

JLab Test Beam Analysis

June 02, 2026

Settings :

SiPM HV: 41.70 V

SiPM I: 335 μ A

T1: 21.4 $^{\circ}$ C

T2: 17.9 $^{\circ}$ C

Number of events :

KCU0 : 1248

KCU1 : 1248

Beam info:

$\langle I \rangle = 0.25$ nA

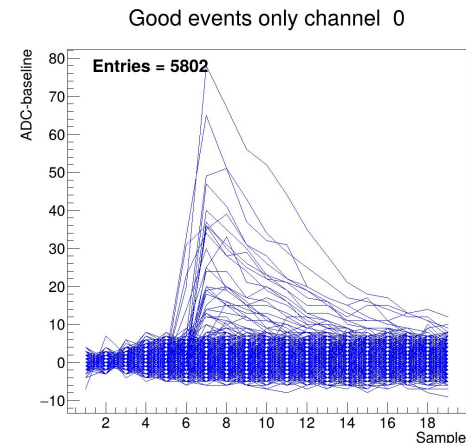
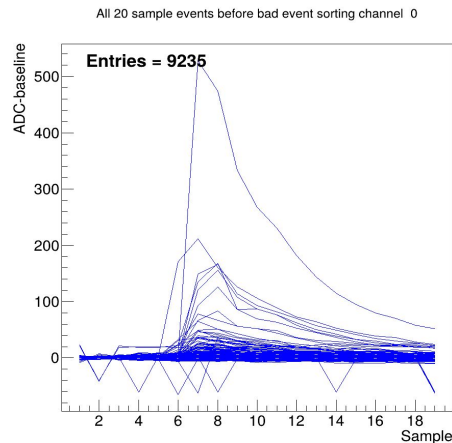
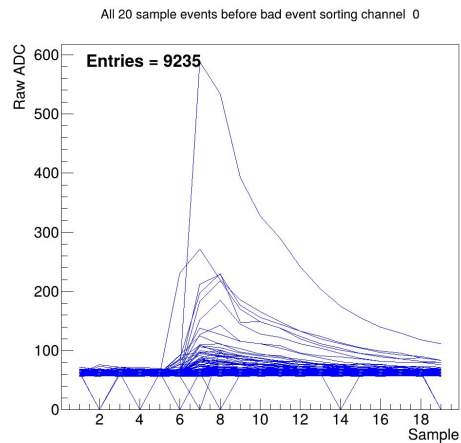
PS field: 0.190 T (~100A setting)

Rad: NO RADIATOR

PSrad: HOME (out of beam) @ 0.000 mm

TPOL: HOME (out of beam) @ 0.000 mm

RUN 530 : (05/01/2026) KCU0 ASIC 0 : SFIL 1



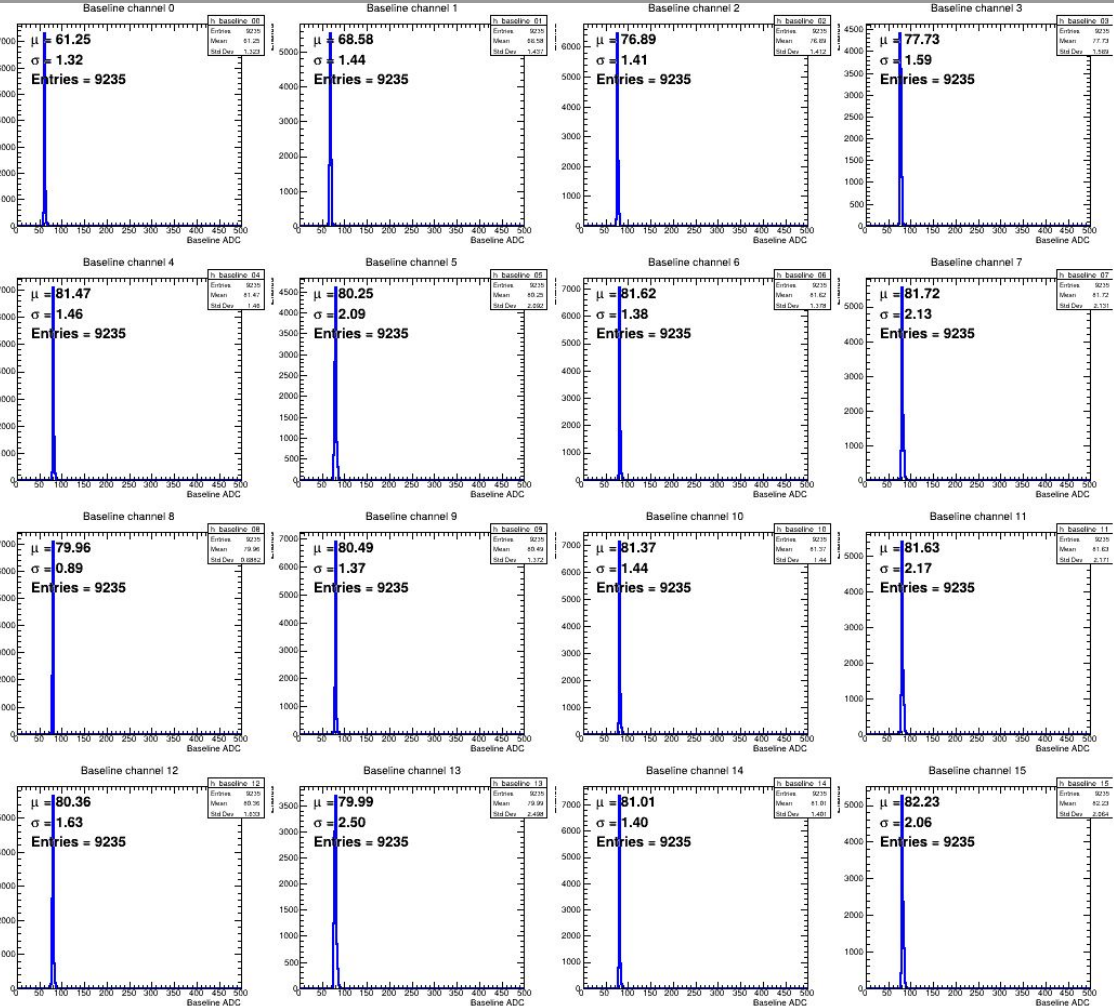
- If any event has a baseline-corrected value below -10 ADC, then the event is rejected :

