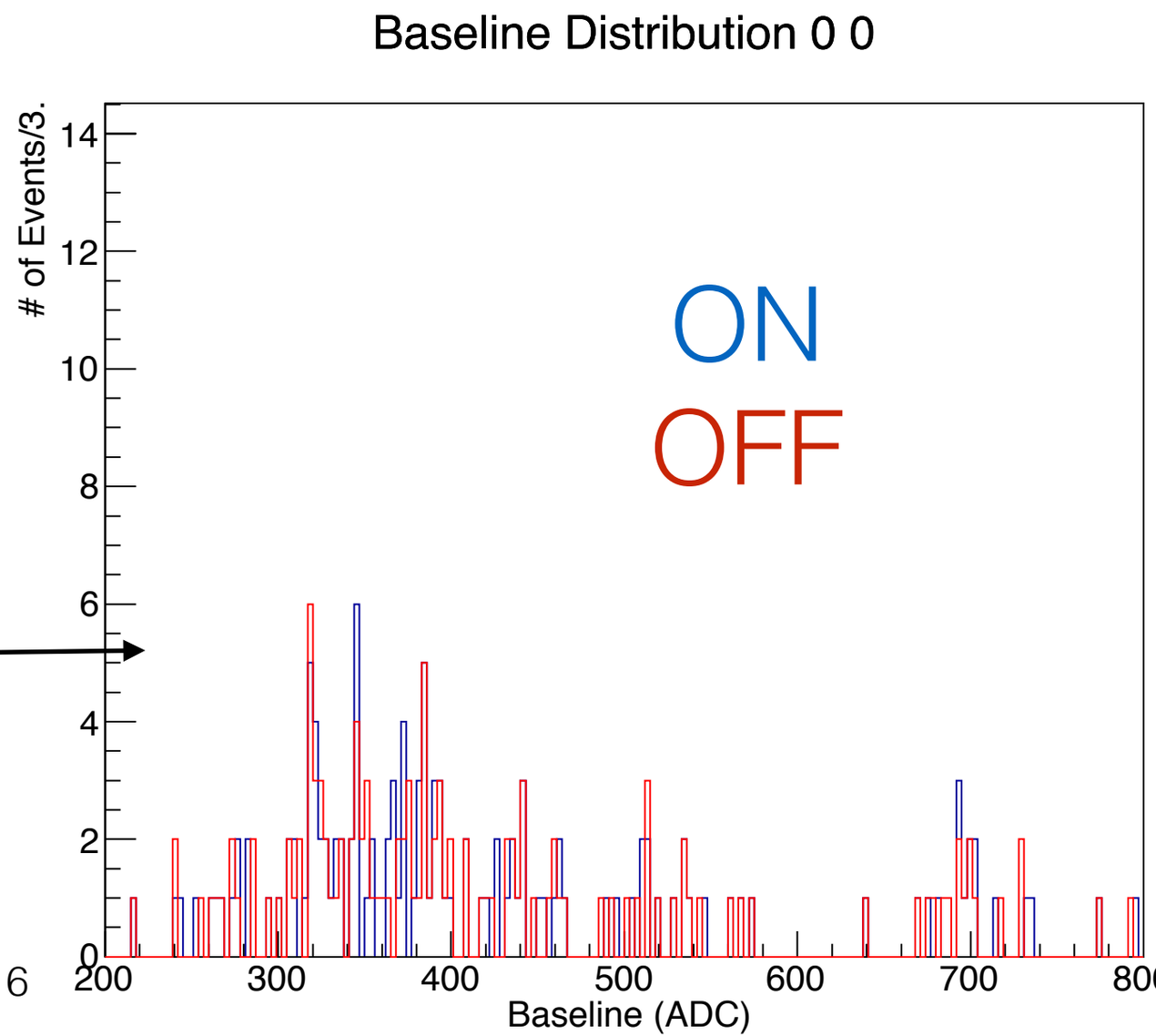


Baseline Distributions

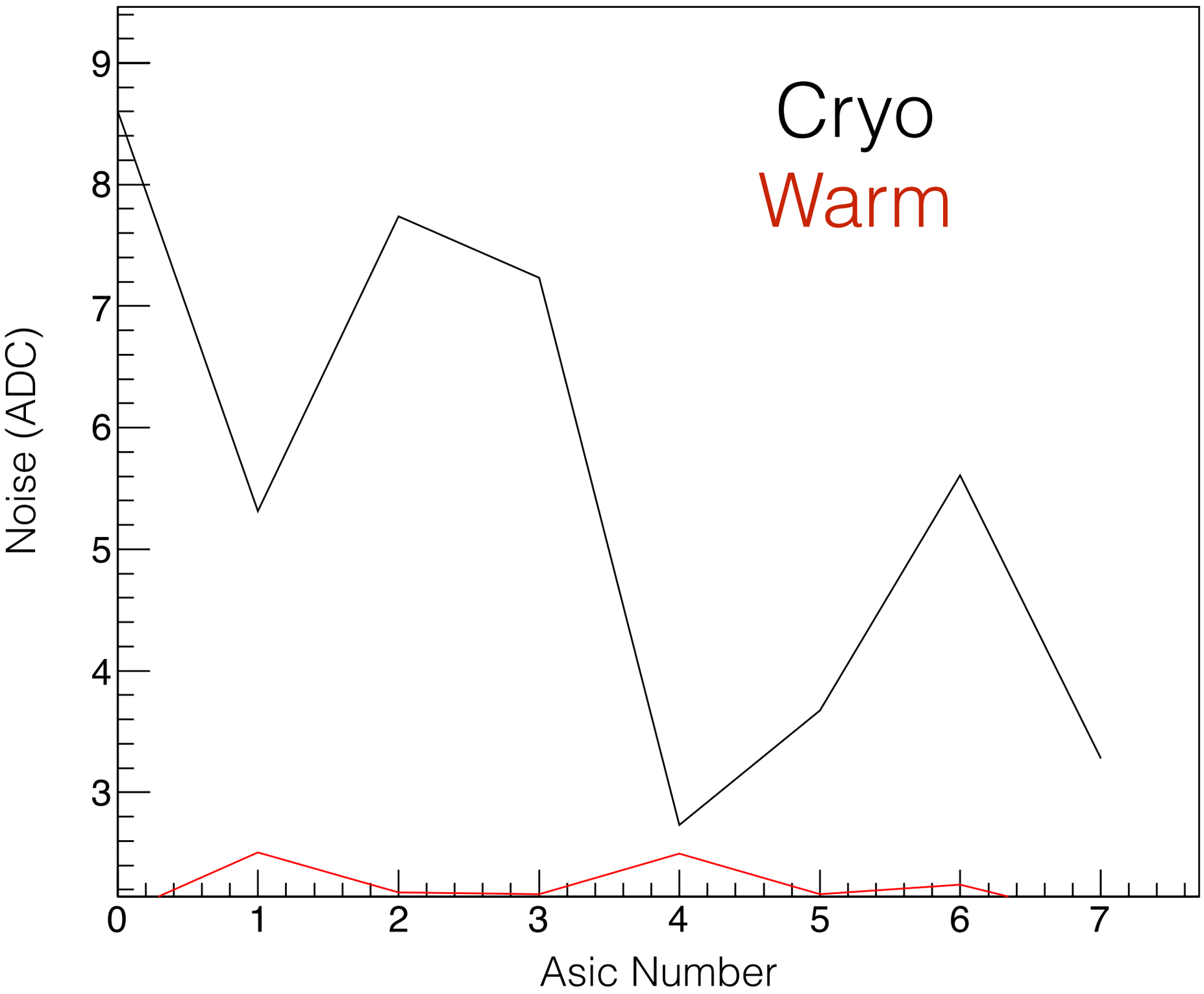


WARM

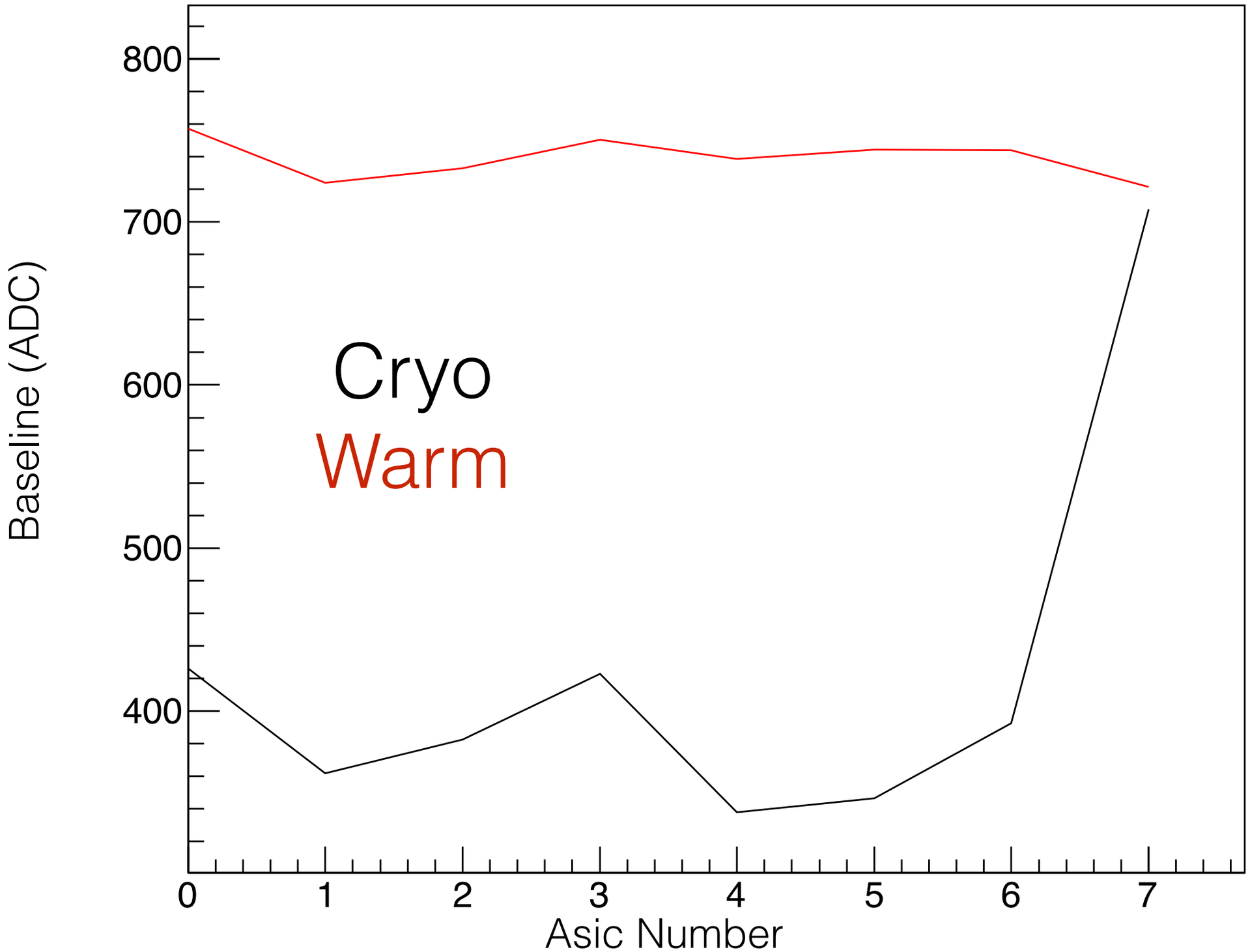
CRYO

