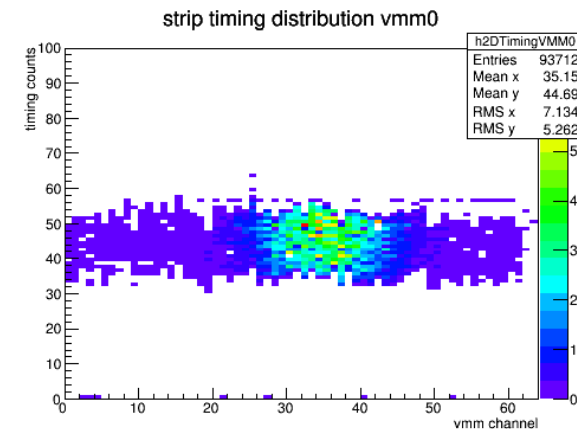
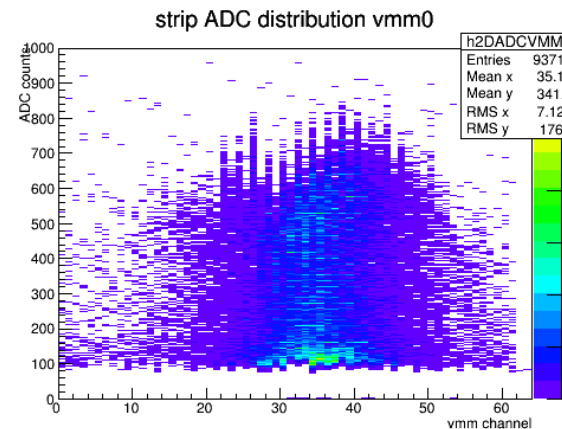
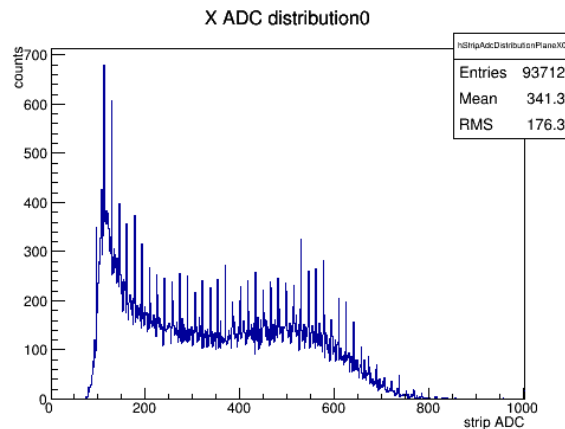
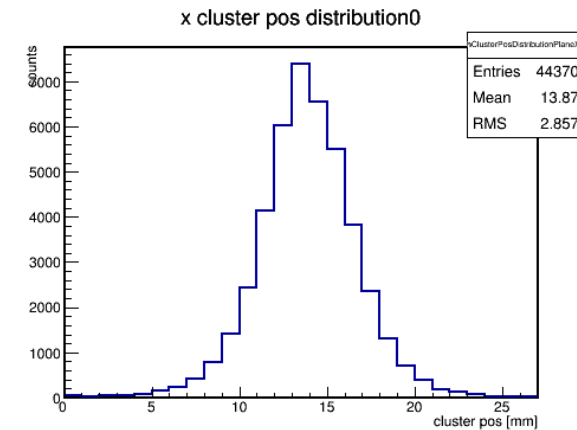
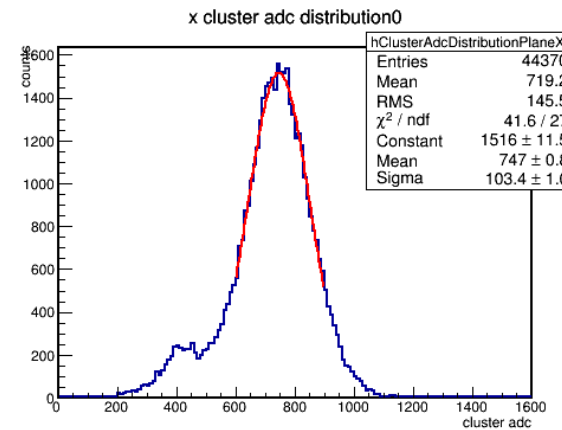
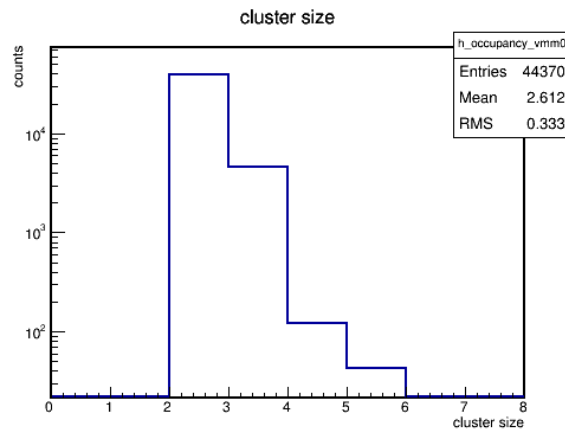