value = raw ADC - baseline

if (value < -10)

bad_event = true;

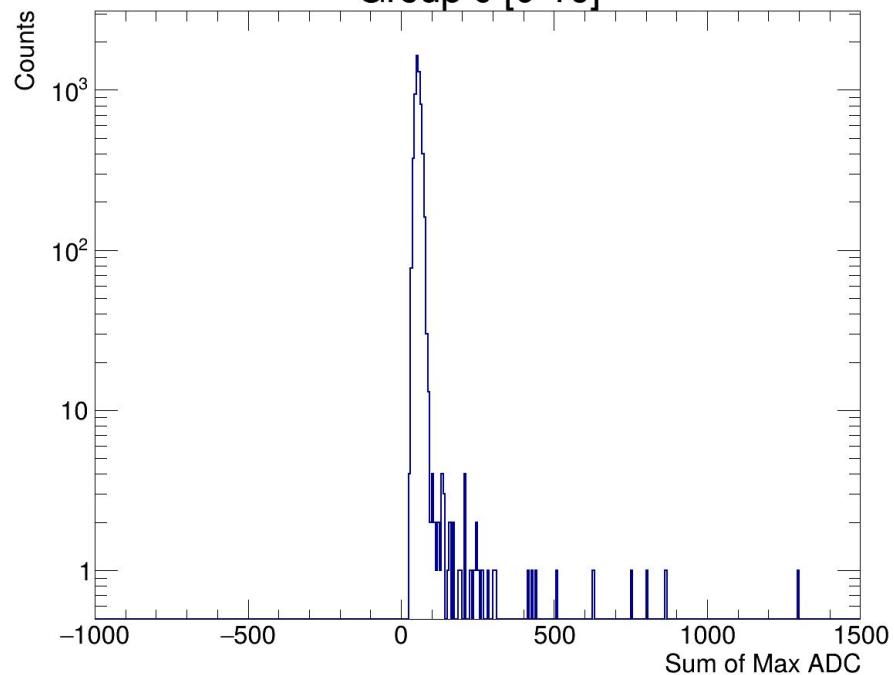
RUN 530 : (05/01/2026) KCU0 ASIC 0 : SFIL 1



Baseline subtraction appears stable.

