

d_2^n Big Bite Gas Cerenkov Analysis

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1 BB Cerenkov Good Electrons

- TDC Cuts
- Mirror Cuts
- PhotoElectrons

BB Cerenkov TDC Signals for Runs 2204,2207,2208

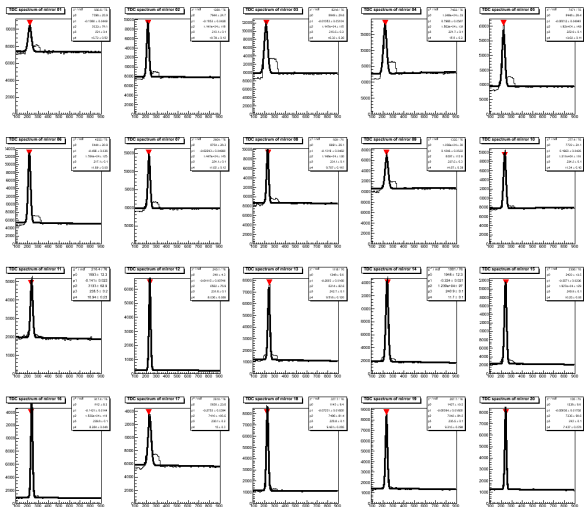


Figure 1: 20 TDC signals from the BB Cerenkov.

BB Cerenkov TDC Signals

BB Cerenkov TDCs

- Small angle side TDCs seem to have a raised plateau.
 - Due to randoms?
- Raised plateau region was used as ADC cut.
 - Shows mostly pedestal.

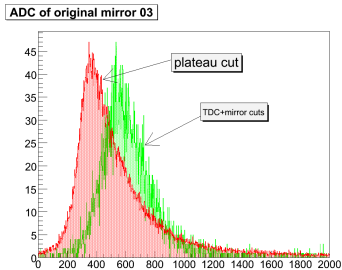


Figure 2: ADC spectrum with plateau cut

Mirror Locations

Mirror Locations

- Found by plotting $BB.tr.x+.8*BB.tr.th:BB.tr.y+.8*BB.tr.ph$ and making a TDC cut.
- Hot spot is then selected as of mirror location.
- Appears to be some cross talk on mirror 13 (happened after an access,in earlier runs this was not present).

Mirror Locations

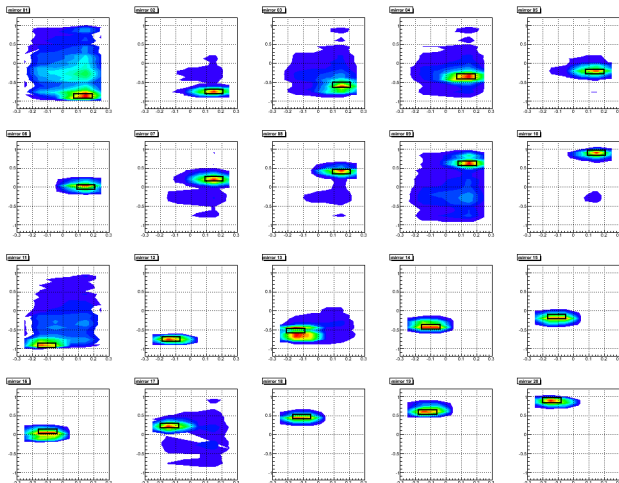


Figure 3: Mirror locations for BB Cerenkov.

Mirror Cuts

Mirror Cuts and ADC

- Applying the cut to ADC signals, some pedestal remains.
- Using TDC+Mirror cut removes pedestal.

ADCs with TDC and Mirror cuts

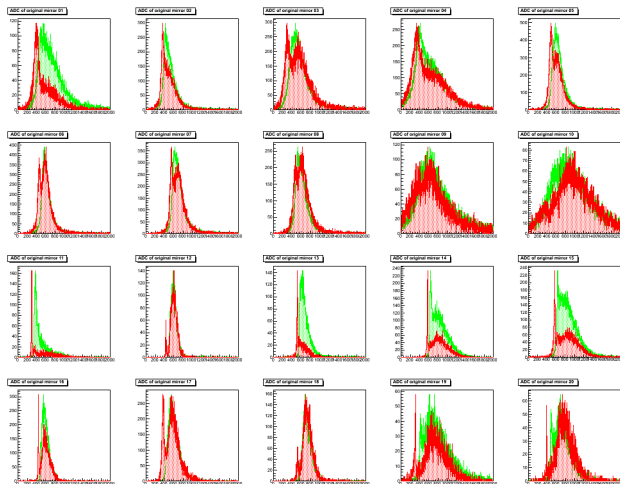


Figure 4: ADC with TDC cut(green) and Mirror cut(red).