Using Fe55 data check shaping time and gain

- All runs have the same hardware setting
- GEM HV 3900 V
- GEM Gas Argon:CO₂ = 80:20
- Internal trigger, send 1-μs period test pulse as trigger to VMM, impossible to use external trigger for Fe55 source in current setup
- Cluster size cut: 2 – 5 to remove a few hot channels

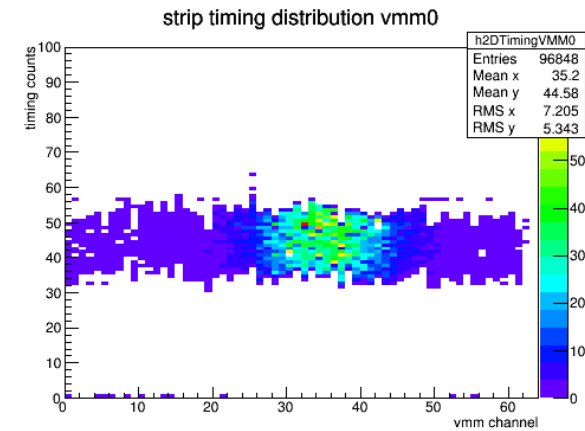
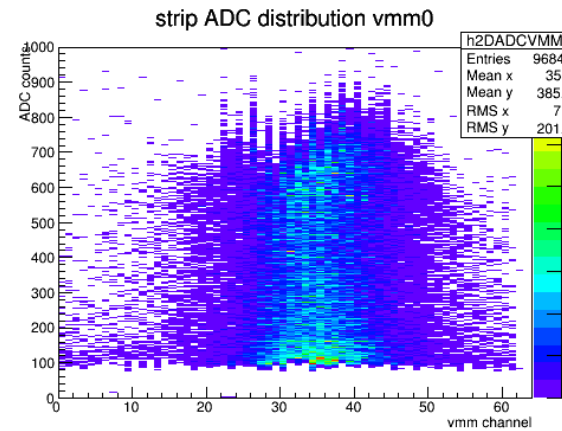
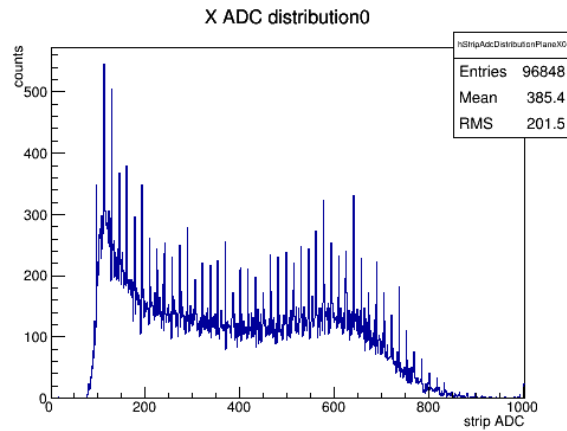
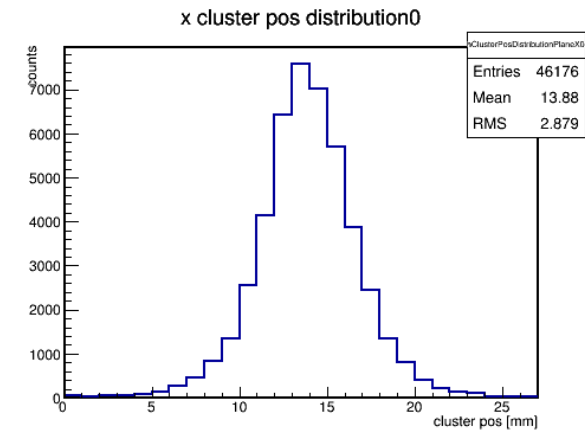
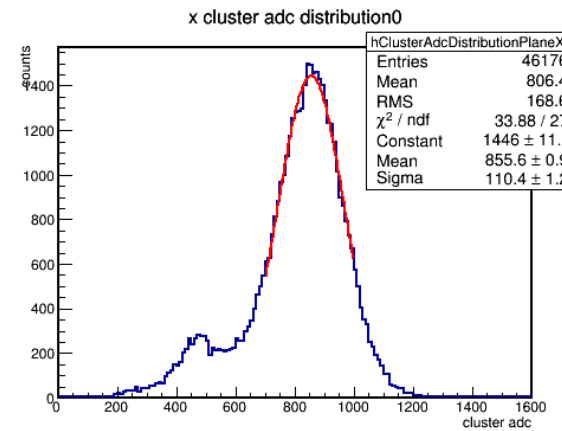
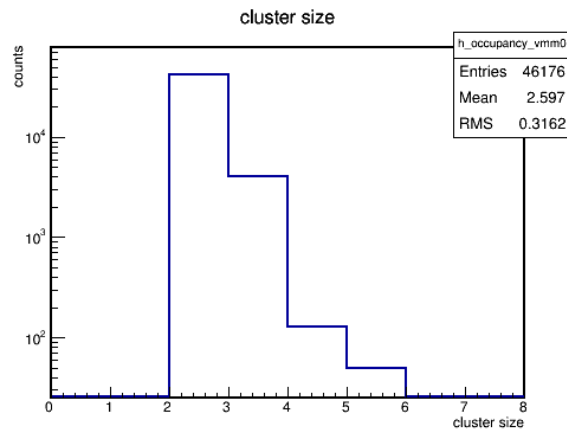
- Check shaping time: 25 ns, 50 ns, 100 ns, 200 ns
- Check gain: 3 mV/fC, 6 mV/fC, 16 mV/fC