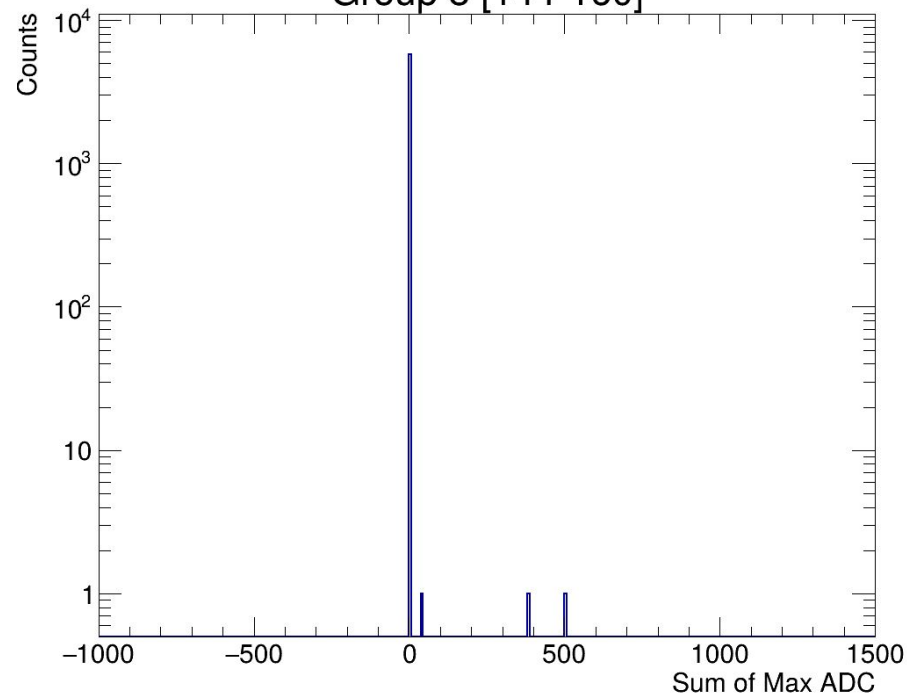
ASIC 0 : SFIL 1

Group 0 [0-16]



ASIC 2 : SFIL 2

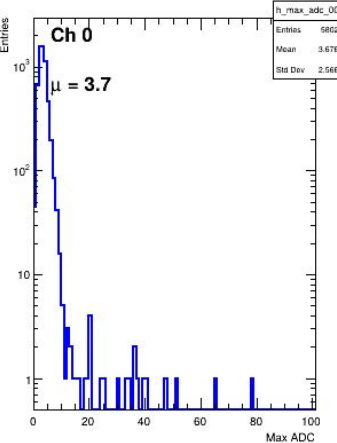
Group 8 [144-160]



