

First tests with Wire Chamber

The DAQ team

Intro

Ran additional 2 weeks of tests featuring Wire Chamber, Preamp boards and ADC

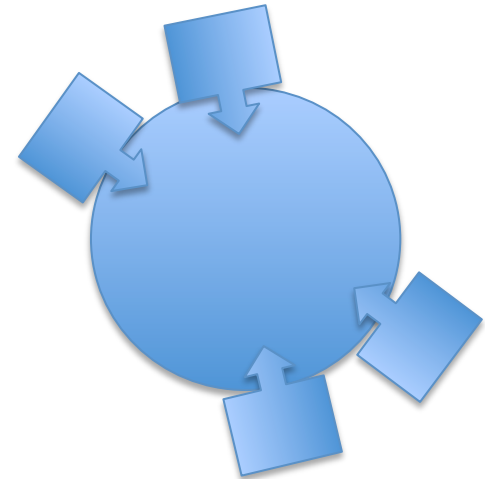
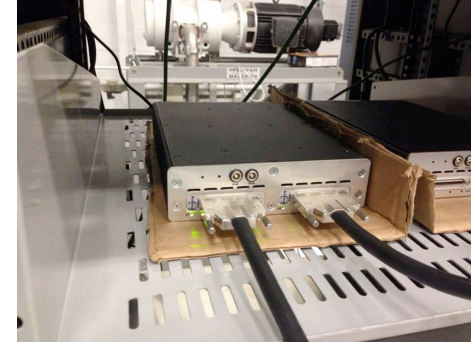
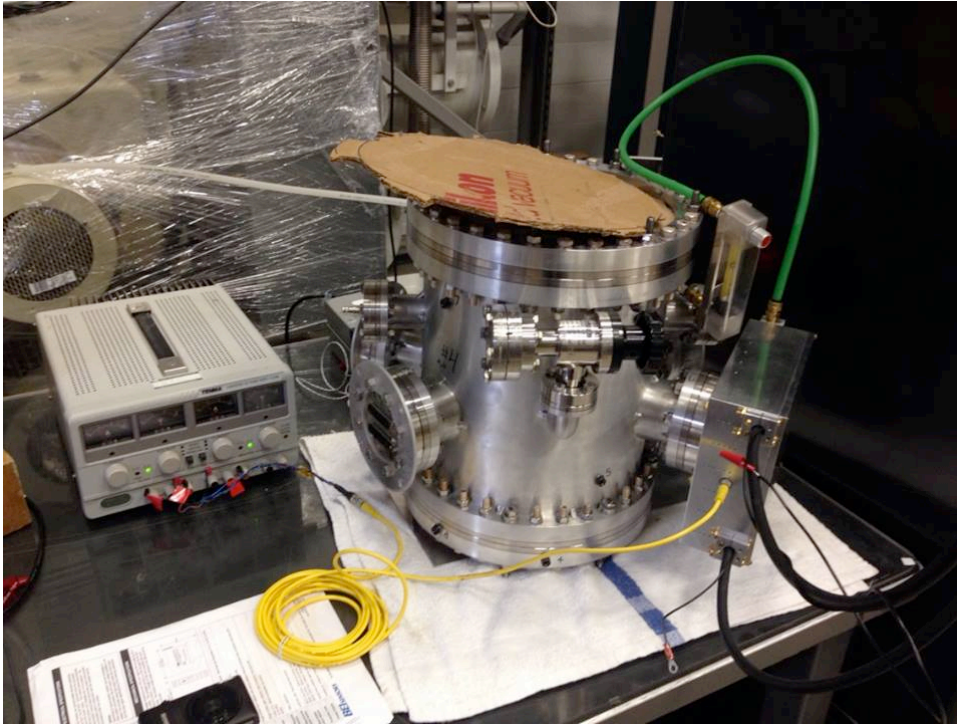
Checked all preamp boards, all Chamber flanges and (9 out of 10) cables

Identified and classified all issues. Good news is that there are not many issues!:

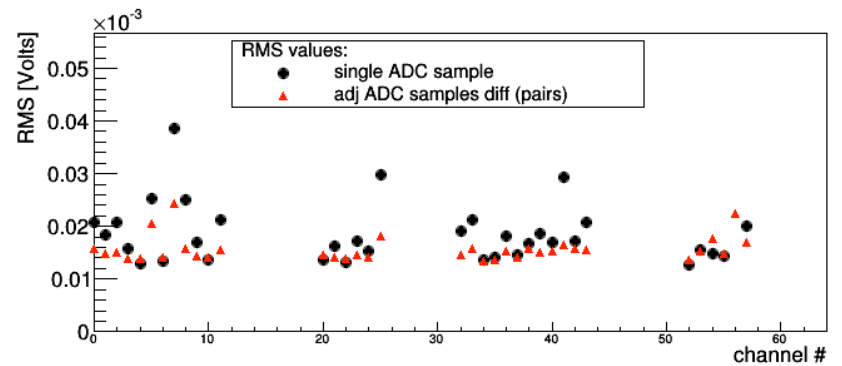
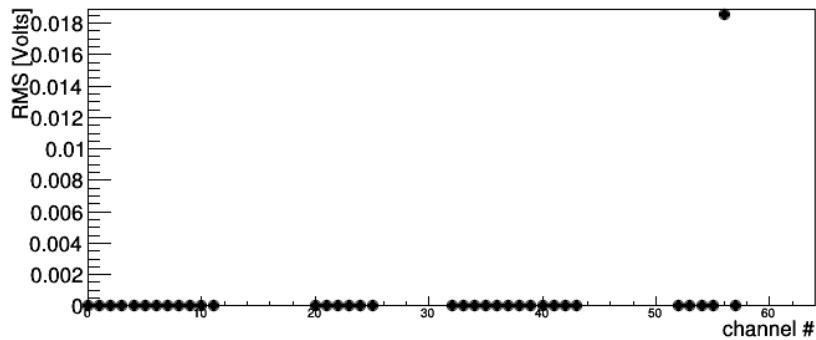
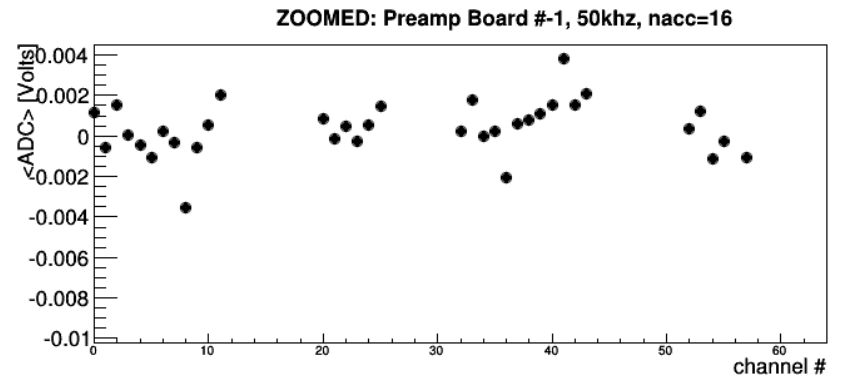
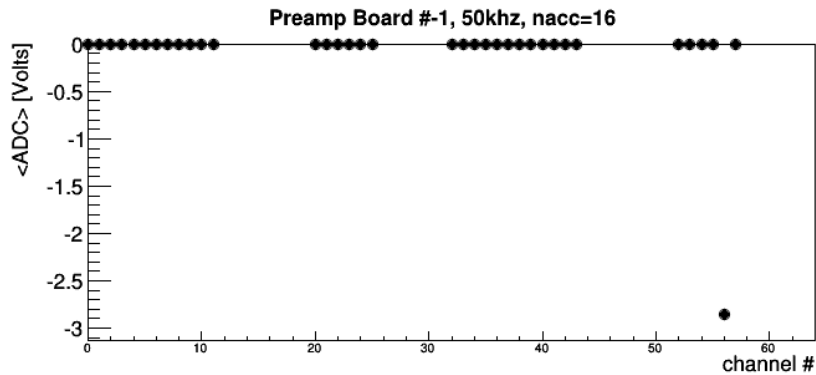
- 1.) 2 Chamber wires f,g 1S (1st) layer shorted to each other.
- 2.) 1 noisy preamp H2_2 at Preamp Board #1 (Seppo is going through circuit to find out the problematic piece)
- 3.) One cable had a noisy channel*