Fe55 – shaping time 25 ns, gain = 3 mV/fC

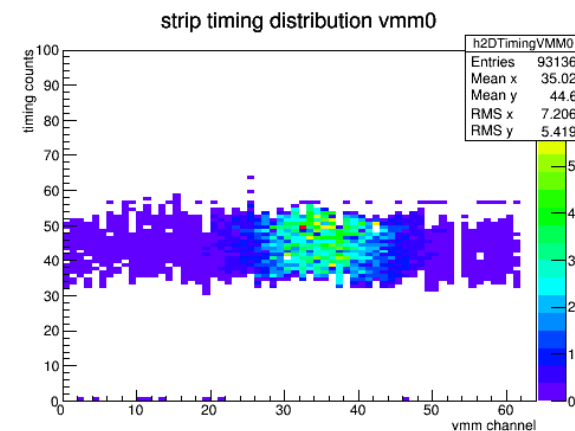
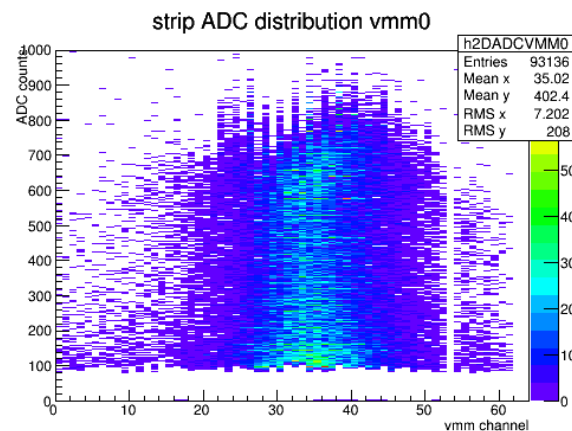
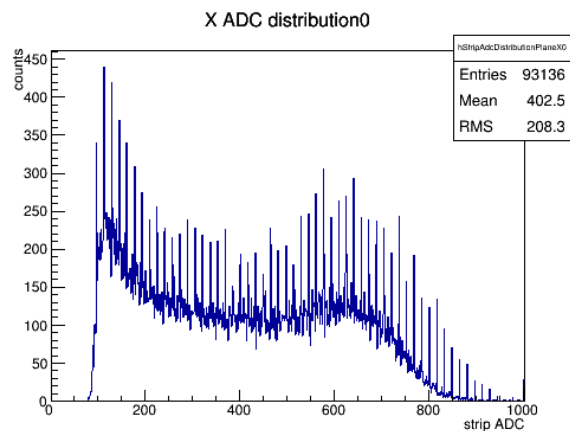
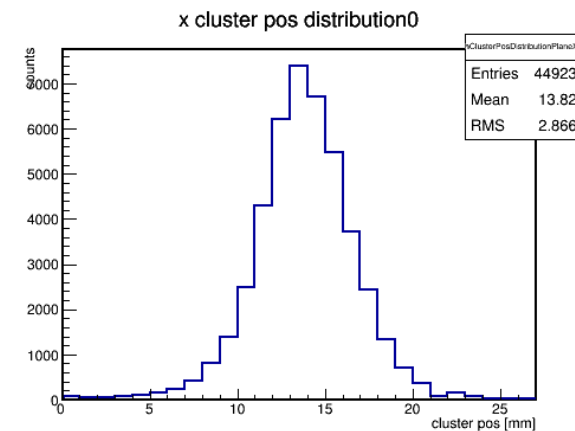
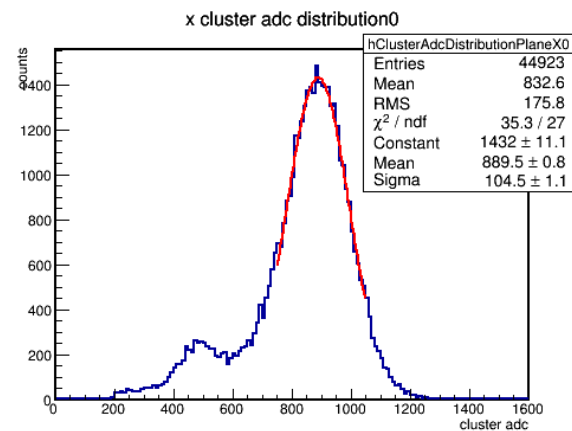
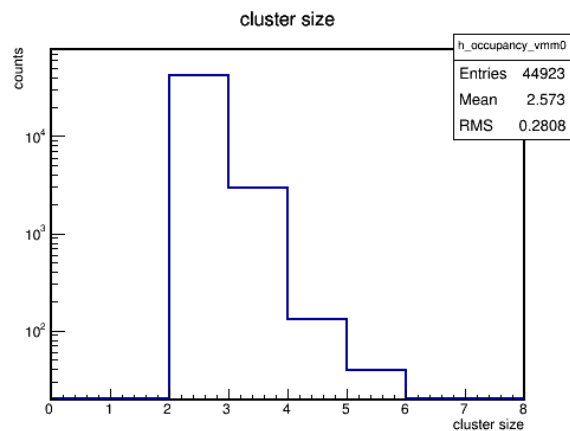


- Strip ADC saturates every 16 ADC, this is a known issue from VMM3, It is said VMM3a has fixed this issue?

