

EPIX10KA2M Charge injection fit issue 2021-05-20

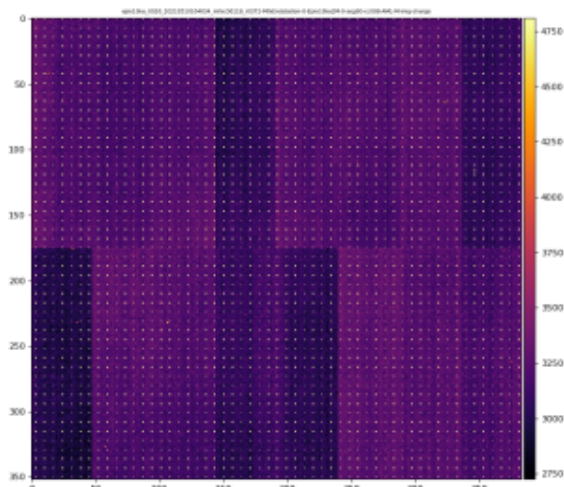
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Issue with non-uniform pulser intensity increment between events

Calib-cycle for AML-M

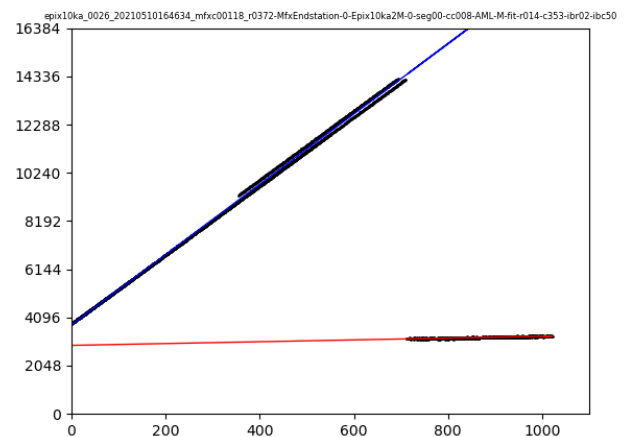
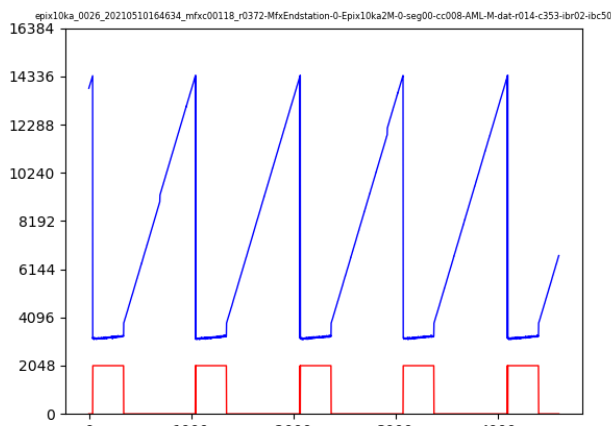
epix10ka_0026_20210510164634_mfxc00118_r0372-MfxEndstation-0-Epix10ka2M-0-seg00-cc008-AML-M-img-charge.png



Issue was seen earlier, recently reported by Philip due to poor fit Chi2.

epix10ka_0026_20210510164634_mfxc00118_r0372-MfxEndstation-0-Epix10ka2M-0-seg00-cc008-AML-M-fit-r014-c353-ibr02-ibc50.png

epix10ka_0026_20210510164634_mfxc00118_r0372-MfxEndstation-0-Epix10ka2M-0-seg00-cc008-AML-M-dat-r014-c353-ibr02-ibc50.png



Issues between events/records

- 694-695
- 2919-2920

- nevt - counter for any det.raw()
- nrec - counter for det.raw() is not None
- fid = evt.get(EventId).fiducials() **normal increment between events is 3**

```
nevt, nrec, fid: 0691 0691 102969
nevt, nrec, fid: 0692 0692 102972
nevt, nrec, fid: 0693 0693 102975
nevt, nrec, fid: 0694 0694 102978
nevt, nrec, fid: 0695 0695 103035
nevt, nrec, fid: 0696 0696 103038
nevt, nrec, fid: 0697 0697 103041
nevt, nrec, fid: 0698 0698 103044
```