Tested noise with Chamber+Preamp+ADC & Preamp+ADC configurations

Full setup with chamber



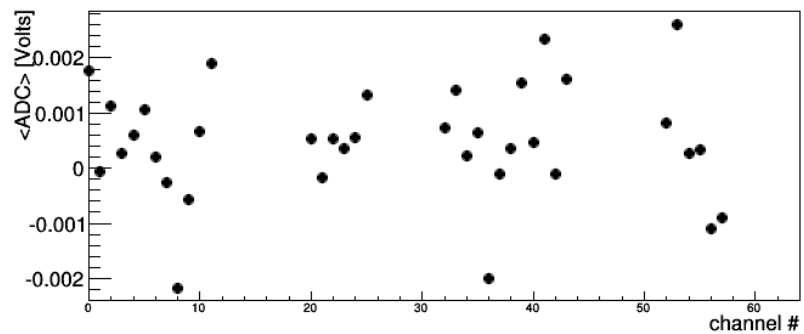
Preamp1 only



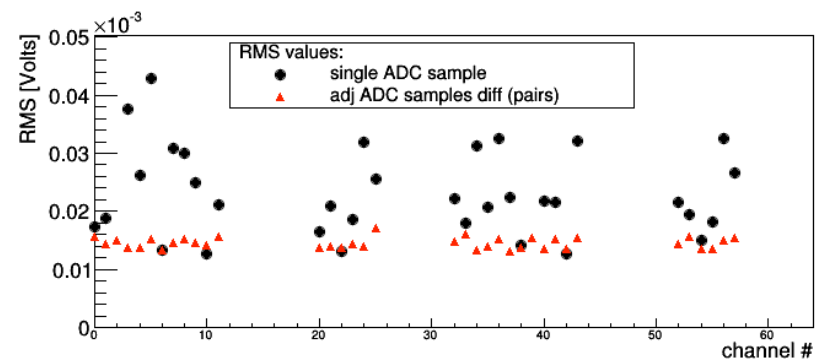
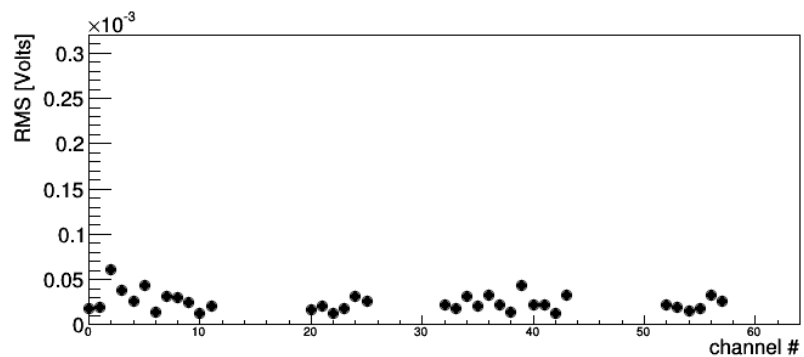
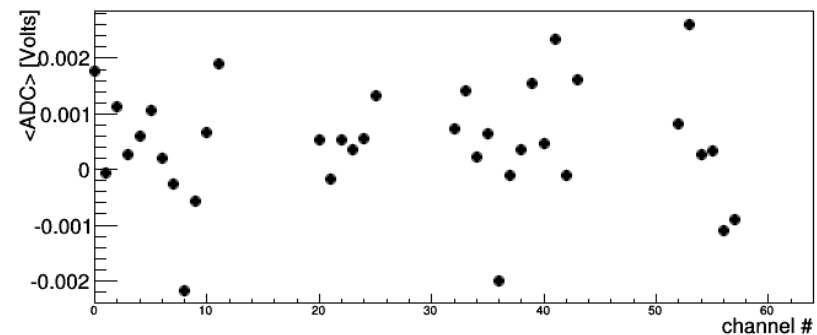
- 1 noisy (bad) pre-amp for the Board #-1
- Problem is not visible if we plot only ADC pair differences distributions (red points)
- Stable performance across the board if eliminate low frequency noise (red points)

