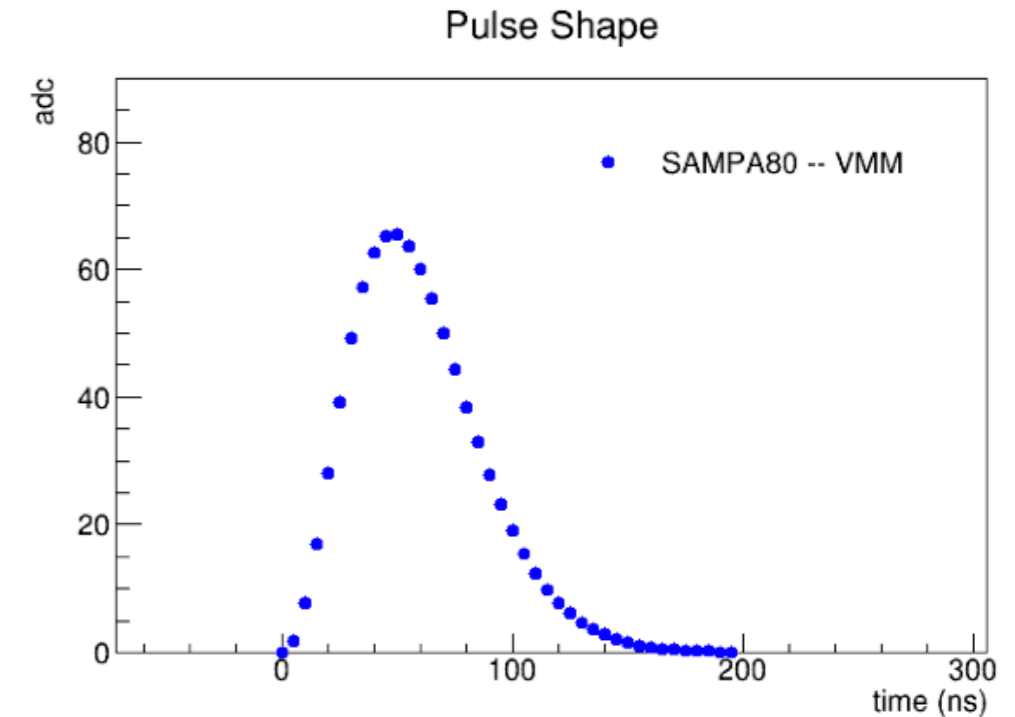
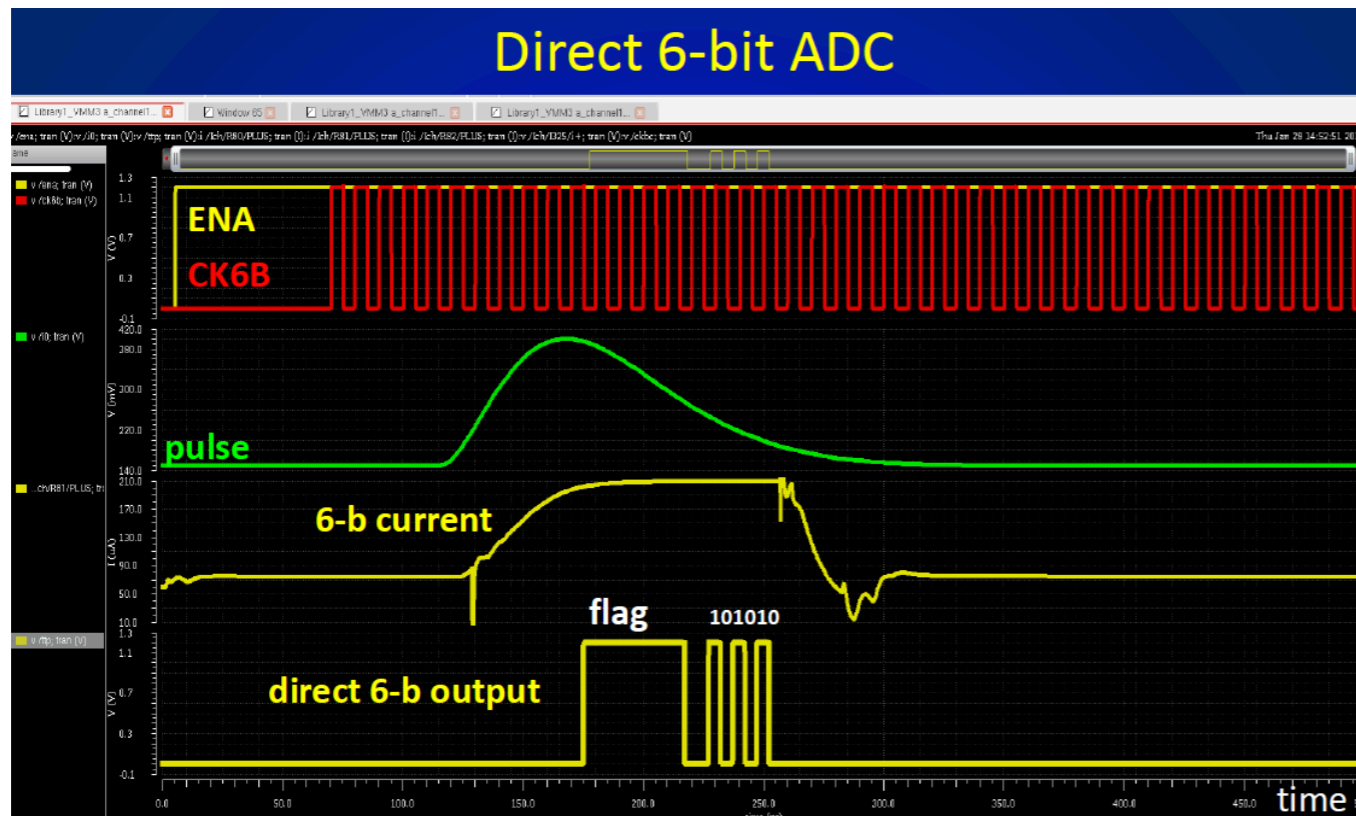