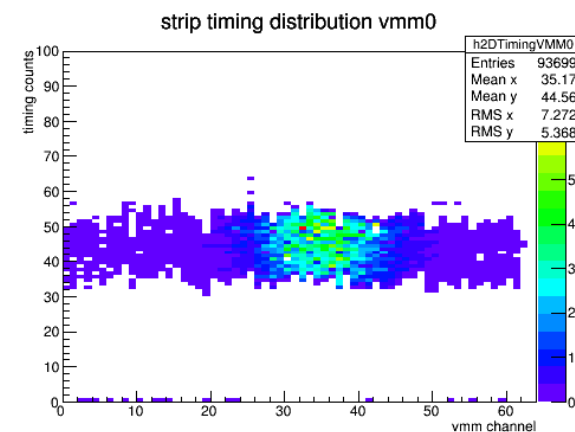
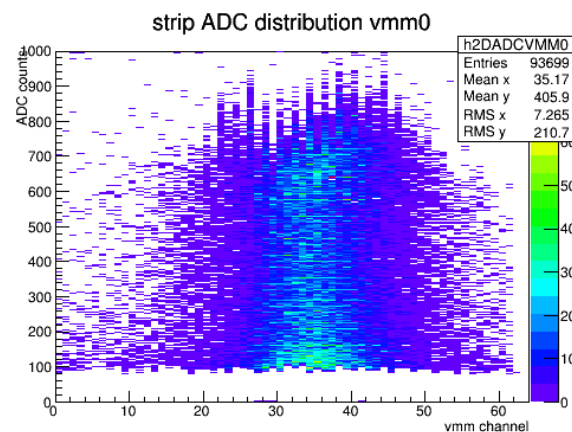
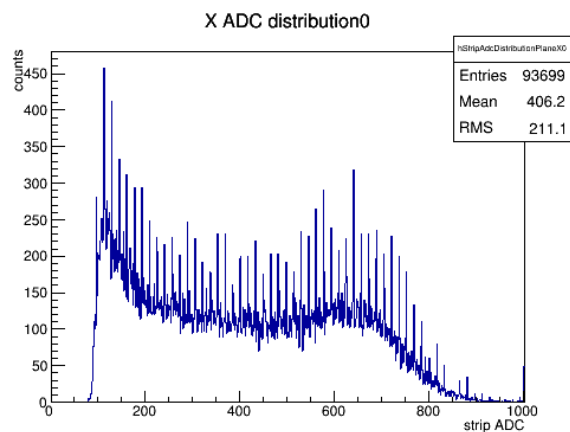
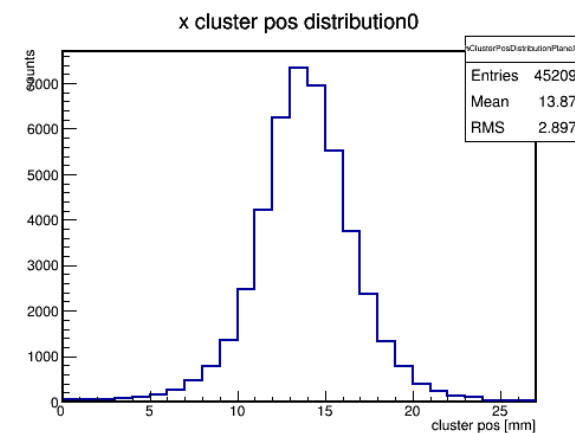
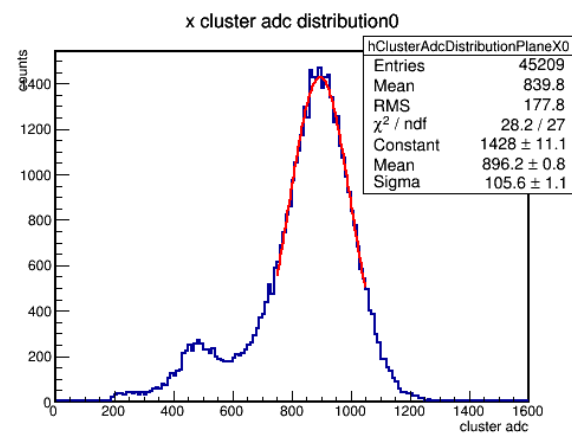
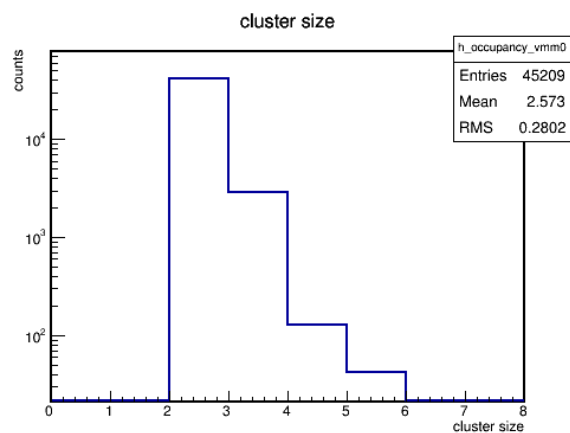
Fe55 – shaping time 50 ns, gain = 3 mV/fC