Preamp2 only

Preamp Board #-2, 50khz, nacc=16

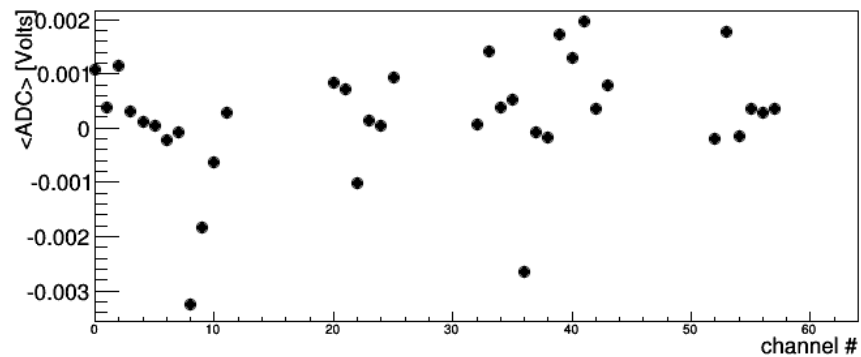


ZOOMED: Preamp Board #-2, 50khz, nacc=16

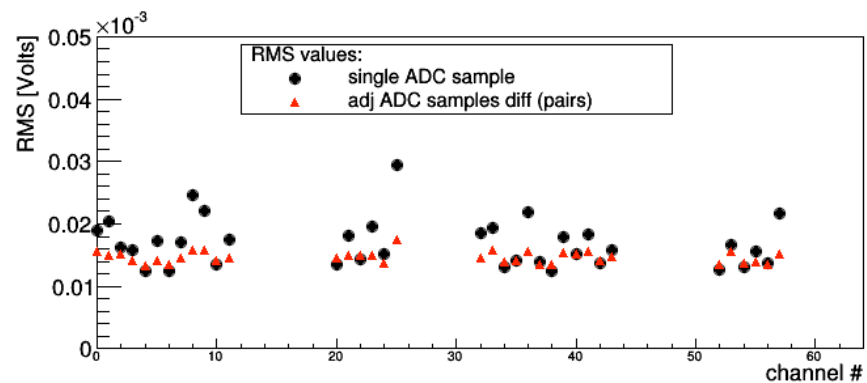
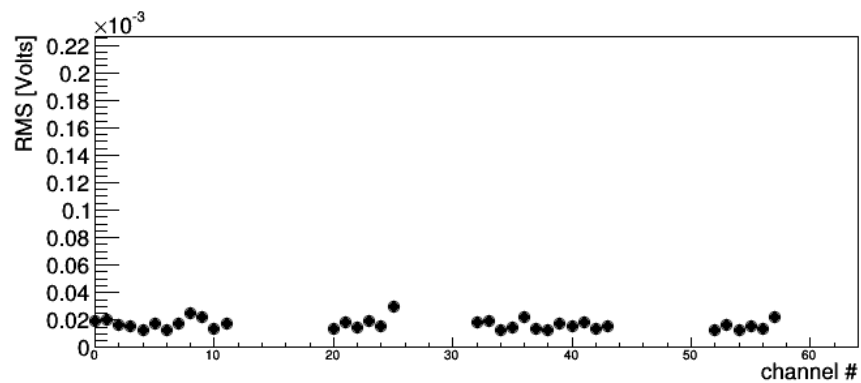
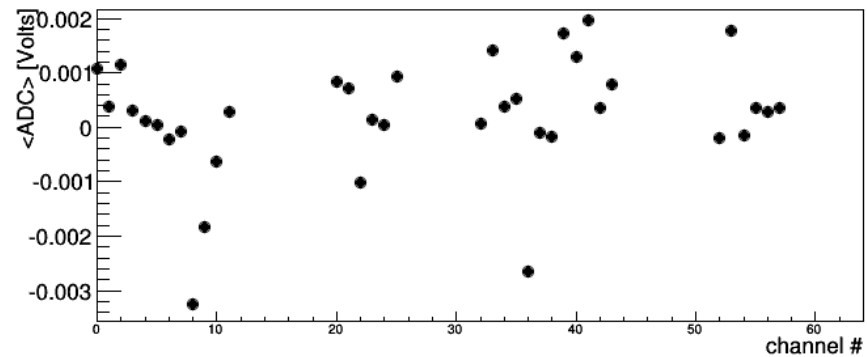


