

LED Monitoring Studies

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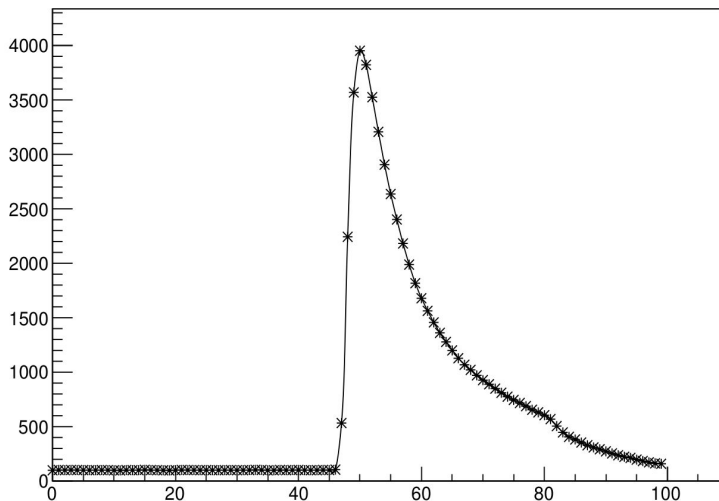


Faculty of
Science

Analysis of BCAL LED special runs (Oct & Nov 2019 (Jon))

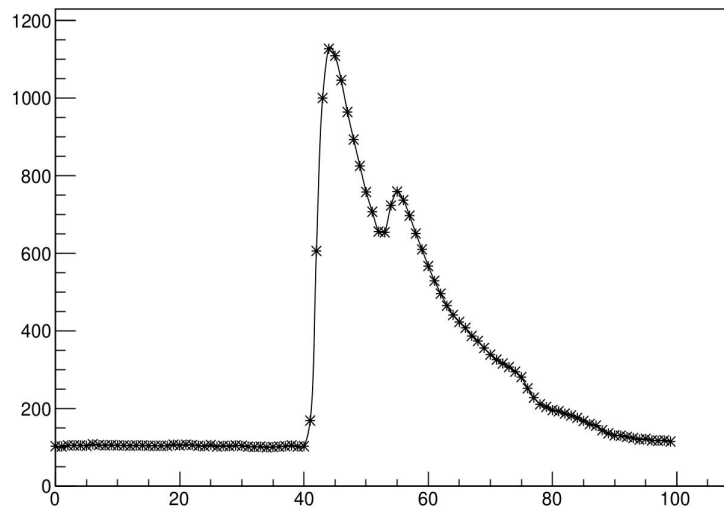
- ADC Pulse waveform for a single channel(single event) from raw data (Mod 10)
- Double peaks were observed (cross talk ? Reflection ?)
- Frequency of these double peaks vs channels
 - > For the previous 10 special runs (single channel pulsed)
 - > New runs taken by Jon (single sector pulsed)
- Ratio of second and first peak
 - > Time difference(from samples corresponding to peaks)
 - > Pulse peaks