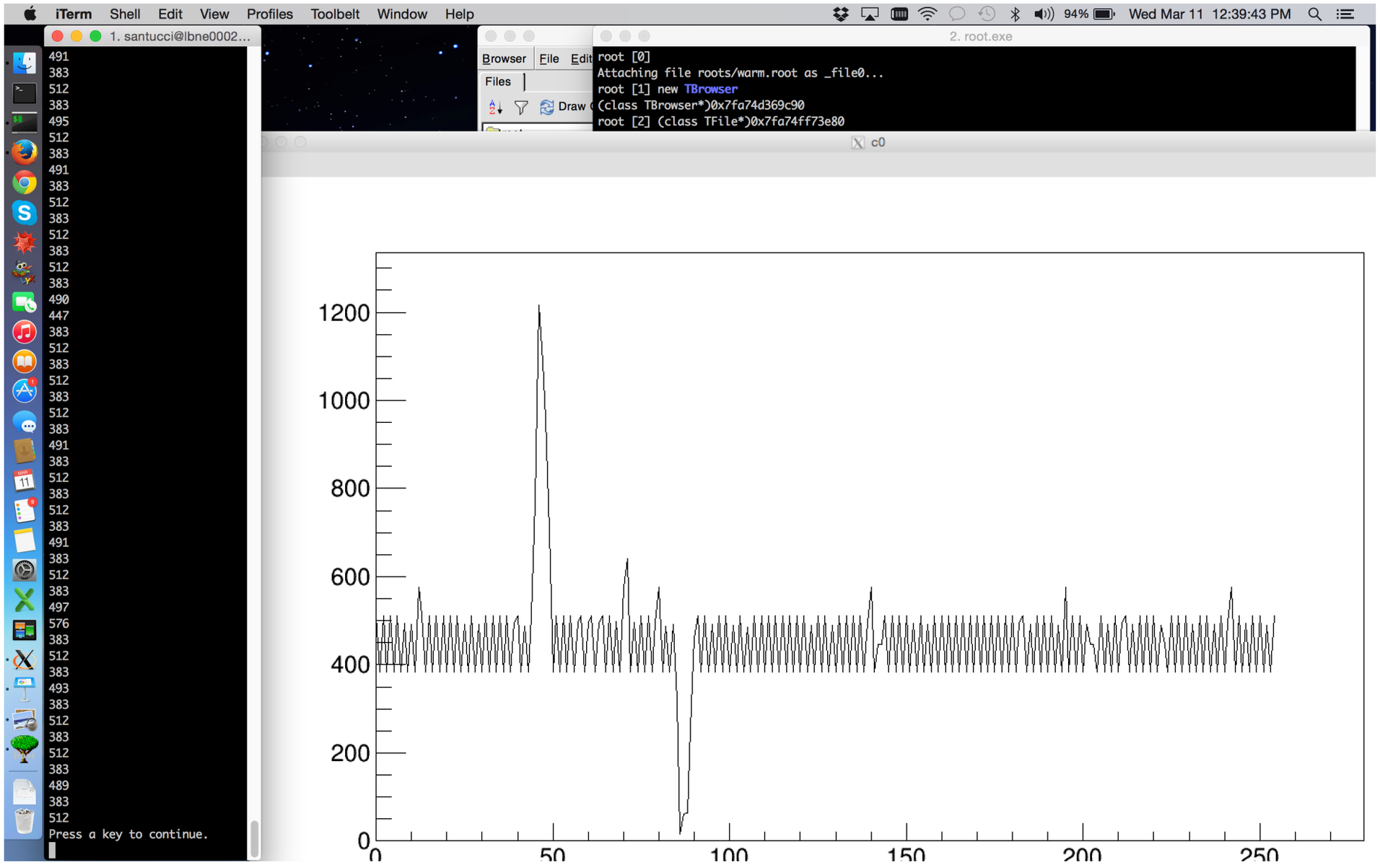


Mean Noise per Asic



Mean Baseline per Asic




iTerm Shell Edit View Profiles Toolbelt Window Help
94% Wed Mar 11 12:39:43 PM
1. santucci@lbne0002...
491
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489
383
512
Press a key to continue.
2. root.exe
Browser File Edit
Files
Draw
root [0]
Attaching file roots/warm.root as _file0...
root [1] new TBrowser
(class TBrowser*)0x7fa74d369c90
root [2] (class TFile*)0x7fa74ff73e80
c0
1200
1000
800
600
400
200
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100
150
200
250