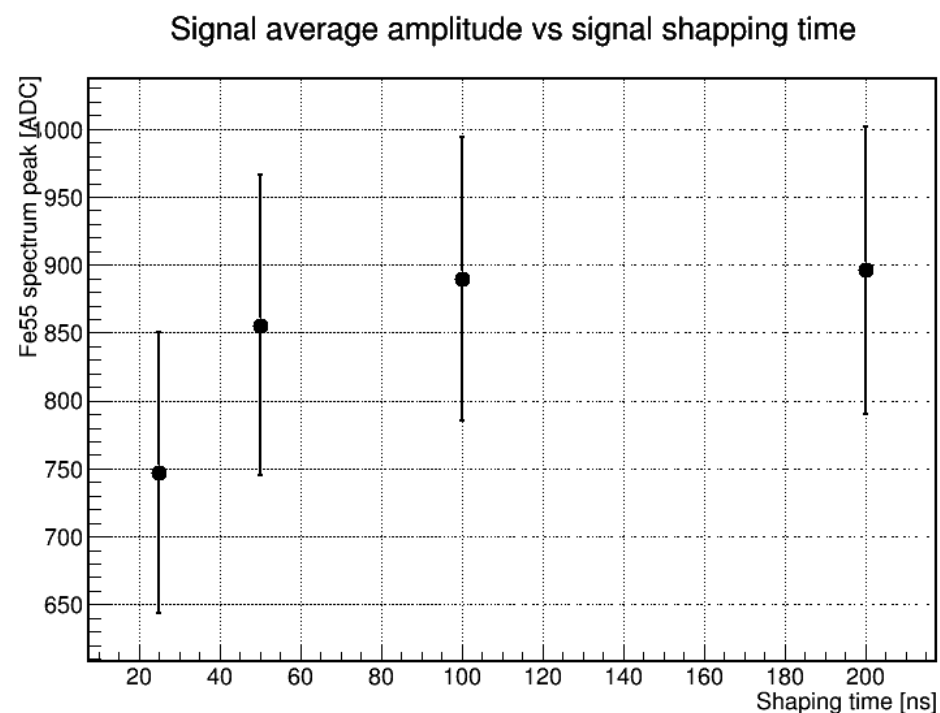
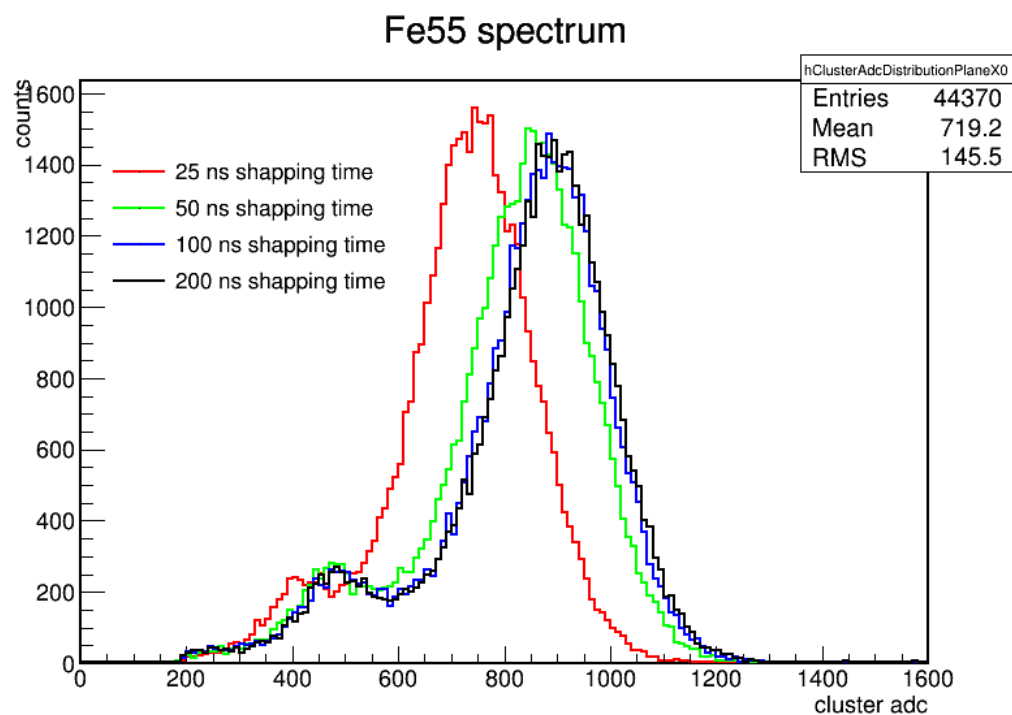
Fe55 – shaping time 100 ns, gain = 3 mV/fC