TDC Cut

TDC Cuts

- TDC+Mirror Cuts seem to clean up ADC spectrum pretty well.

ADC of TDC+Mirror Cuts

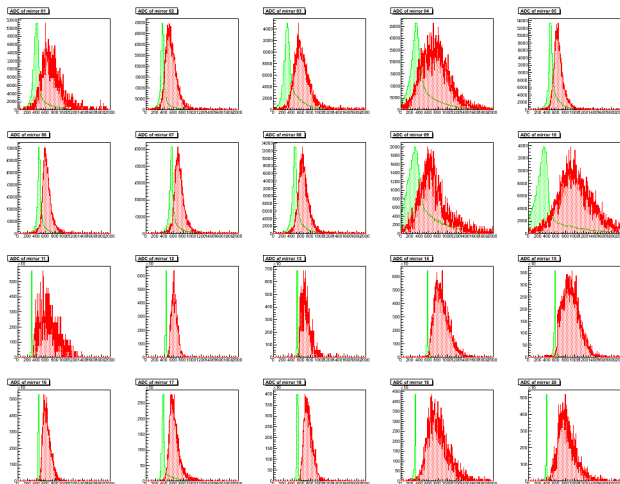


Figure 5: ADC spectrum with TDC+mirror cut(red) and off mirror cut(green)

PhotoElectrons

Number of PhotoElectrons

- Using the gains found from the 5/12/09 One PhotoElectron peak.
- Number of average photo-electrons is about 10.

Gain Calibrated ADC

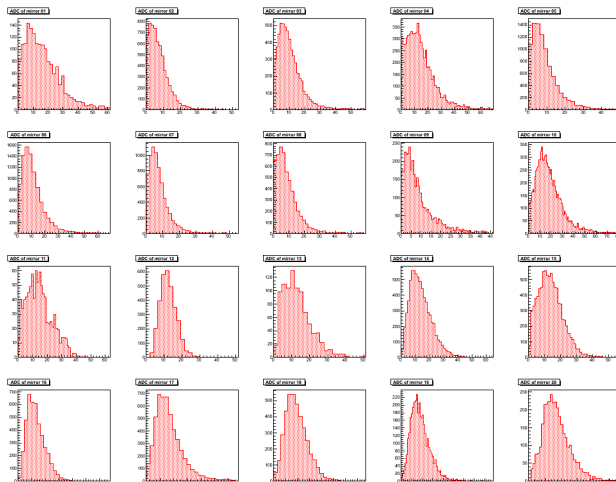


Figure 6: Gain Calibrated ADC spectrum

Summary

Summary

- TDC+Mirror cuts clean up the ADC well.
- Number of photo-electrons is about 10.
- Appears to be cross talk on TDC 13 for the later runs.

To-Do

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- Correct cross talk
- Collect electrons lying on mirror edges
- Make ADC sum
- Finish implementing `MakeSelector()` to speed up analysis.
- Start Target Analysis?

Mirror Cuts

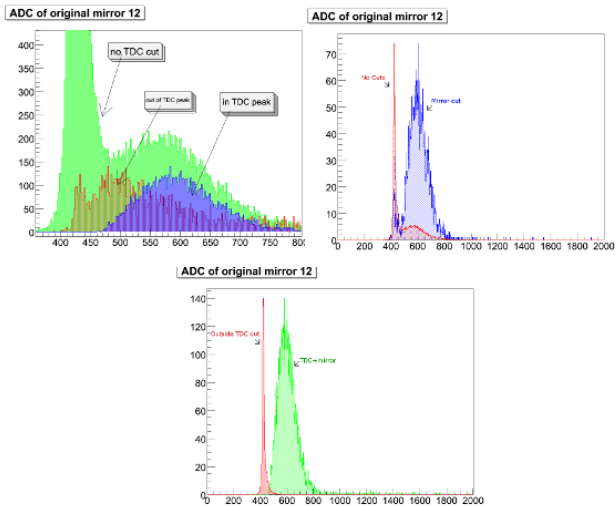


Figure 7: Mirror and TDC cut comparisons