VMM Simulation

Jinlong Zhang
May 21, 2019

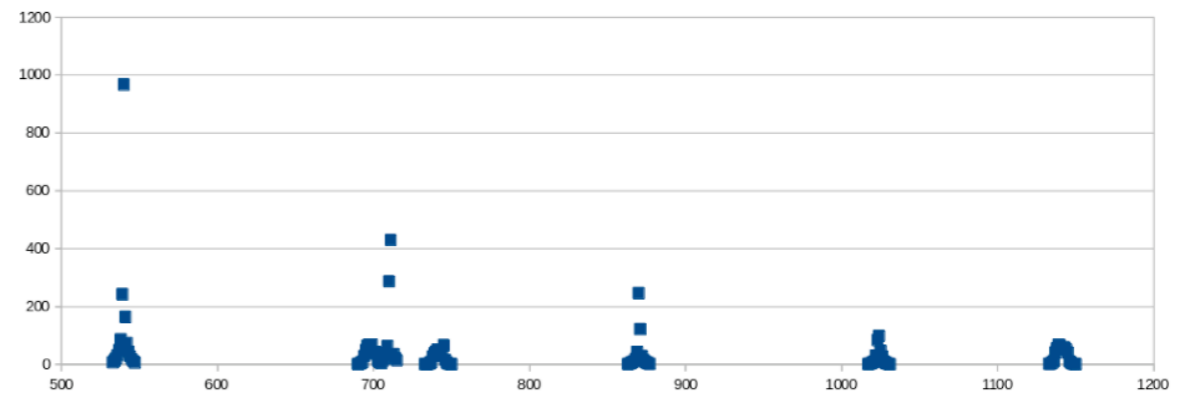
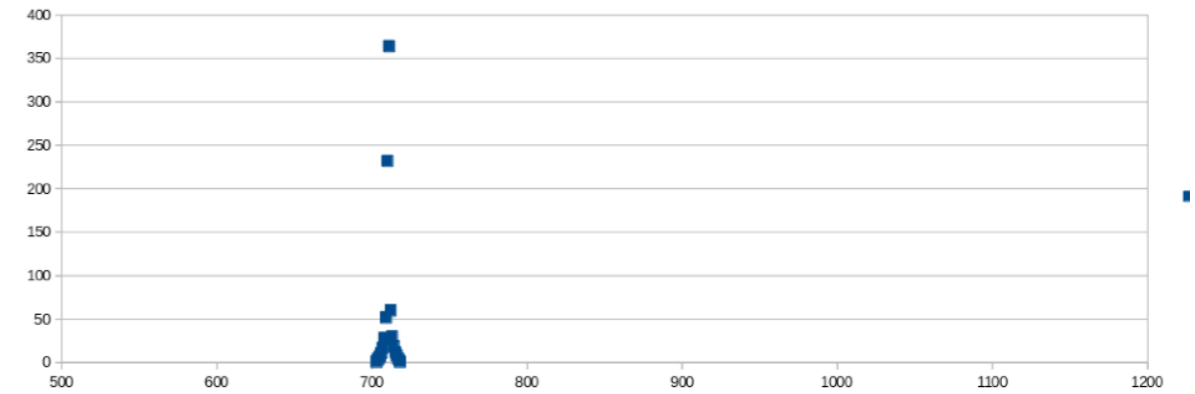
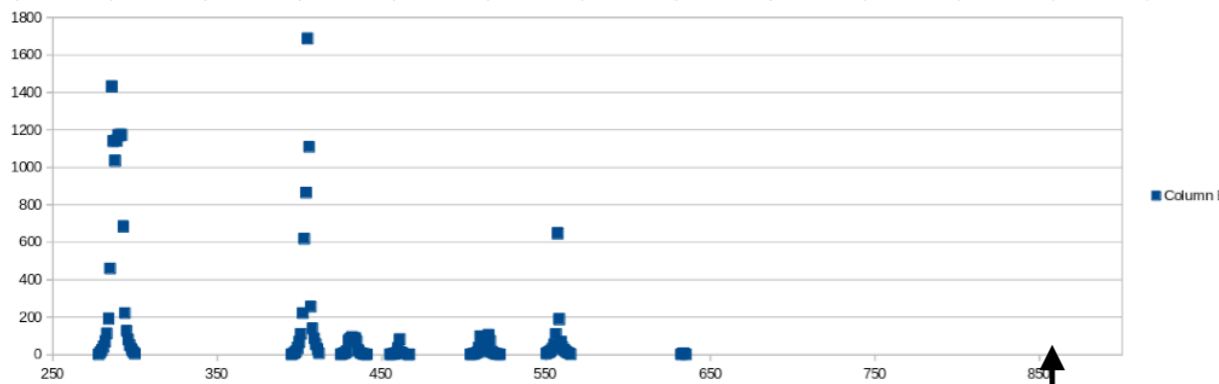
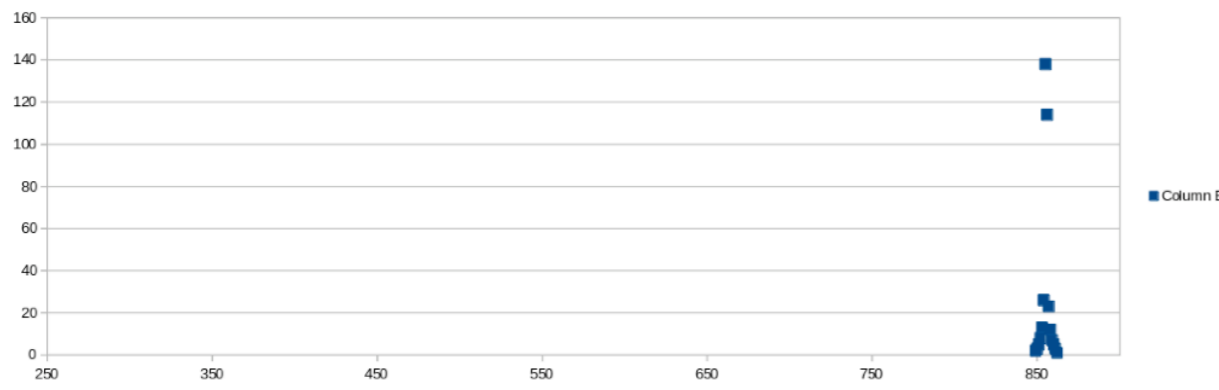
VMM pulse shape



- Accept cumulated pulse at Leading edge (50ns)
- Once found a peak (flag = 1), dead time (40ns)
- If trigger comes before peak is found, VMM will give 6-bit ADC output
- If background comes before trigger ($-90 < t < -50$), the flag = 1 (dead time) will cover trigger signal and signal hits.
- If background comes before trigger ($t < -90$), self reset before trigger. No impact.
- If background comes before trigger ($-50 < t < 0$), trigger comes before peak found. -> will output a ADC (background)
- If background comes after trigger ($t \geq 0$), it will be not distinguishable as signal.