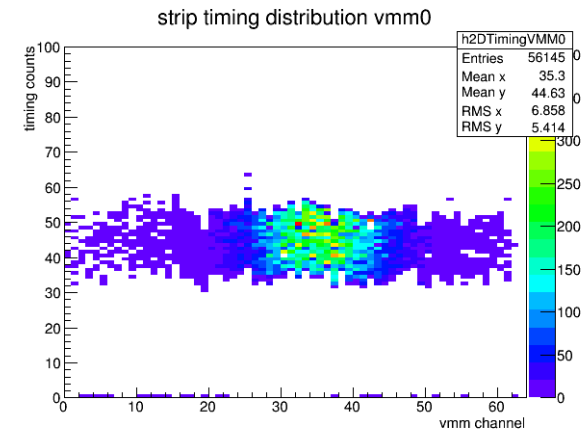
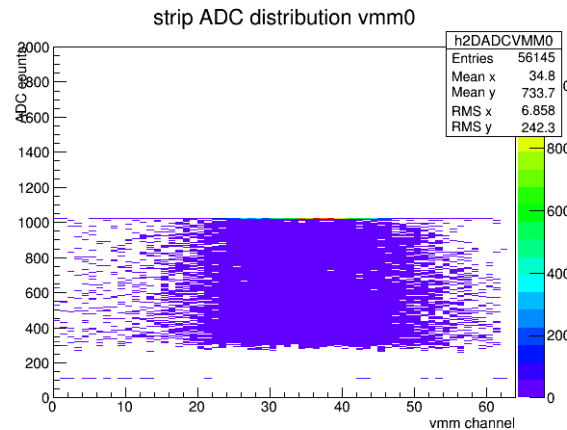
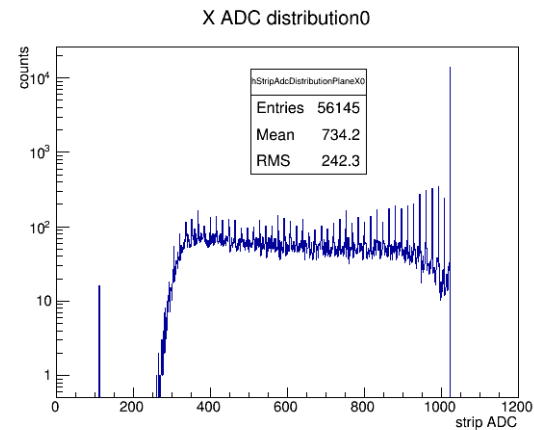
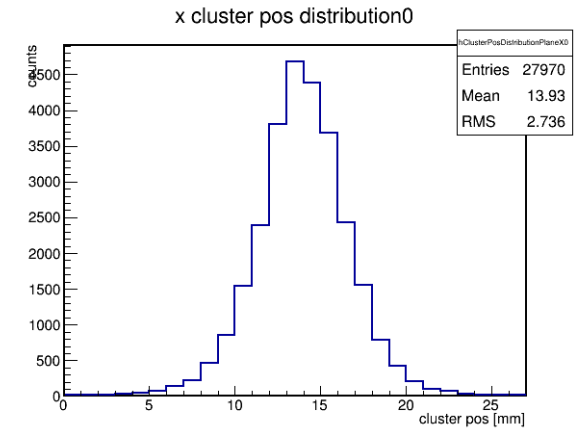
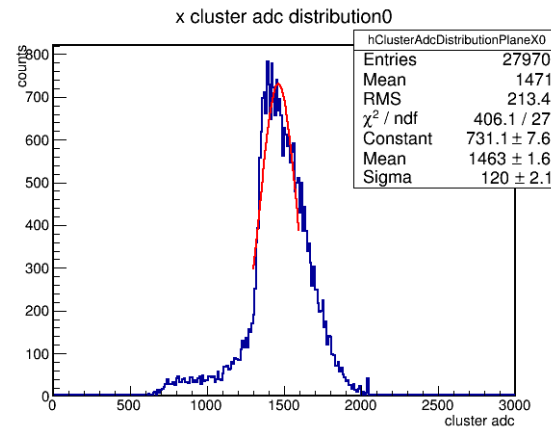
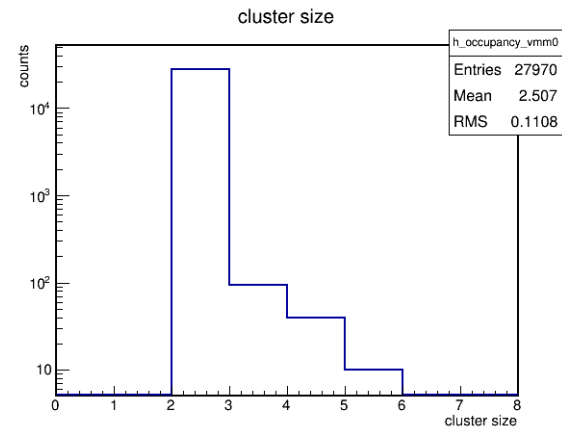
Fe55 – shaping time 200 ns, gain = 3 mV/fC