Preamp3 only

Preamp Board #-3, 50khz, nacc=16

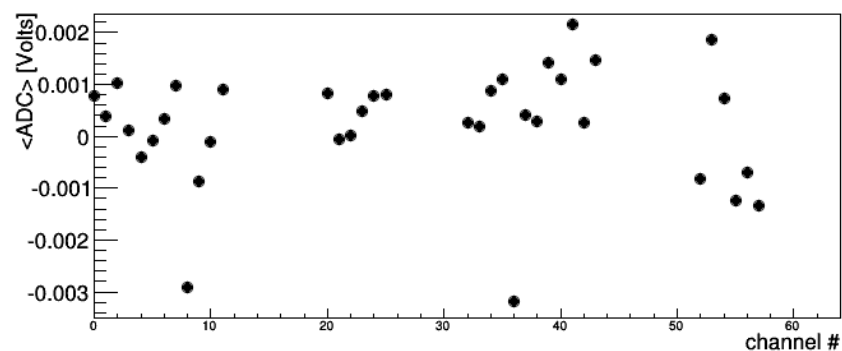


ZOOMED: Preamp Board #-3, 50khz, nacc=16

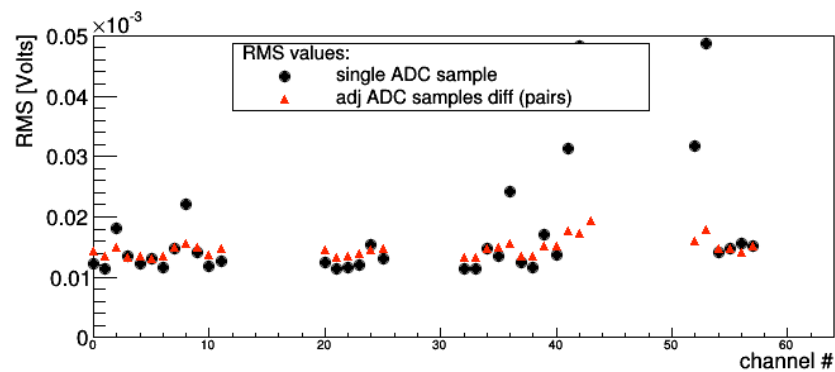
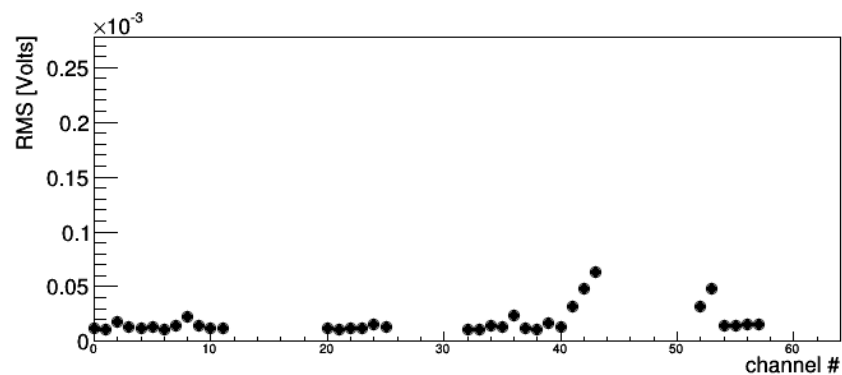
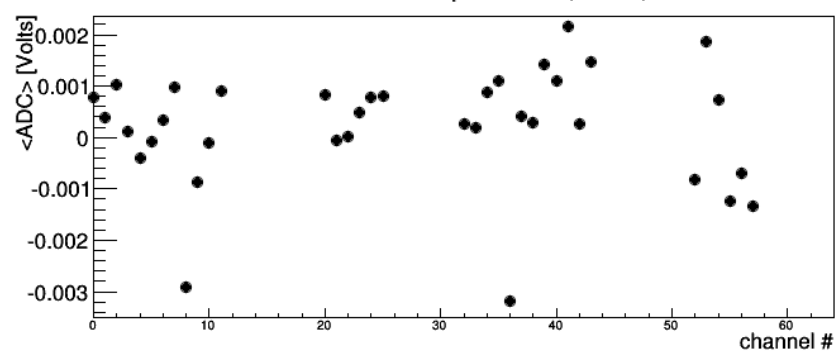


Preamp4 only

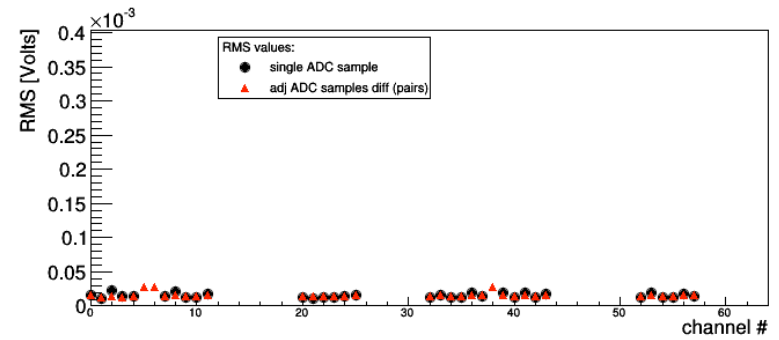
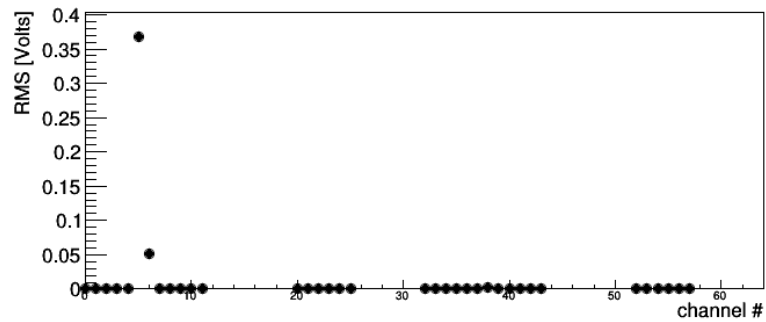
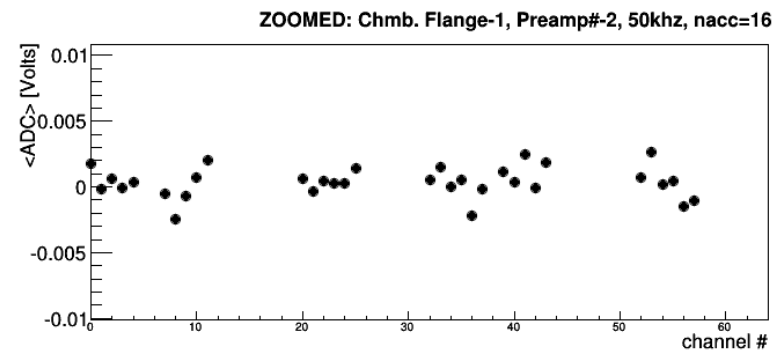
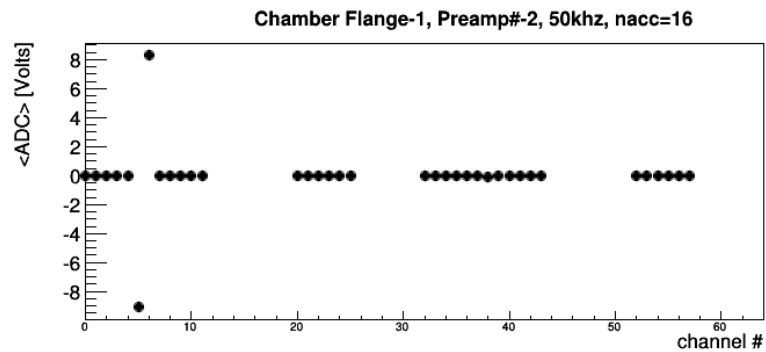
Preamp Board #-4, 50khz, nacc=16