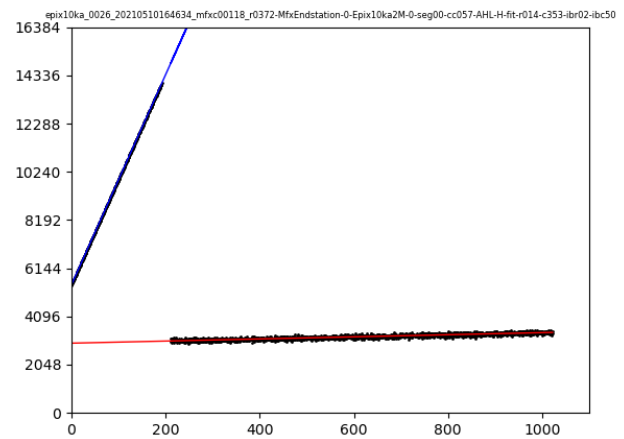
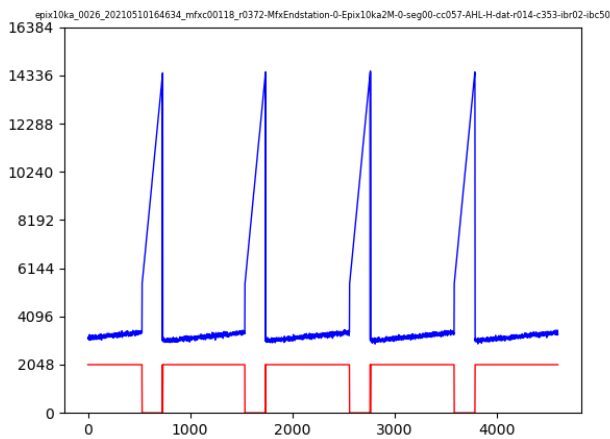
```
nevt, nrec, fid: 2916 2916 109698
nevt, nrec, fid: 2917 2917 109701
nevt, nrec, fid: 2918 2918 109704
nevt, nrec, fid: 2919 2919 109707
nevt, nrec, fid: 2920 2920 109764
nevt, nrec, fid: 2921 2921 109767
nevt, nrec, fid: 2922 2922 109770
nevt, nrec, fid: 2923 2923 109773
```

Calib-cycle for AHL-H

Normal behavior

epix10ka_0026_20210510164634_mfxc00118_r0372-MfxEndstation-0-Epix10ka2M-0-seg00-cc057-AHL-H-dat-r014-c353-ibr02-ibc50.png

epix10ka_0026_20210510164634_mfxc00118_r0372-MfxEndstation-0-Epix10ka2M-0-seg00-cc057-AHL-H-fit-r014-c353-ibr02-ibc50.png



Explanation from Dan

e-mail exchange

Dubrovin, Mikhail

Tue 6/8/2021 3:33 PM

Dan,

This is mfxc0018 run 372 calib-cycle 8 (counting from 0).

The gap in time between events happens twice in this cc.

There may be different question to ask, what is a trigger signal for pulser intensity increment?

Mikhail

Damiani, Daniel S. <ddamiani@slac.stanford.edu>

Tue 6/8/2021 4:47 PM

The pulser increments intensity each time the camera does a "normal" (a.k.a not the ghost correction acquisitions) acquisition cycle. The acquisition is triggered by a run trigger, generated by the evr firmware blob in the pgpcard and sent over the fiber to the detector. This is constantly running at 120 Hz (event code 40) even if the daq is not in a running state.

Dan

Hart, Philip Adam <philiph@slac.stanford.edu>

Tue 6/8/2021 5:02 PM

What happens during the flaky circumstances you note? From what Mikhail describes it sounds like we're running the pulser still but not the DAQ.

- Philip

Damiani, Daniel S. <ddamiani@slac.stanford.edu>

Wed 6/9/2021 4:25 AM

Hi, If the pgpcard is seeing event code 40s on it's timing fiber it will still trigger acquisitions of the camera and increment the pulser. The running state of the daq has no affect on this. Generally the best we can do (which should be fine) is to assume pulser increments every three fiducials

Dan

References

- [EPIX10KA2M References](#)