ACD “coherent noise” events?

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From last time… (run 135005345)

# tiles vs fraction w/ both PMTs
(periodic triggers only)
Runs analyzed

• B-2 runs 135005345-5389 (23 runs)
  – TKR, CAL, CNO, periodic triggers
  – Entire LAT is on
  – Filter out events with condition summary >=32 (i.e. must have periodic trigger in the window); did this for digi files only
  – Also require zero tracker strips hit
# of tiles in events
(periodic trigger, no TKR hits)
Pick a good tile to look at…

PMT 0 below
Zero-suppress threshold

PMT 1 below
Zero-suppress threshold

Look at tile 4, PMT 1
Tile 4, PMT 1

# tiles in event < 10 (regular noise)

Pedestal mean (rms=8)
Tile 4, PMT 1

# tiles in event > 10 ("coherent noise")

Coherent noise? (peak ~15 counts above pedestal)
Tile 4, PMT 0
(no evidence of coherent noise)

Pedestal mean (rms=7)
review

• For periodic triggers, no tracker hits:
  ➢ 2 classes of ACD events, “regular noise” and “coherent noise” (1% of events)

• Looking at 1 PMT (tile 4, pmt 1) we find:
  ➢ Peak at ~15 adc counts above pedestal (~0.05 MIP) for “coherent noise” events
  ➢ Nothing unexpected in opposing PMT (tile 4, pmt 0)
Things to do…

- One possibility is to look at non-zero suppressed runs (B-13), see if ACD coherent noise can be identified
- Would like to make sure that the noise peaks remain at or below the level of ~0.05MIP
- Determine if the coherent noise gets worse at orbital operating temperature (analyze ACD triggered ops runs in TVAC?)