Pulse Peak



Ch 365 , Event No 5 , 6V Upstream LED

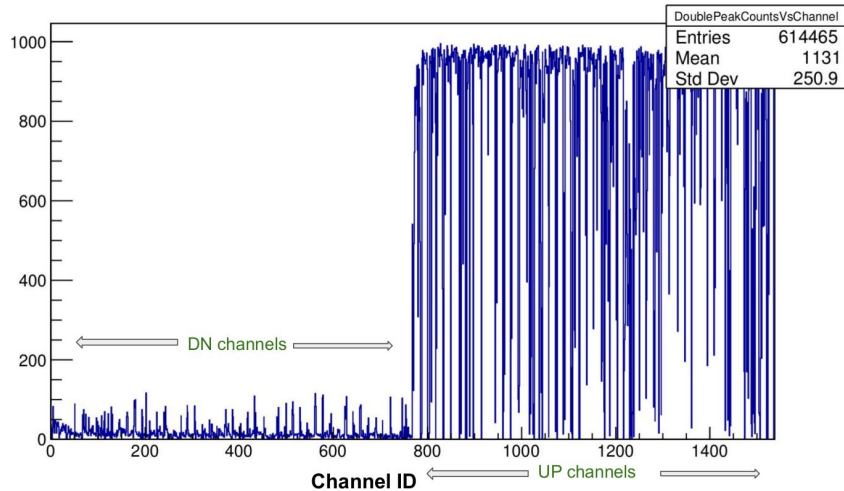
samples



Ch 1133 , Event No 5 , 6V Upstream LED

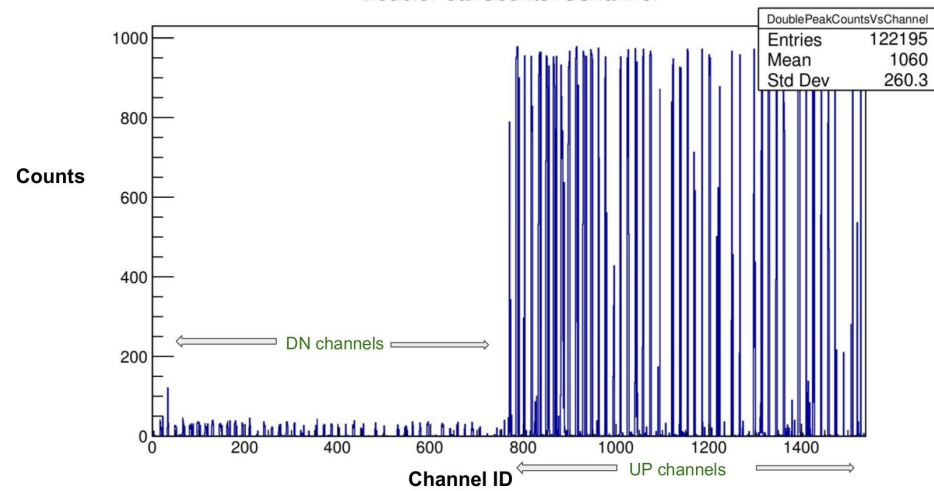
6V Upstream LED