ZOOMED: Preamp Board #-4, 50khz, nacc=16



Shorted channels on Chamber Flange 1



Next steps

Fix preamp at board#1, faulty cable

Calculate false asymmetry using taken data (underway)

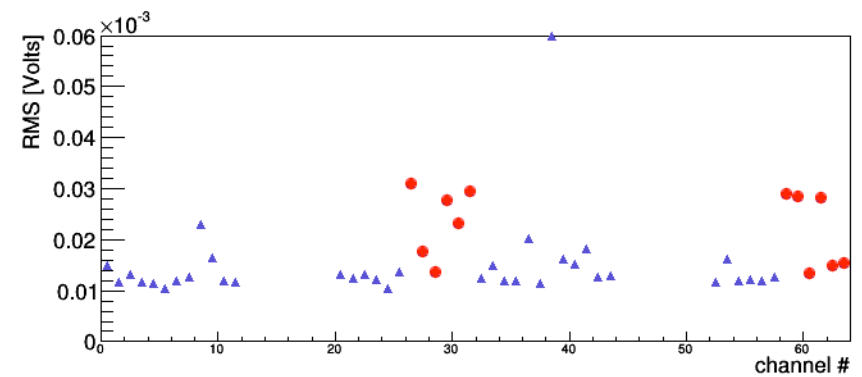
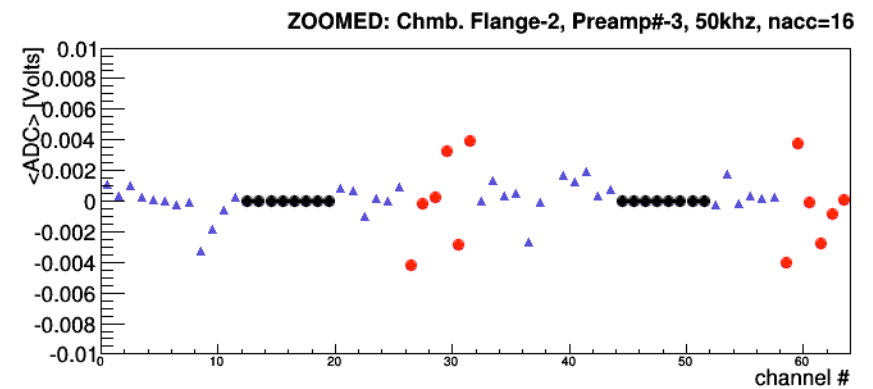
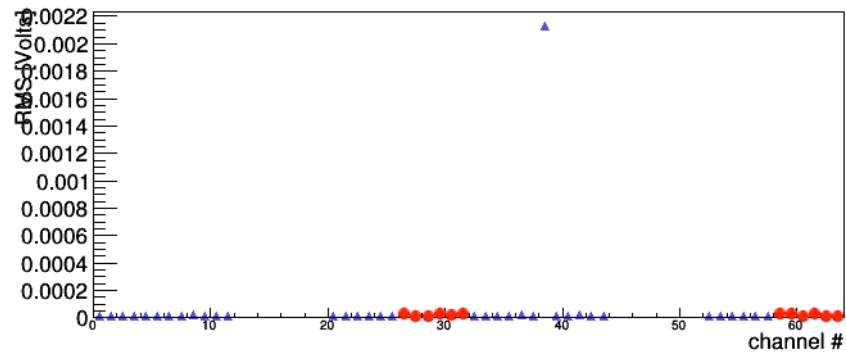
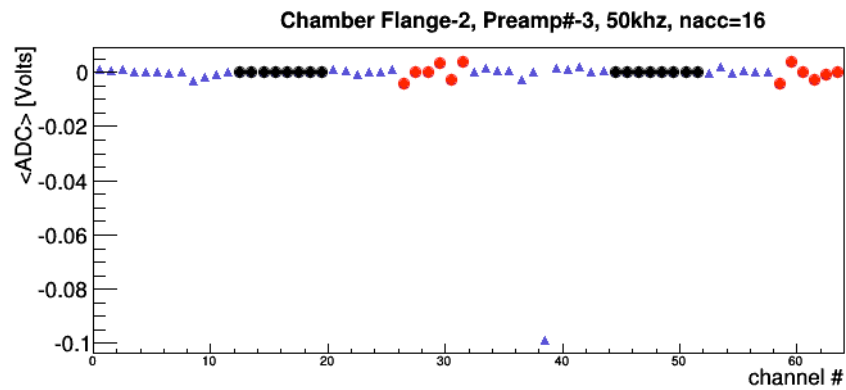
Setting up testing environment inside the cave