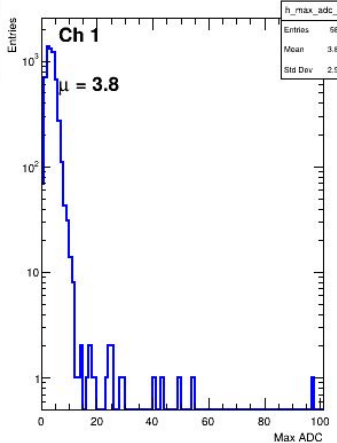
No clear MIP observed

RUN 530 : (05/01/2026) KCU0 ASIC 0 : SFIL 1

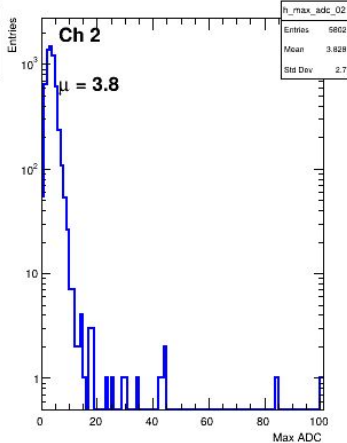
Max ADC channel 0



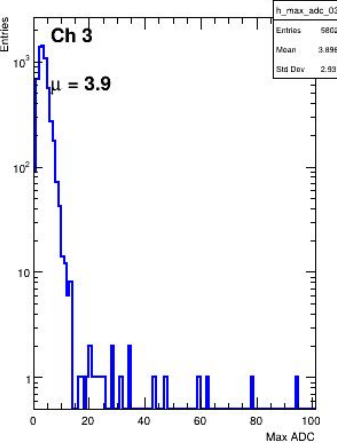
Max ADC channel 1



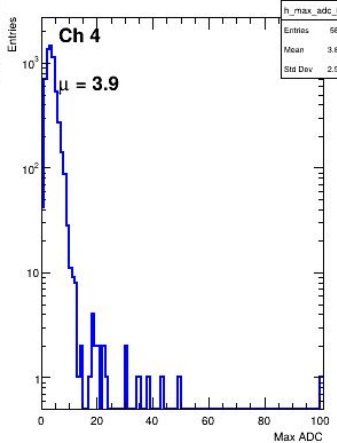
Max ADC channel 2



Max ADC channel 3



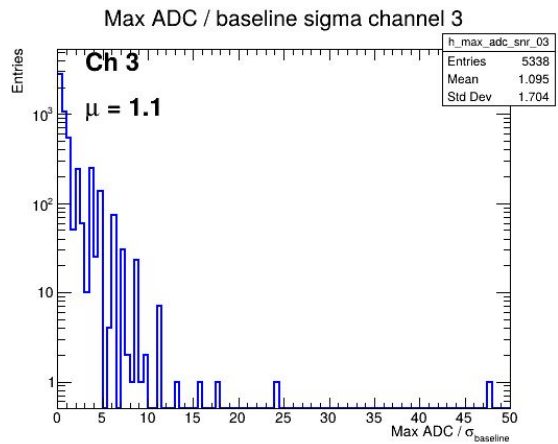
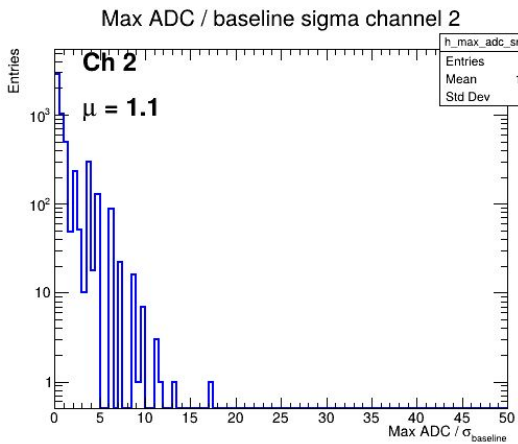
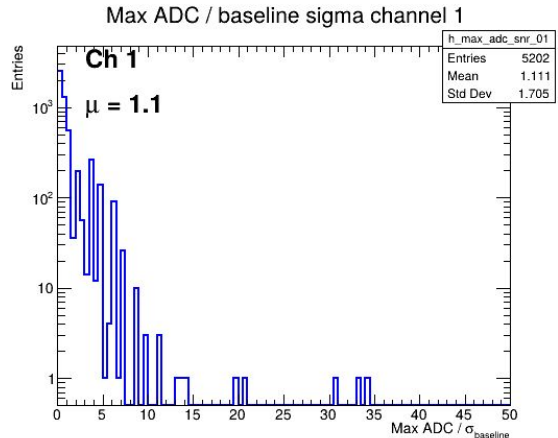
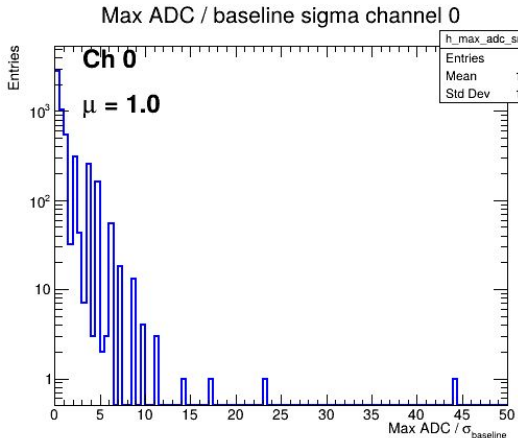
Max ADC channel 4

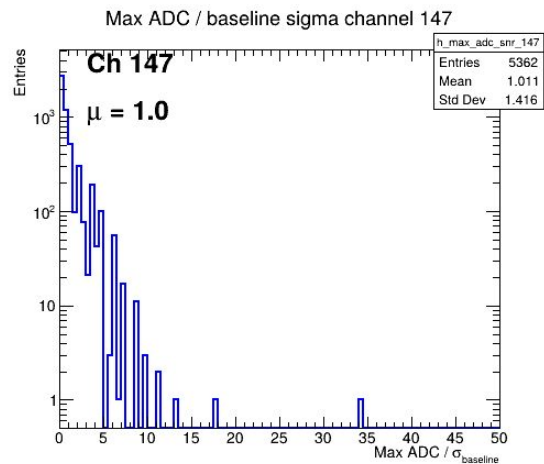
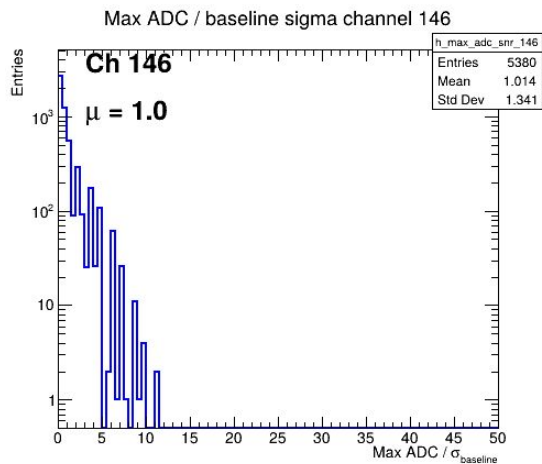
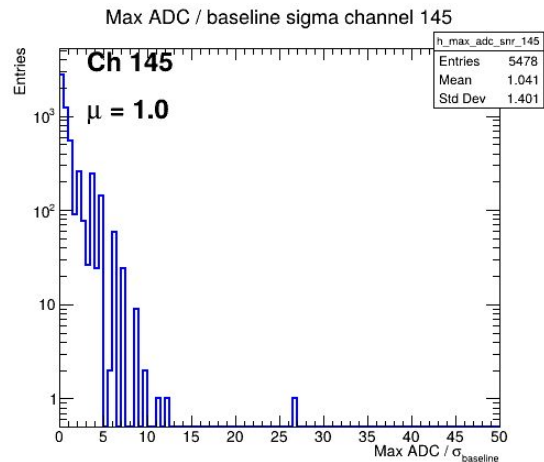
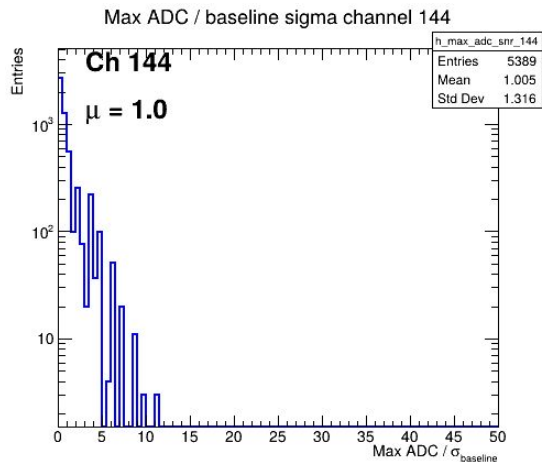