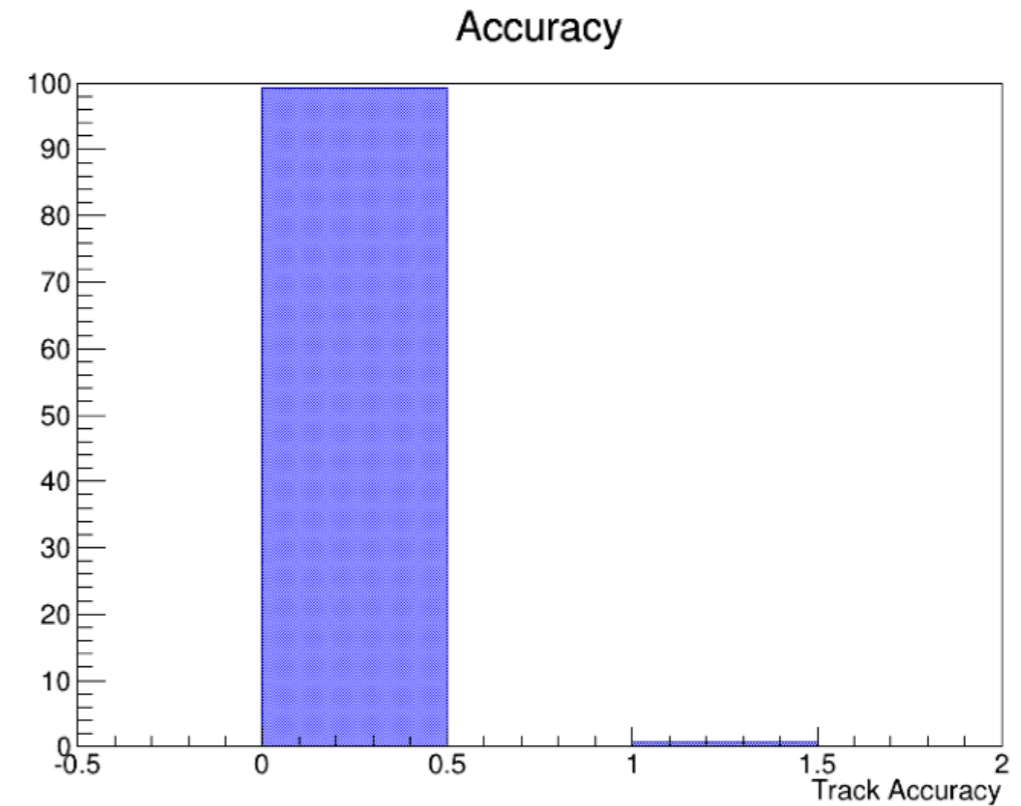
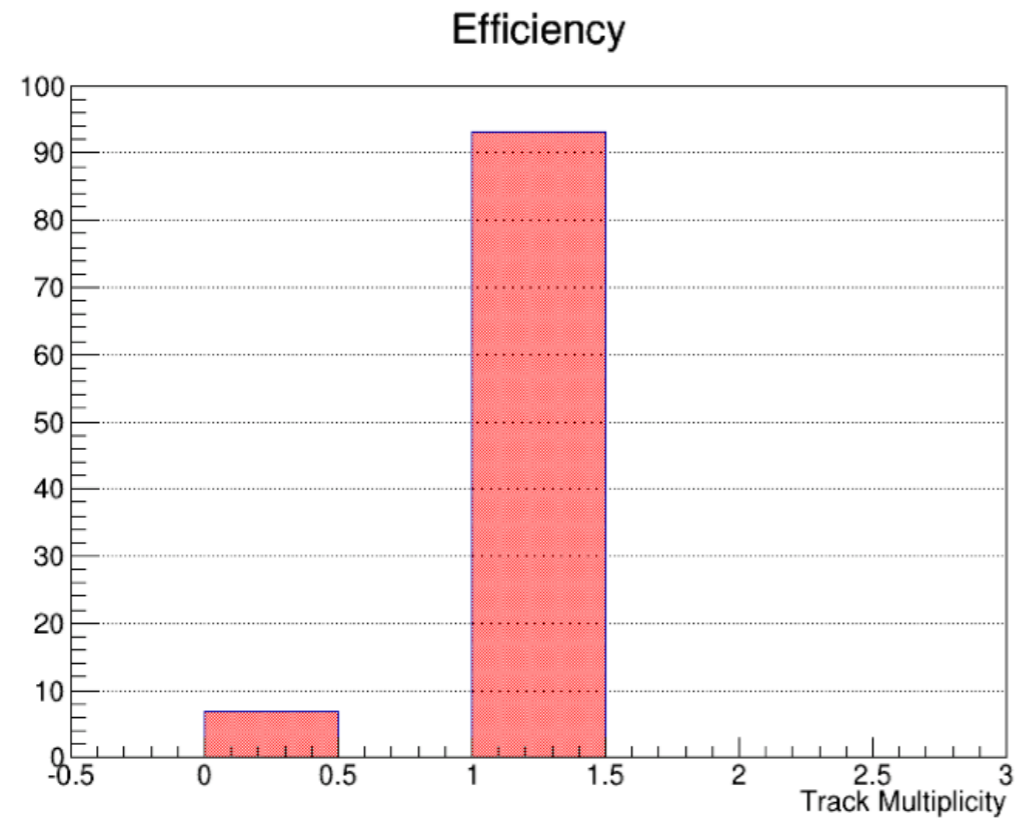
Two examples

