

Threshold Scan Measurements TDC & ADC

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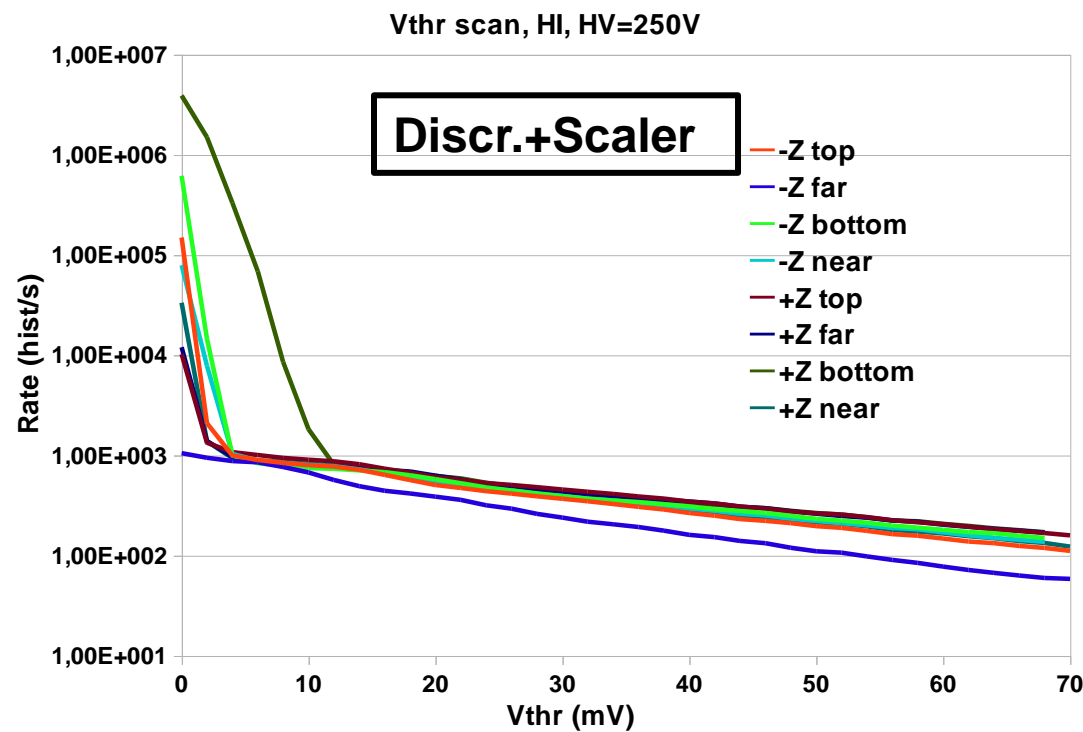


Threshold Scans – changing threshold in BCM1F and measuring every second how many MIP's detected.

Plot shows results from BCM1F TDC + Discriminator + Scalers analysis. Thresholds were set with step 2 mV.

There is 8 mV shift between software and hardware values. (Calibrated by Elena)

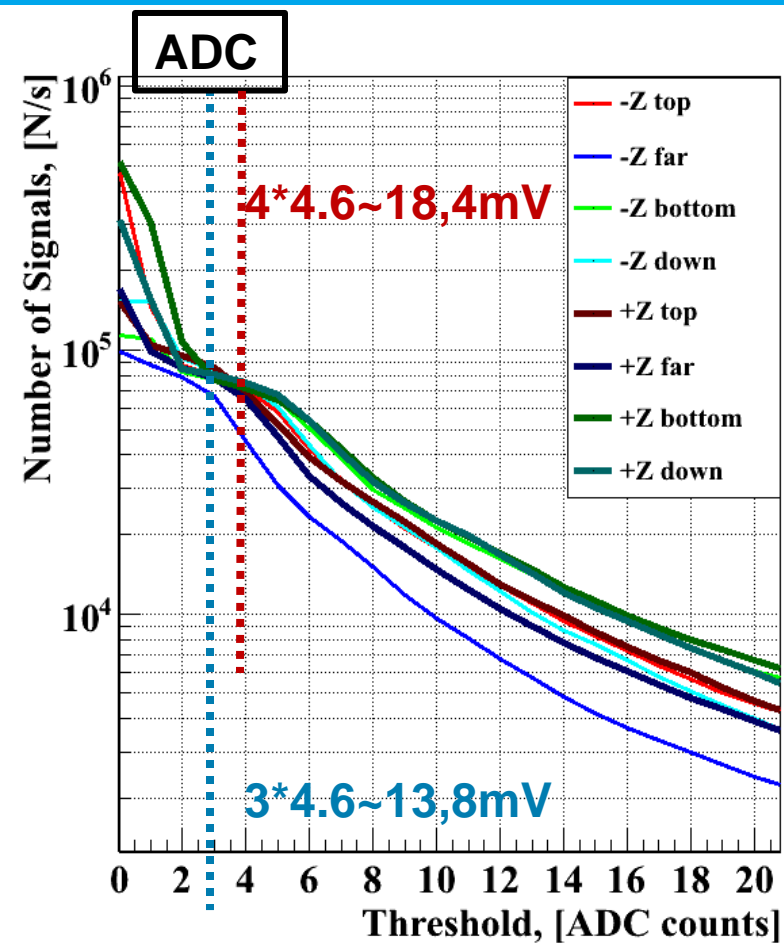
**-Z far channel has low noise peak.
+Z bottom has higher gain and higher noise peak.
6 other channels repeat each other.**