For each event, the maximum baseline-corrected ADC sample is plotted for each channel.

No channel exhibits a distinct MIP peak.

Expressing the signal in units of baseline sigma but does not improve MIP separation.





Settings :

SiPM HV: 41.70 V

SiPM I: 357 μ A

T1: 21.3 $^{\circ}$ C

T2: 17.8 $^{\circ}$ C

Number of events :

KCU0 : 2424

KCU1 : 2424

Beam info:

$\langle I \rangle = 0.71$ nA

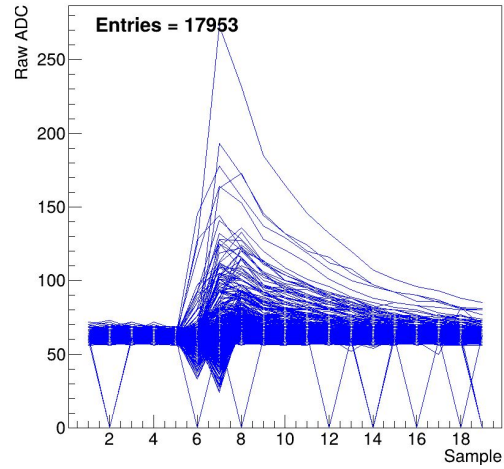
PS field: 0.562 T

Rad: 1.1×10^{-3} Al 100 μ m

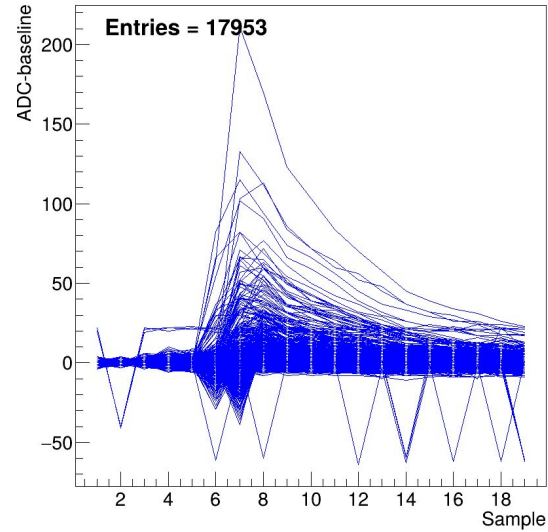
PSrad: HOME (out of beam) @ 0.000 mm

TPOL: C (Be $\sim 750\mu$ m?) @ 101.667 mm

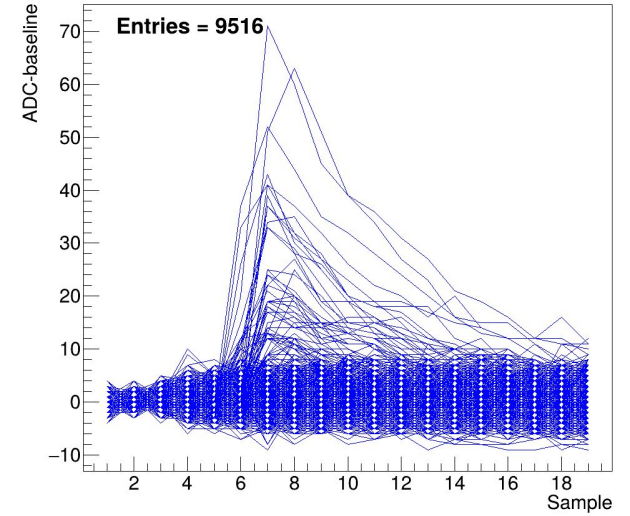
All 20 sample events before bad event sorting channel 0