Up: 0% background
Down: 100% background



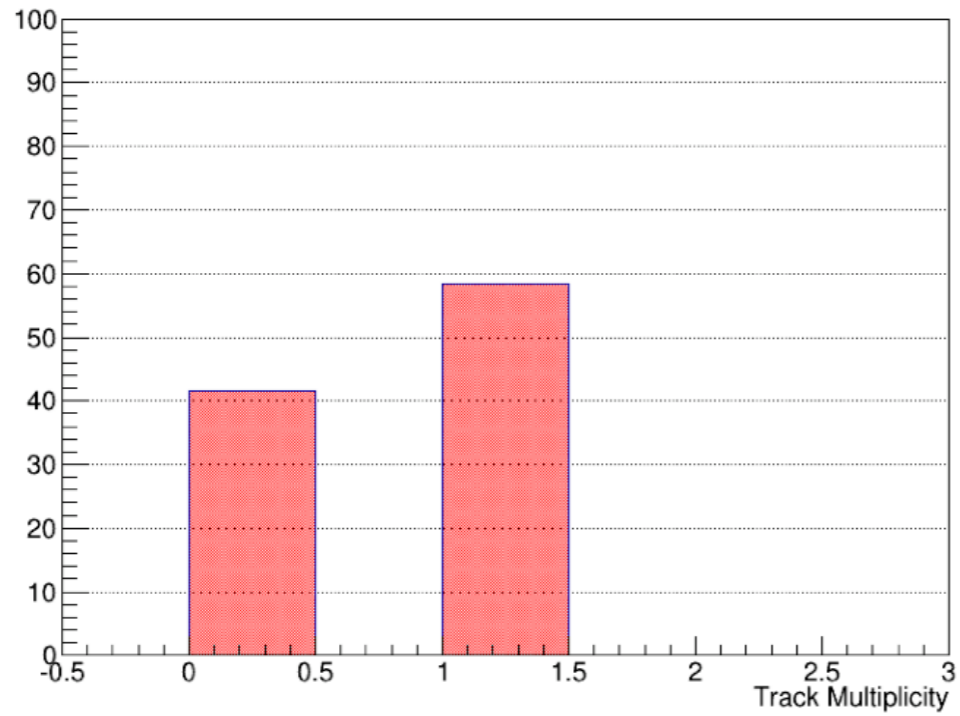
Located at dead-time

Test with 0% background