DoublePeakCountsVsChannel



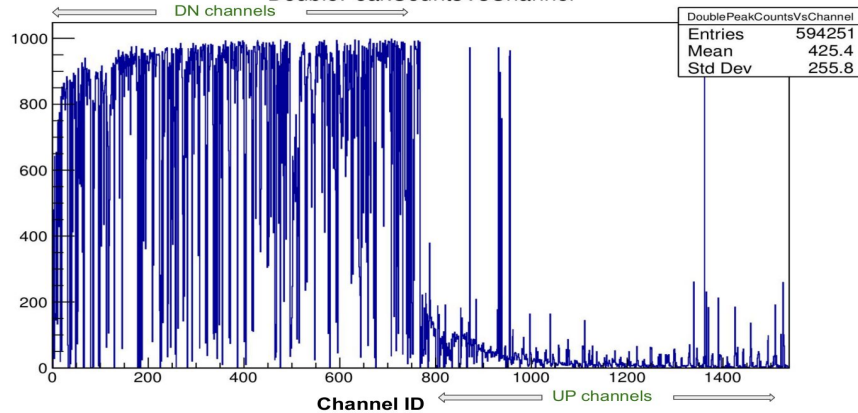
7V Upstream LED

DoublePeakCountsVsChannel



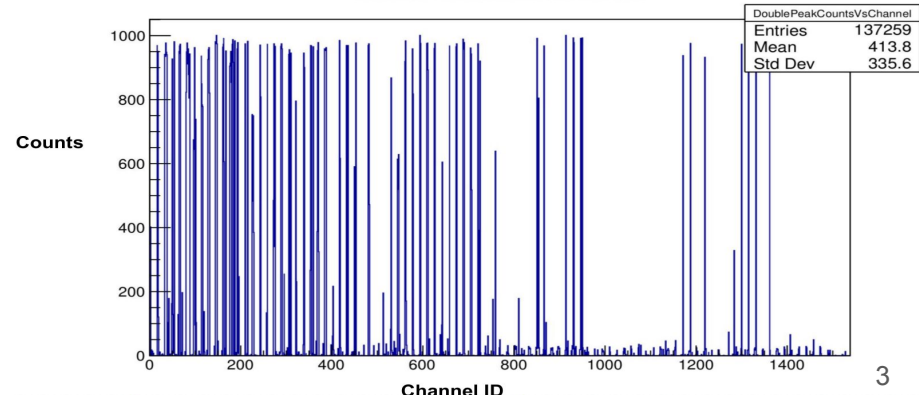
6V Downstream LED

DoublePeakCountsVsChannel