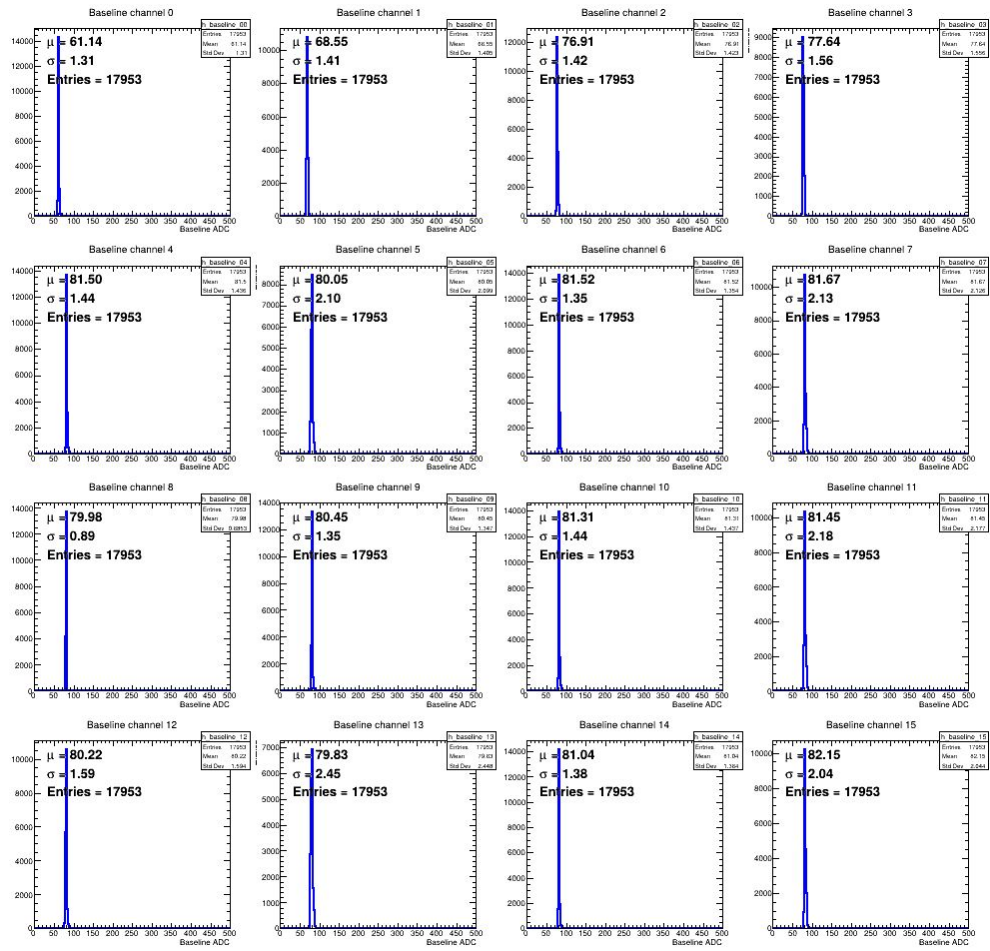
All 20 sample events before bad event sorting channel 0