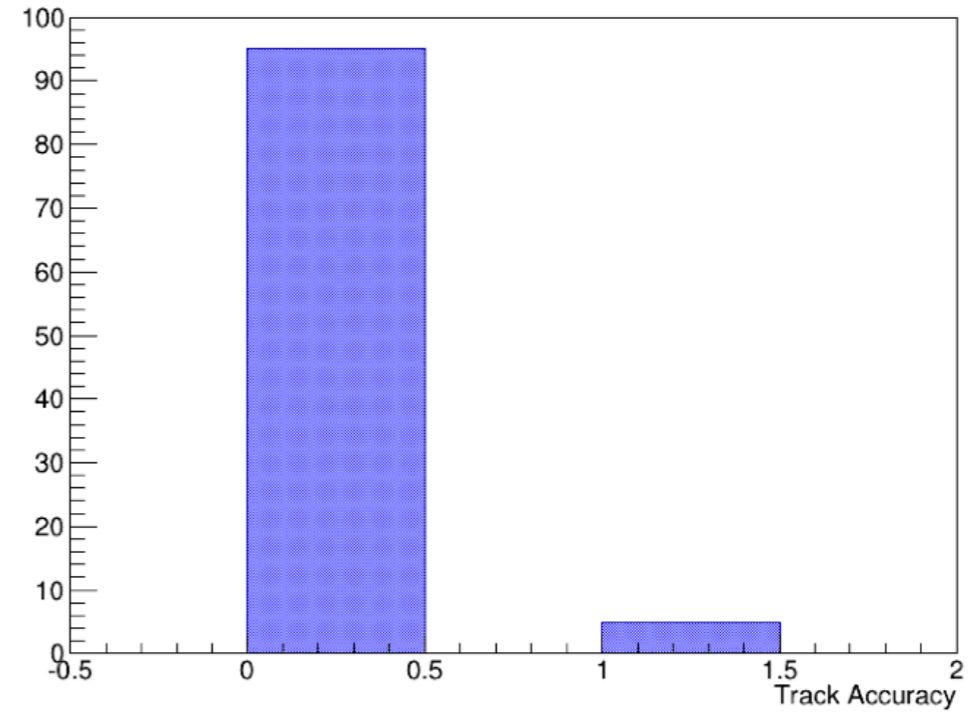


%100 and 50%

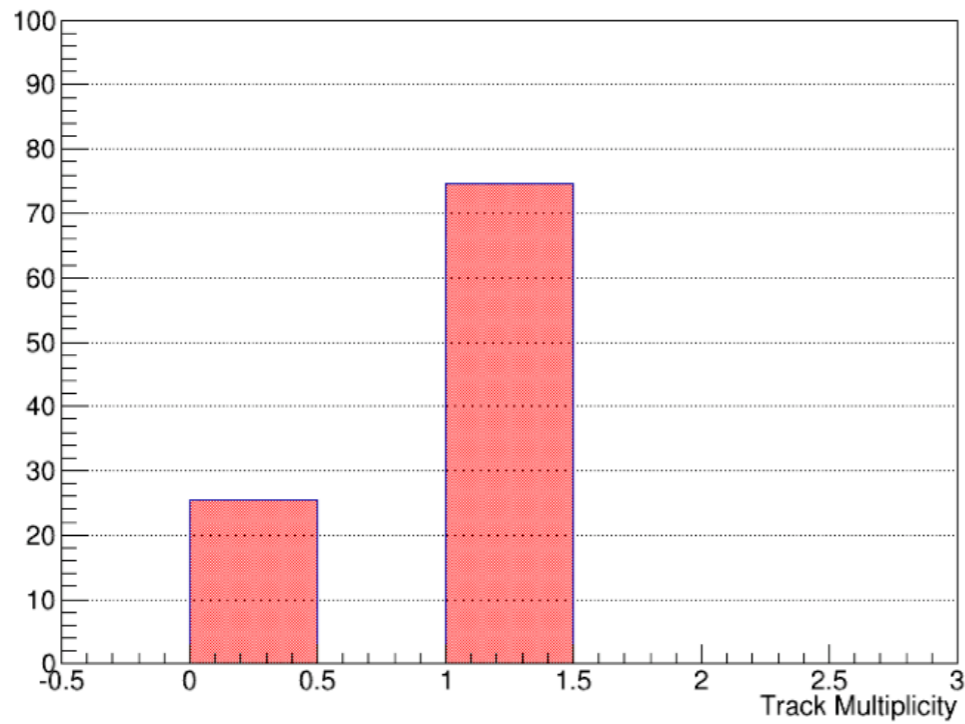
Efficiency



Accuracy



Efficiency



Accuracy