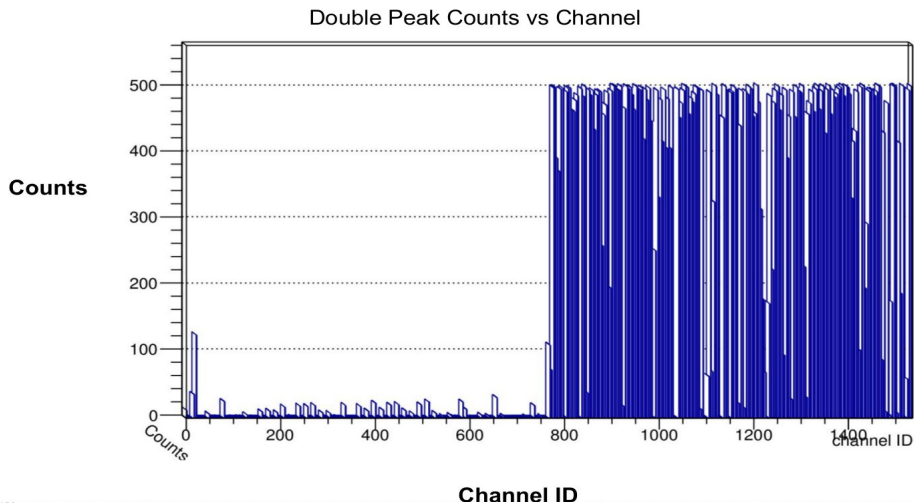


7 V Downstream LED

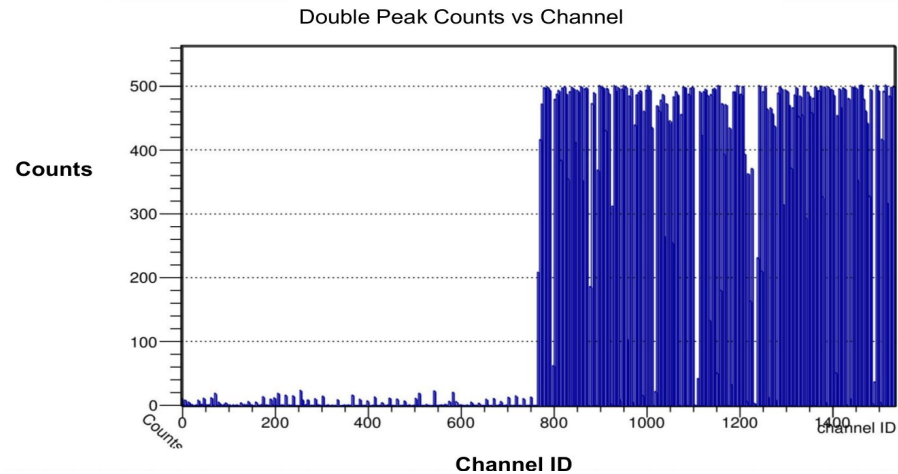
DoublePeakCountsVsChannel



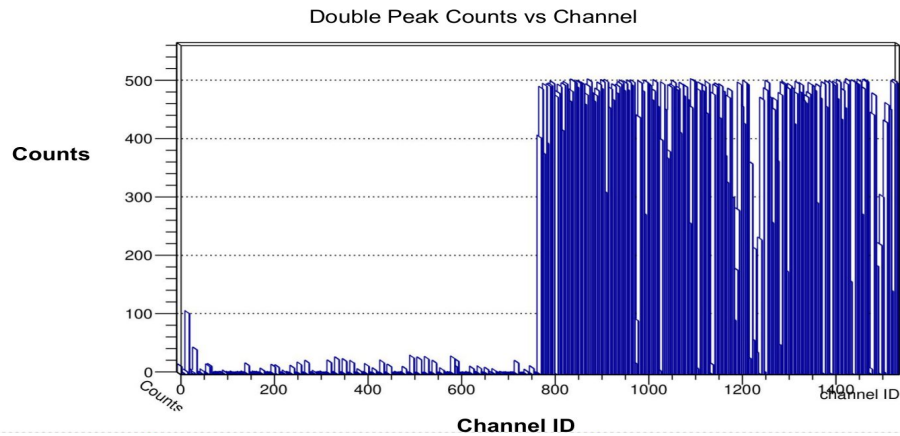
6.25 V Sector 2 UP LED pulsing