Any suggestions

Backup

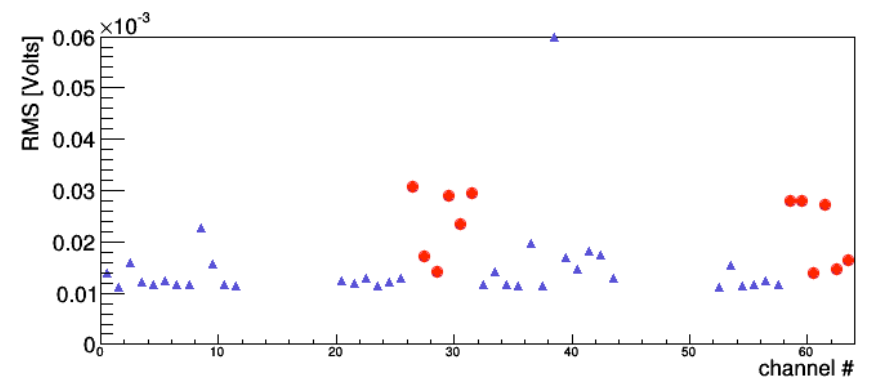
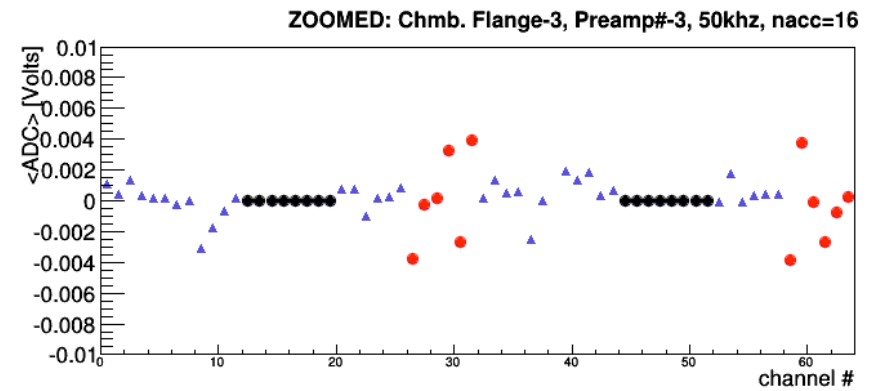
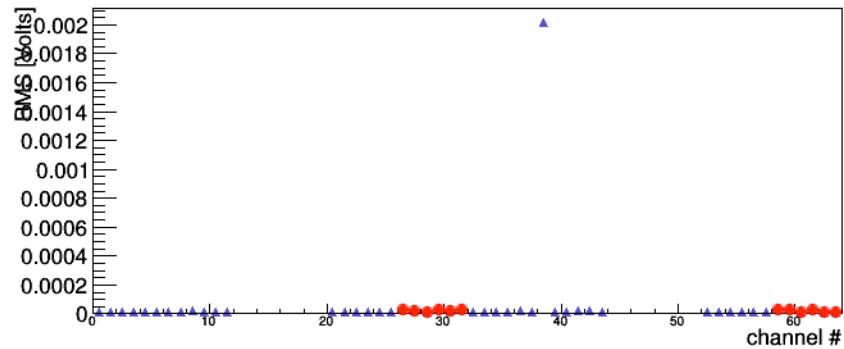
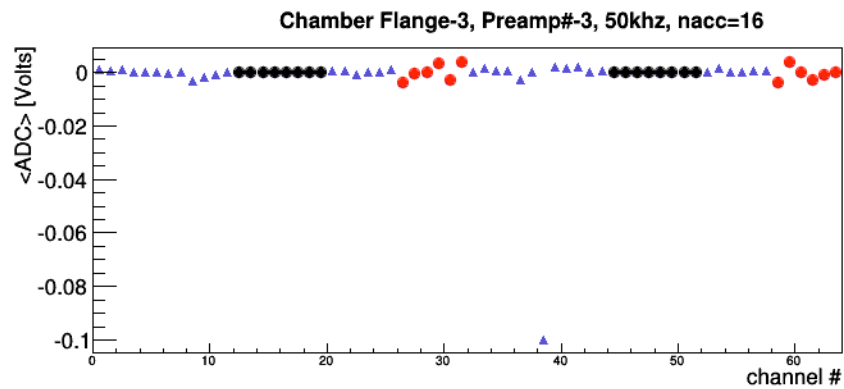
Preamp3 at Flange#2