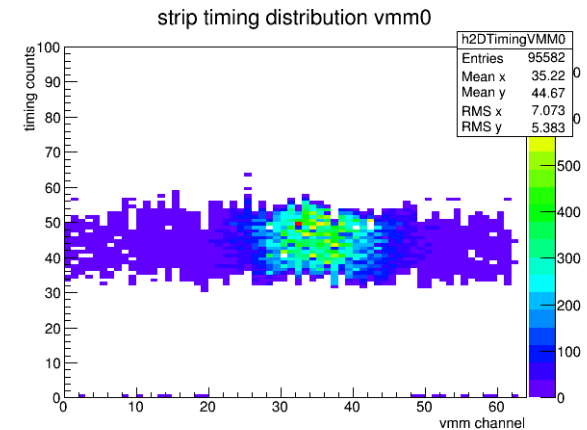
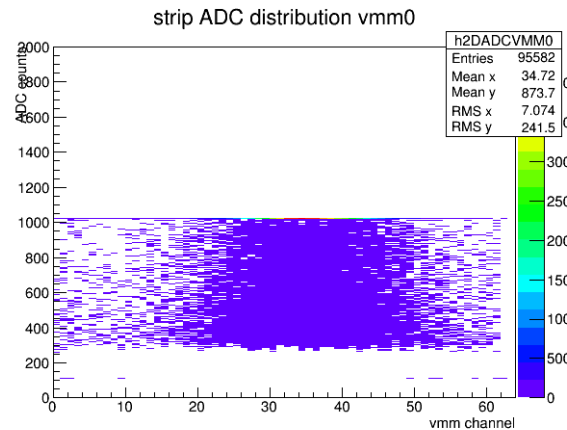
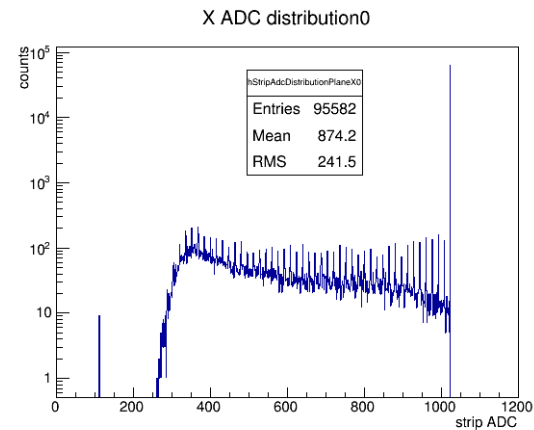
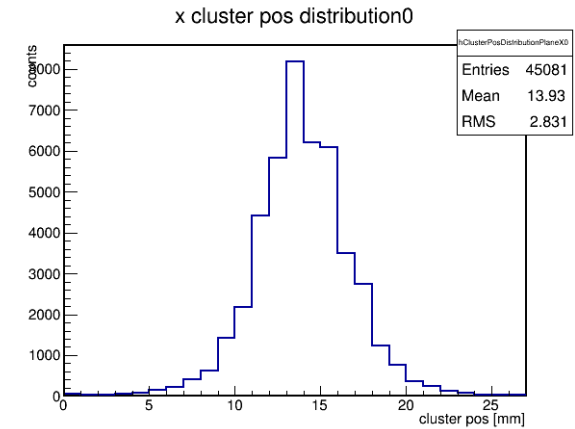
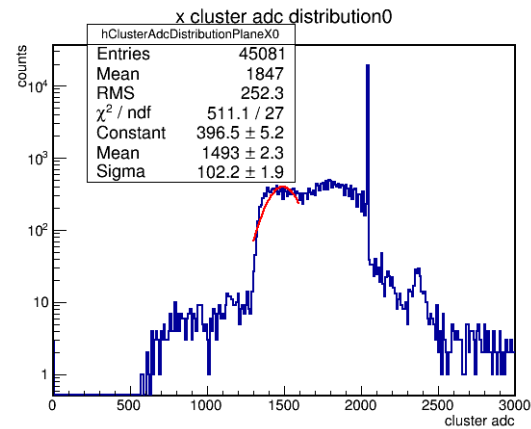
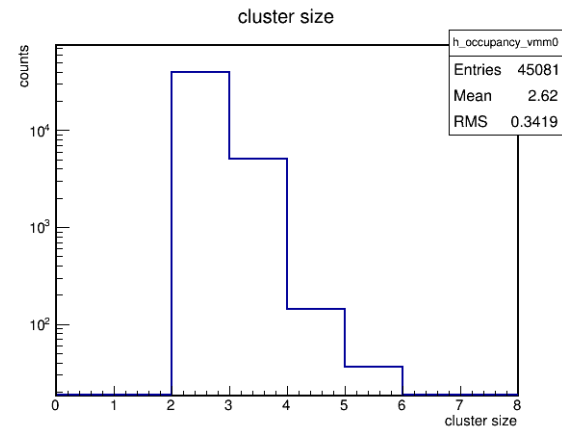
Signal gain vs shaping time, gain = 3 mV/fC