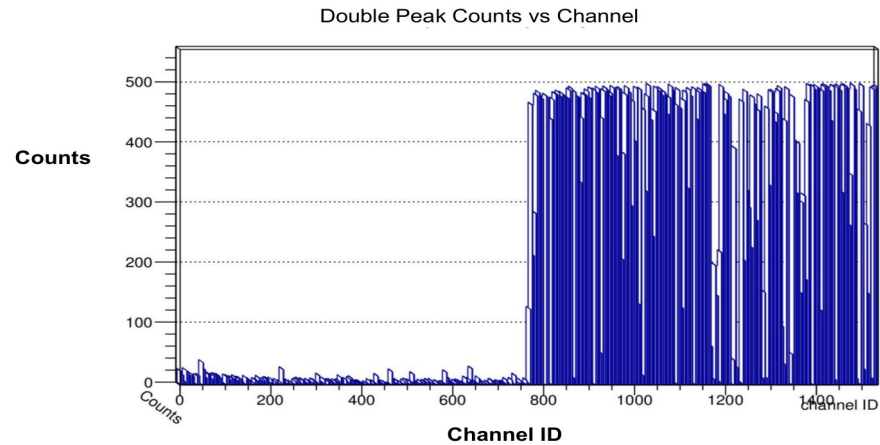
6.25 V Sector 1 UP LED pulsing



6.25 V Sector 3 UP LED pulsing



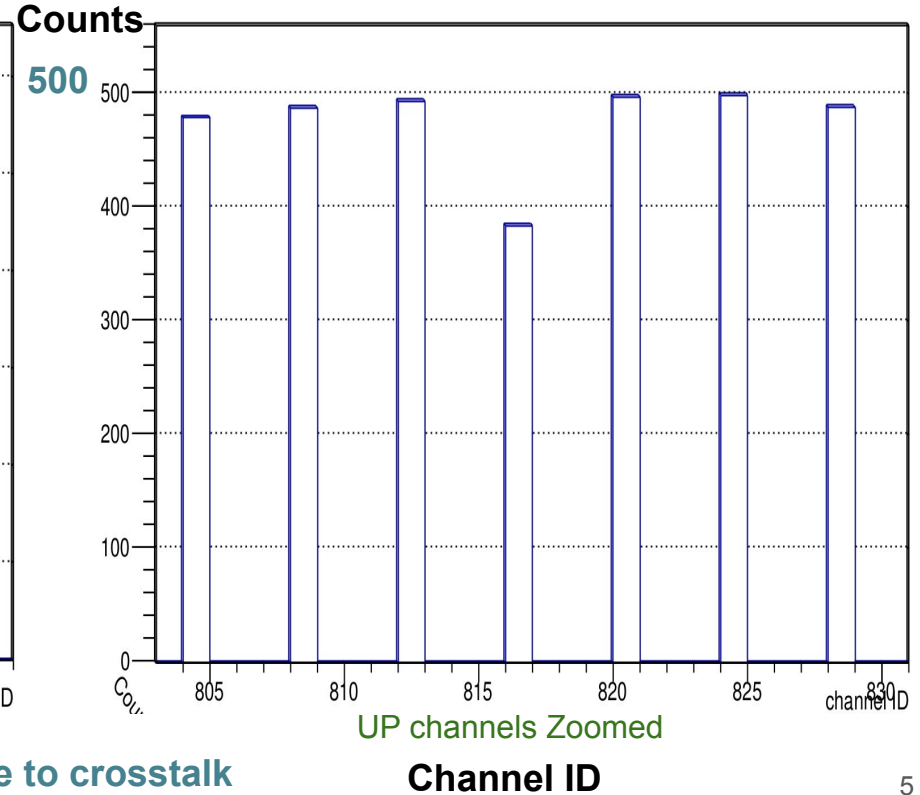
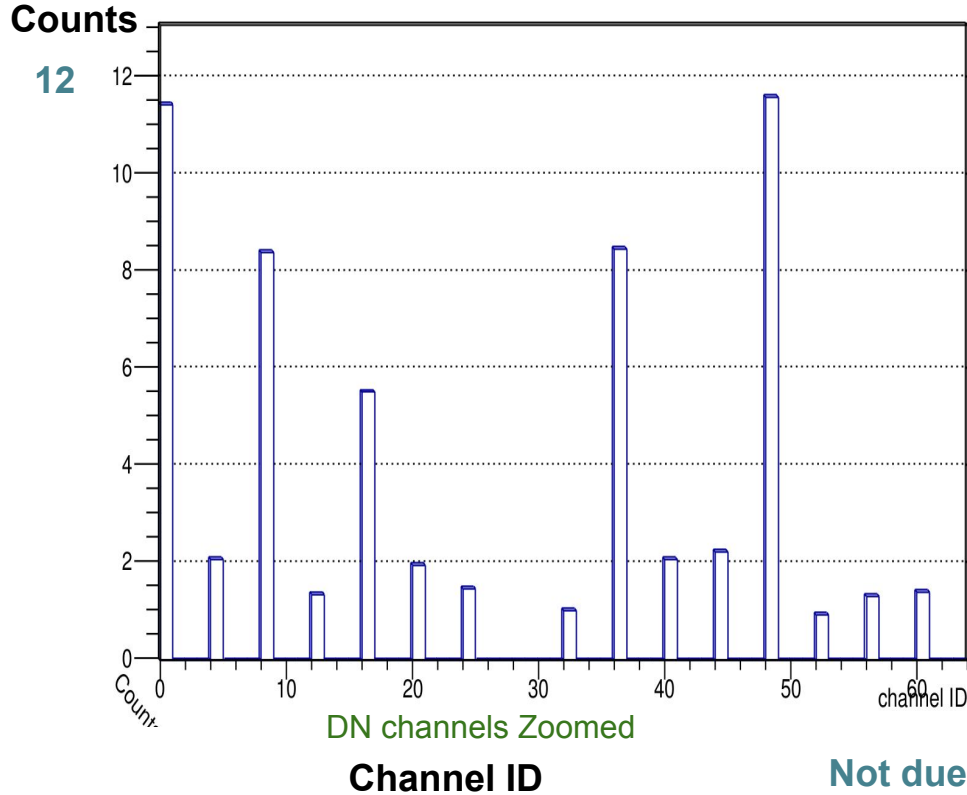
6.25 V Sector 4 UP LED pulsing