**To compare with ADC data analysis →
Scan over amplitude spectra was done
with step of 1 ADC channel.
Calibration between ADC and TDC was
measured – 1ADC channel – 4.6 mV**

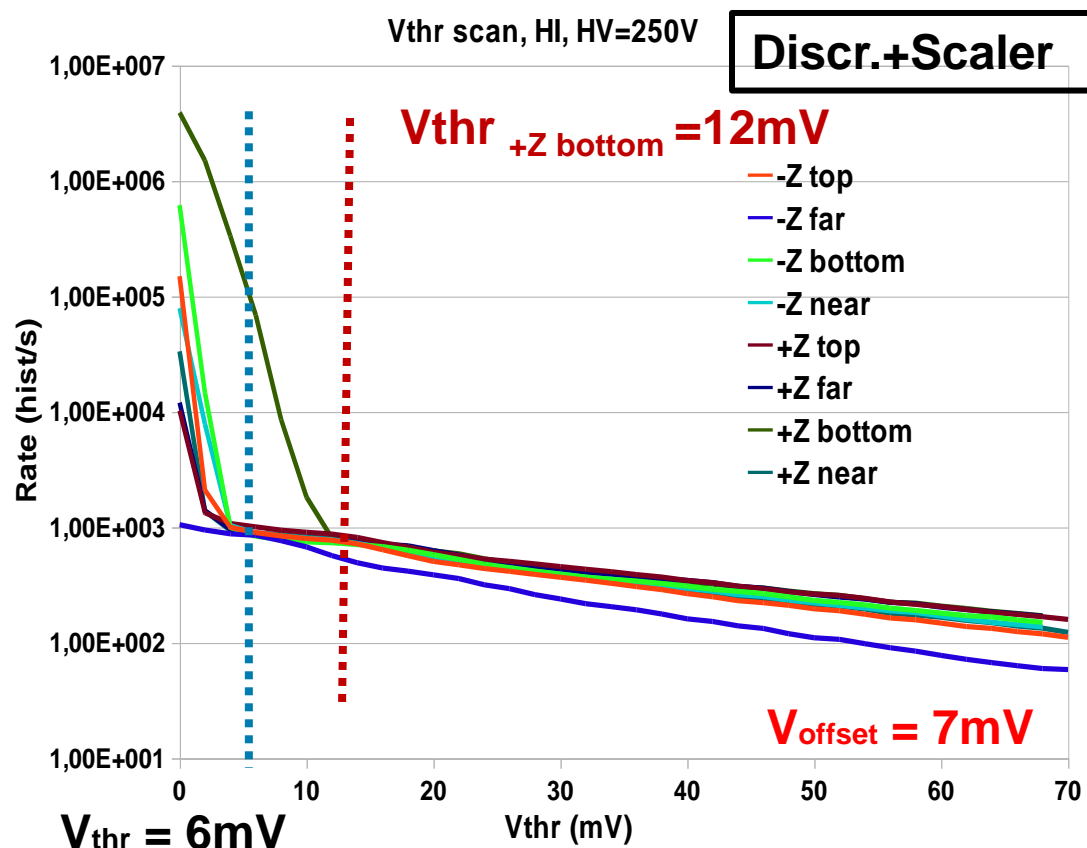


Comparison of V_{thr} scans with ADC and discriminator+scaler



Agreements:

In rates of +Z bottom and -Z far
In coincidences in values of V_{thr}



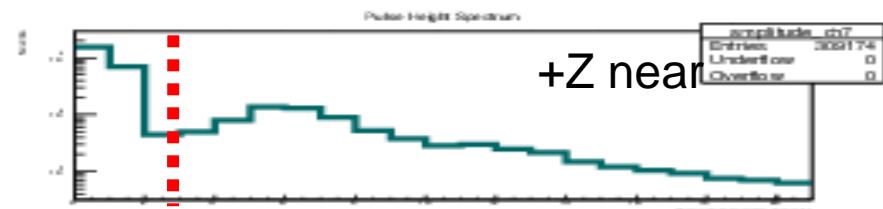
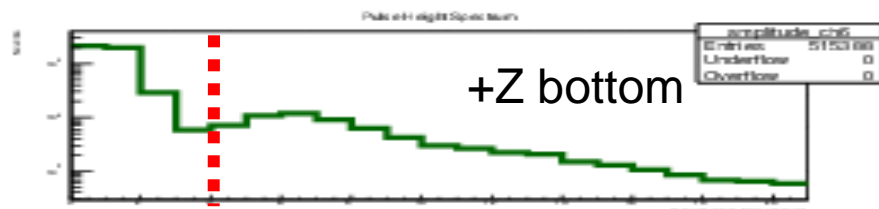
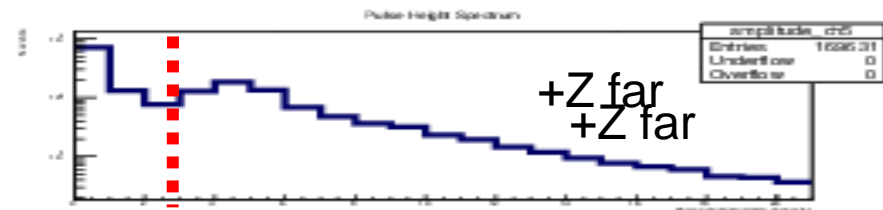
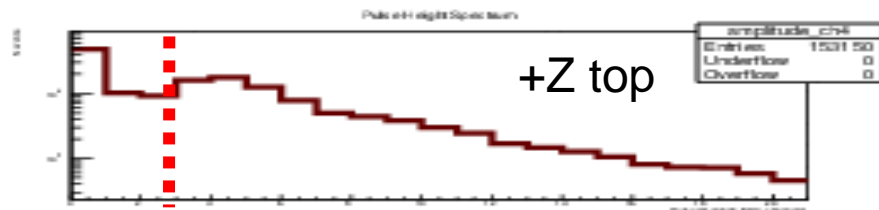
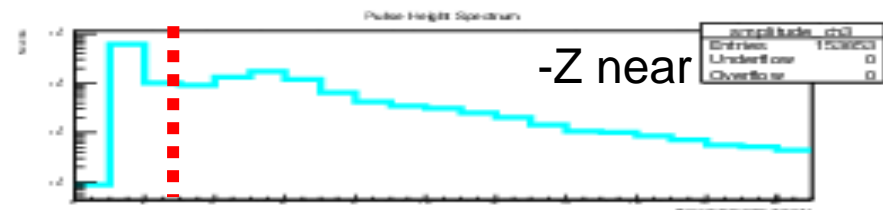
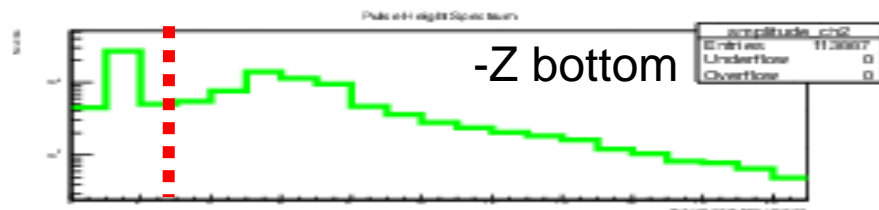
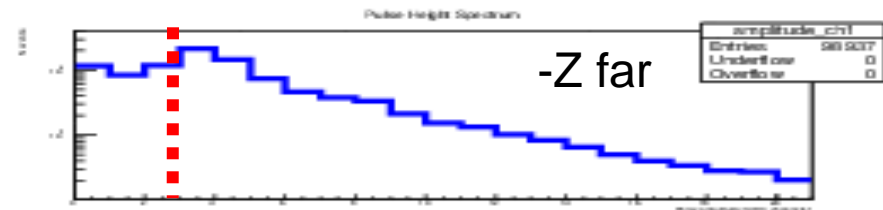
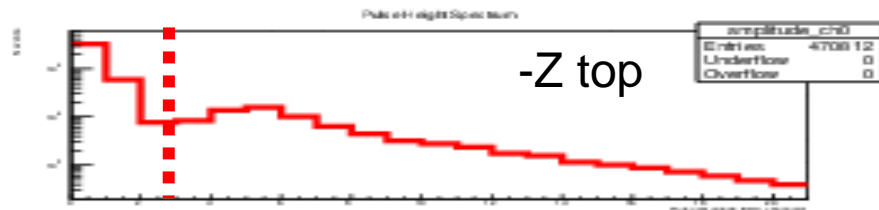
Measurements above are without offset correction. $V_{offset} \sim 7\text{mV}$.

$V_{ADC} \sim 13.8 \text{ mV} \quad \text{=====} \quad V_{TDC} \sim 13\text{mV}$

$V_{ADC} \sim 18.4 \text{ mV} \quad \text{=====} \quad V_{TDC} \sim 19\text{mV}$



Thresholds in ADC spectra and Thresholds in TDC



Thresholds in ADC spectra – threshold of 3 ADC counts shown.
Corresponds to ~ 14 mV threshold of TDC.

Thresholds of Discriminators:

CH (mV)	-Z top	-Z far	-Z bottom	-Z near	+Z top	+Z far	+Z bottom	+Z near
Discr. Settings	-10	-8	-8	-8	-8	-8	-14	-8
Discr. Offset	-7	-7	-7	-7	-6	-6	-7	-6
Real discr. Vthr values	-17	-15	-15	-15	-14	-14	-21	-14

Thresholds in discriminators and discriminator offset are shown together with final discriminator values.

Discriminator values are set higher then shown before, but in 1-2 mV.

Threshold scans obtained by TDC and ADC are in agreement.

Discriminator offset can be checked.



Back Up Slide – ADC - 10^6 triggers statistics