Problem at channel 38 (counting from 0)



Preamp3 at Flange#3

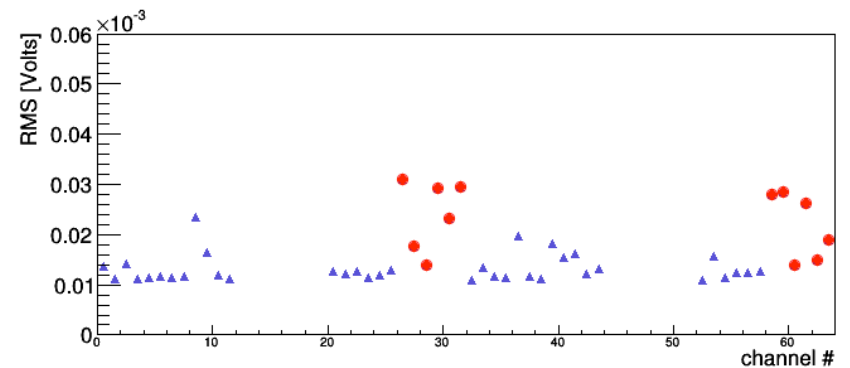
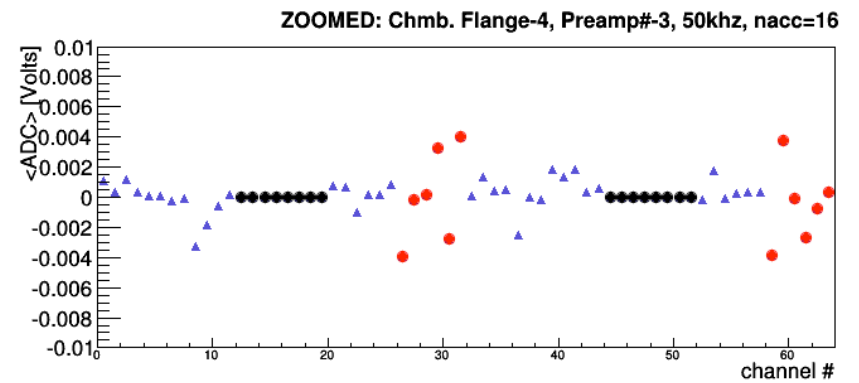
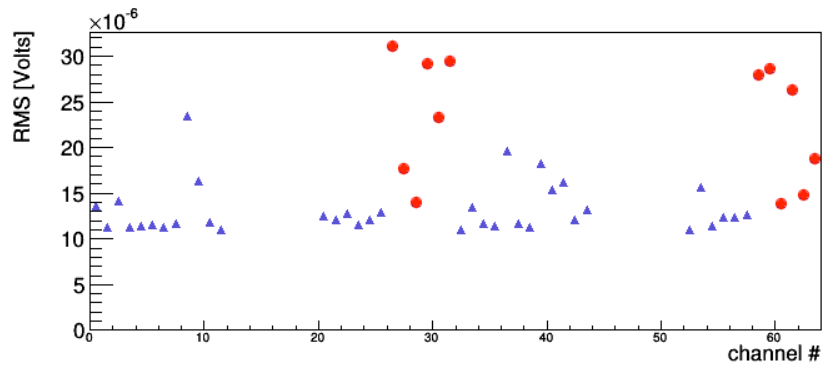
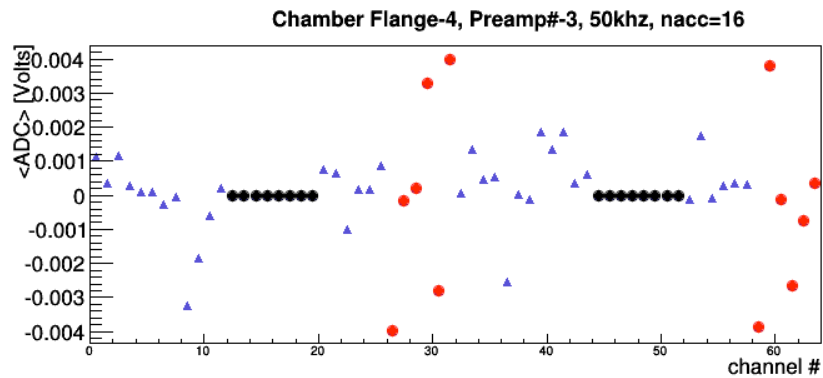
Problem at channel 38 (counting from 0)



Preamp3 at Flange#4

Problem at channel 38 (counting from 0)

Same pre-amp in the preamp board



Preamp2(!!!) at Flange#1

Accidentally copied data with preamp#2
with cables switched up for testing

The 2 bad channels should be at 6&7 with
proper mapping

Preamp board #3 shows exactly the same
result...so it is most likely Wire chamber
issue