Good events only channel 0

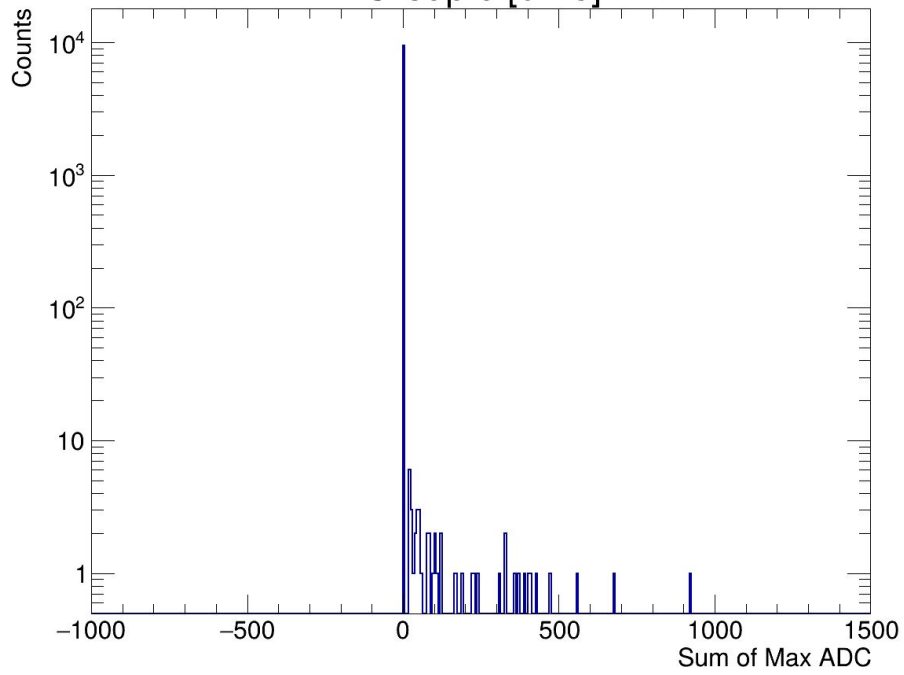


RUN 597 : (05/02/2026)KCU0 ASIC 0 : SFIL 1



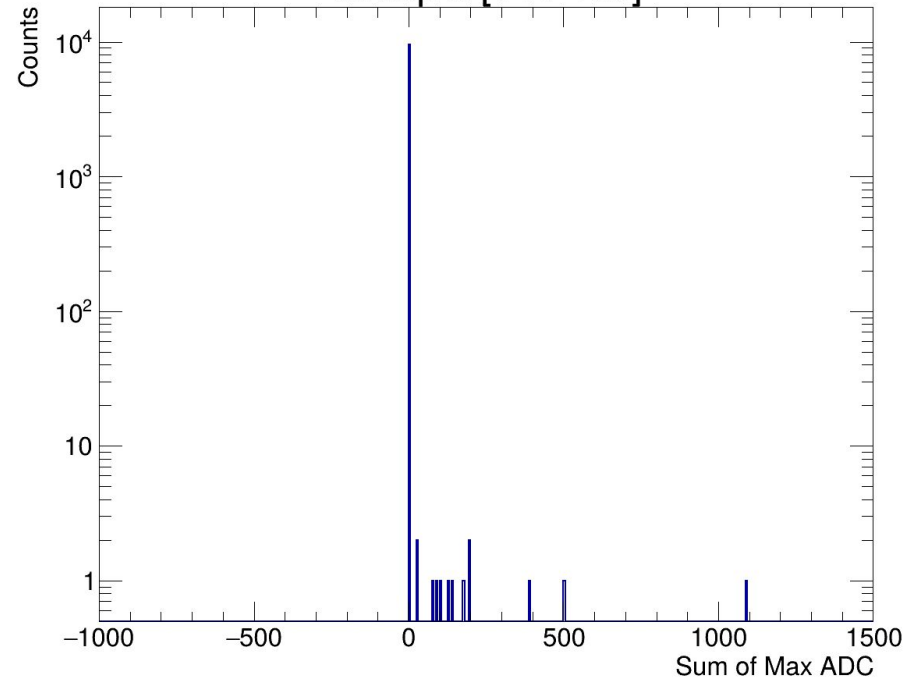
ASIC 0 : SFIL 1

Group 0 [0-16]

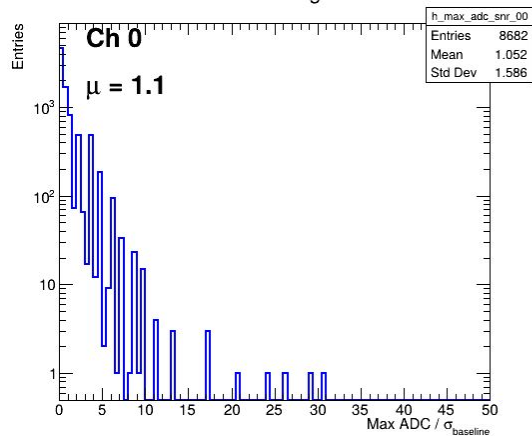


ASIC 2 : SFIL 2

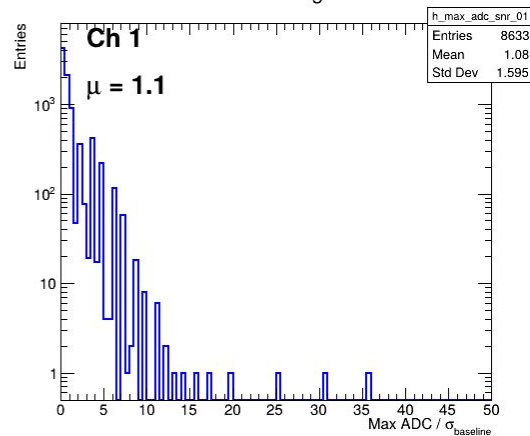
Group 8 [144-160]