6.25 V Sector 1 UP LED pulsing (zoomed)

Double Peak Counts vs Channel

Double Peak Counts vs Channel

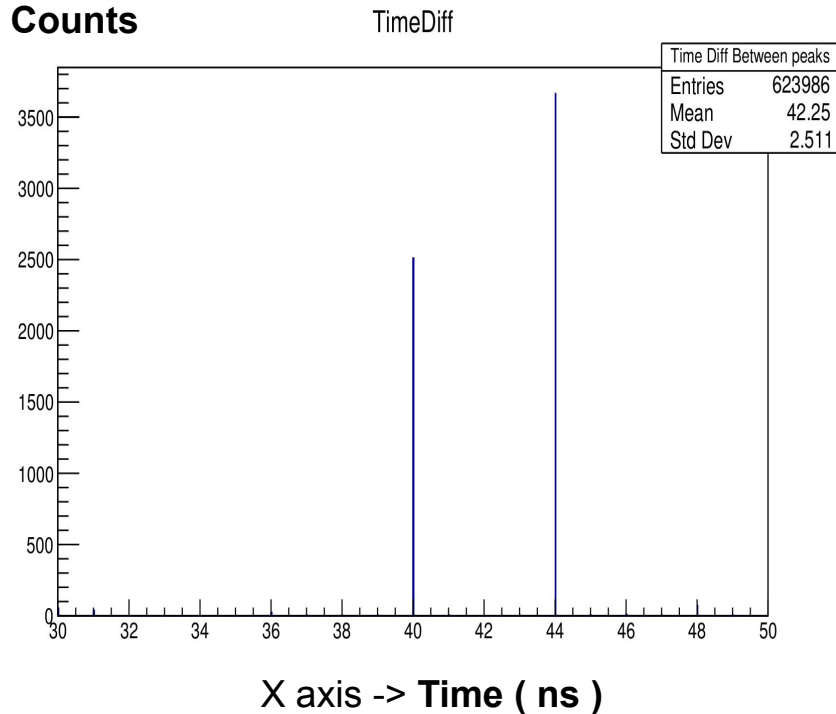


Not due to crosstalk

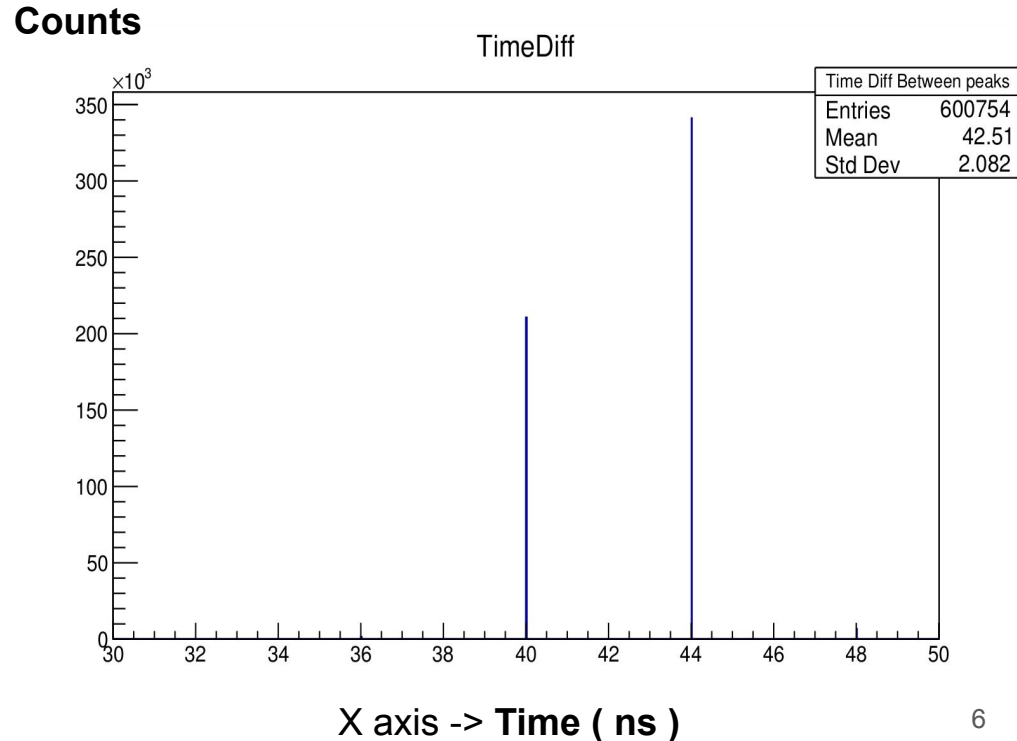
Reflection ?

- Checked the time difference between the peaks (Difference between the samples)
- 4 ns time between two samples
- So sample difference X 4 ns = time difference. Plotted histogram
- Mostly 44 ns ; But 46 ns to transverse back and forth in BCAL

6V Upstream LED



6V Downstream LED



Next Steps

- Checking the particular channels
- Missing events