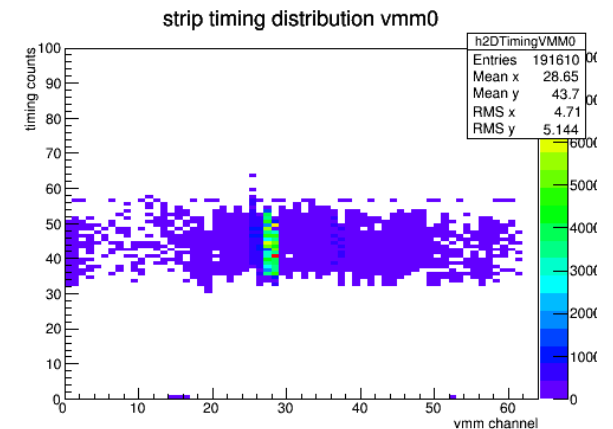
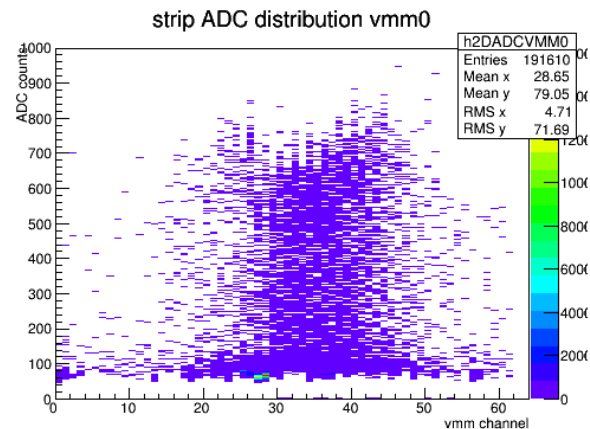
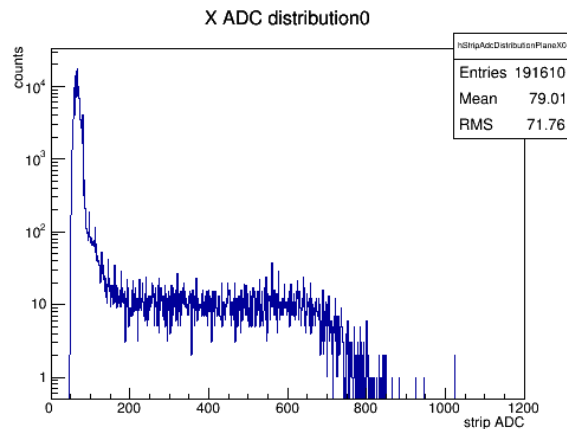
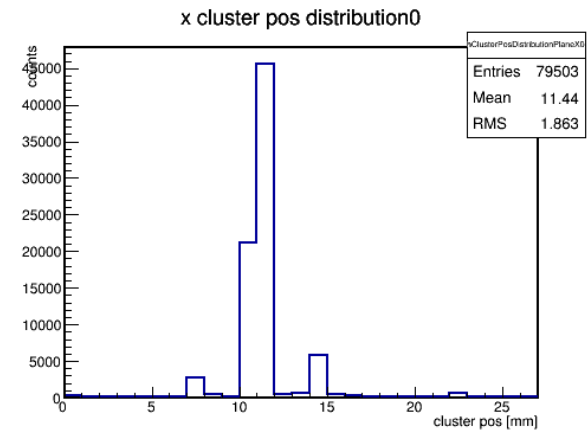
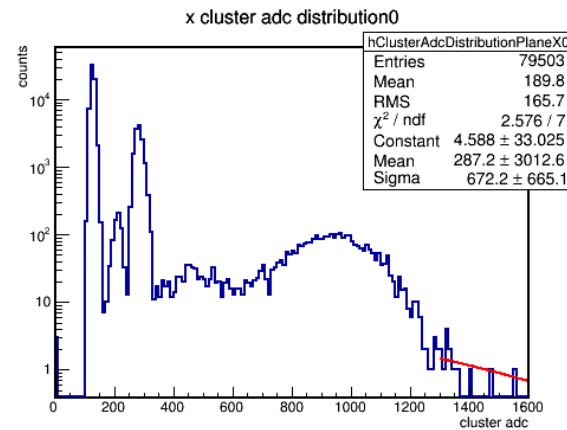
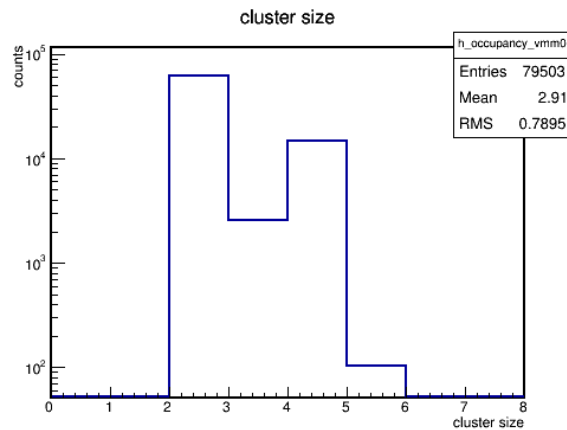
Gain = 6 mV/fC, shaping time = 25 ns



Gain = 16 mV/fC, shaping time = 25 ns



Gain = 3 mV/fC, shaping = 25 ns, very low threshold



- Strip ADC peak is basically strip pedestal

- With larger shaping time, we do see signal amplitude increase
- Fe55 seems not MIP, with 6 mV/fC VMM gain, most of the strips has saturation
- Need fine calibration, hopefully finish in next week