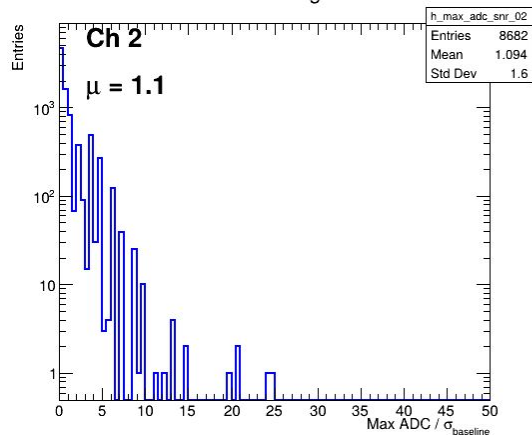
Max ADC / baseline sigma channel 0



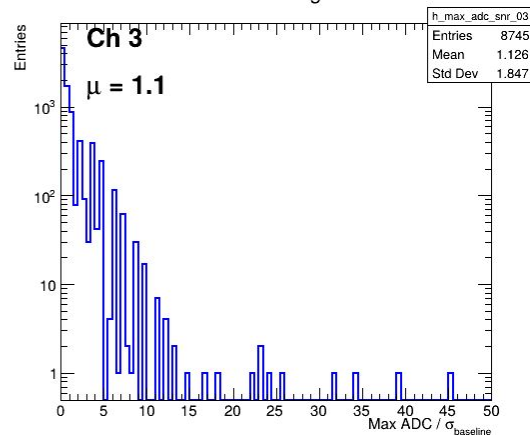
Max ADC / baseline sigma channel 1

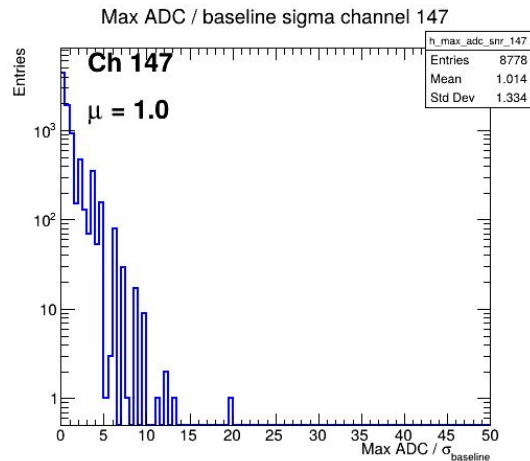
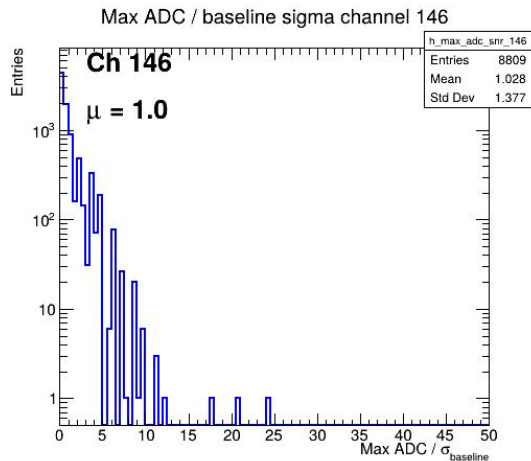
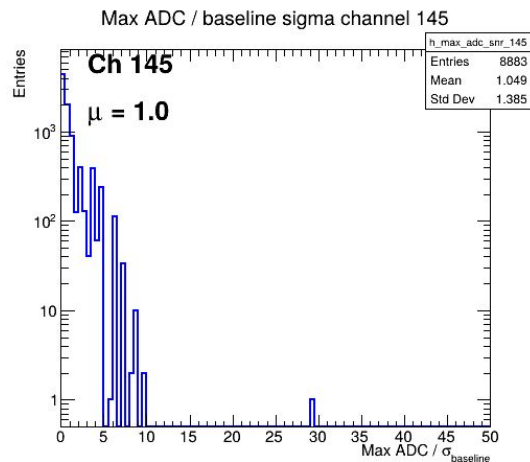
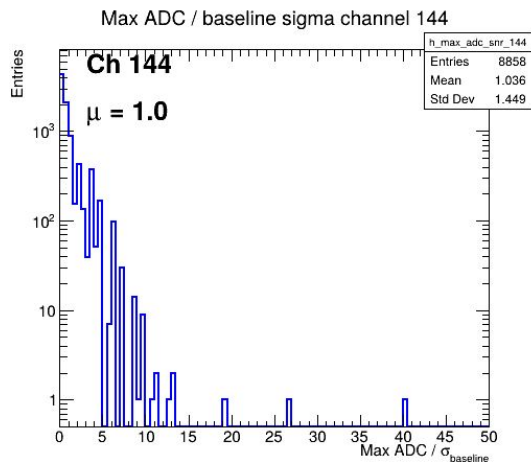


Max ADC / baseline sigma channel 2



Max ADC / baseline sigma channel 3





Next Steps :

- Look into runs after KCU calibrations
- Template Fitting