

E570 meeting 17/Apr/2006 H.Tatsuno

What is problem ?



Really calibration is correct ?

1. run part (I)

Data set is separated by run break and pedestal stability. How to optimize the separation ?

Is confirmed there is no bias from the run part statistics ?



The spectra summed up all run parts have narrower width than naively summed up one, but we can not say they are optimized only from it. To confirm it we must check Kbeta width under Kalpha calibration.

2. run part (II)

Do the shifts of pedestal correspond to the movement of X-ray peaks ?

The correlation between the pedestal shift and the movement of peaks is linear and its slope is 1 ?

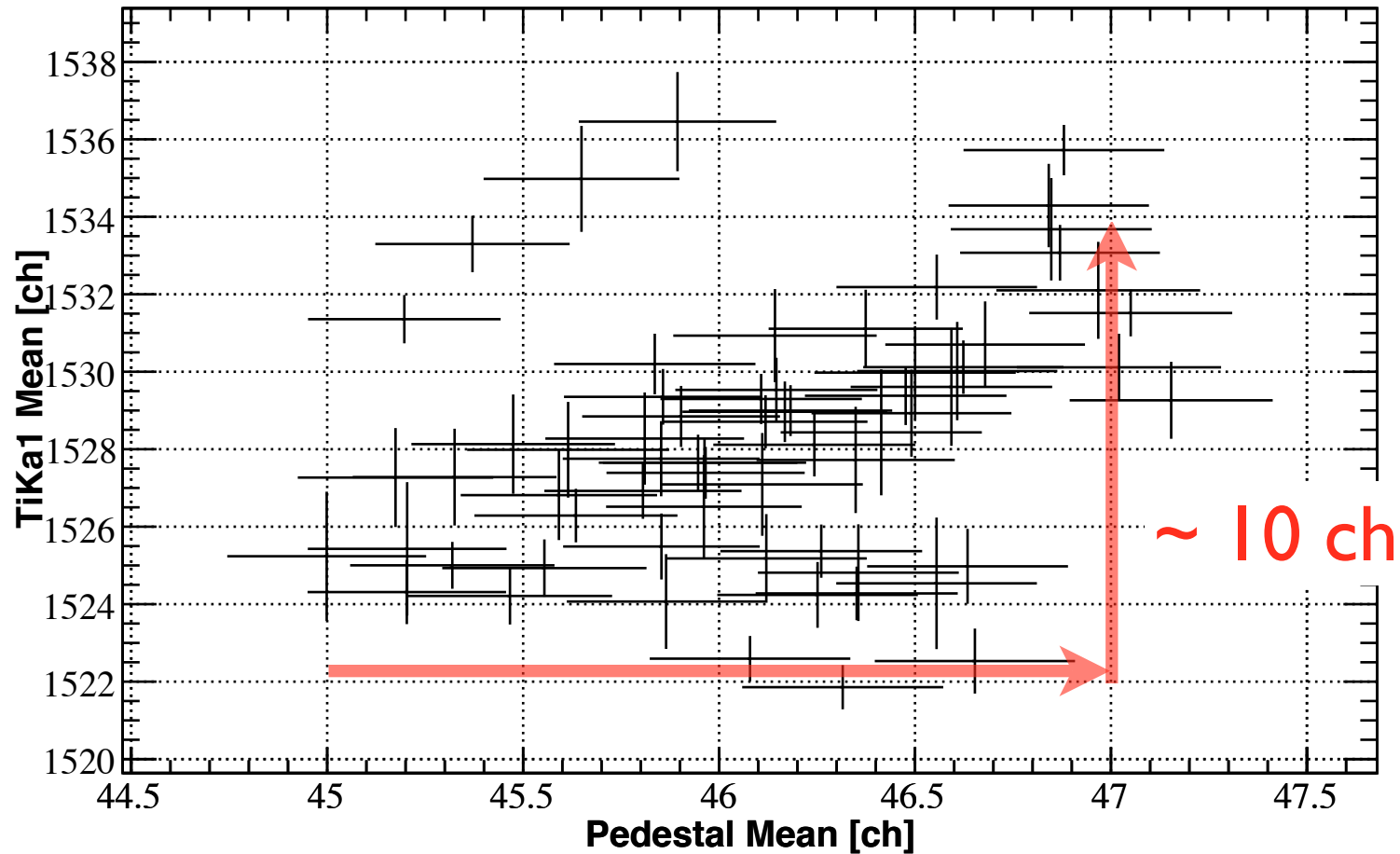


No, there is some correlation but its slope isn't 1 but ~ 5 .

Not only the parallel shift of pedestal but also the slope [eV/ch] shift are occurred at same time.

correlation between pedestal mean and Ti Ka1 mean.
its slope isn't 1 but ~ 5

Pedestal stability (SDD1, Comparator-type ADC)



~ 2 ch

3. upper rate

Now the upper rate (scaler rate of events which over a threshold corresponds to an energy deposit of pion direct hit) is used to cut the pile up events to fit K_a and K_b peaks by a simple function.



Because this scaler cut is phenomenological, there can be some bias.

In the future Flash ADC can cut unhealthy events on behalf of the upper rate.

4. K beta mean problem

K beta mean is systematically ~ 8 eV lower under a calibration using Ti and Ni Ka peaks.



We must study the response function of SDD with upper rate cut and four correlation cut. → this week

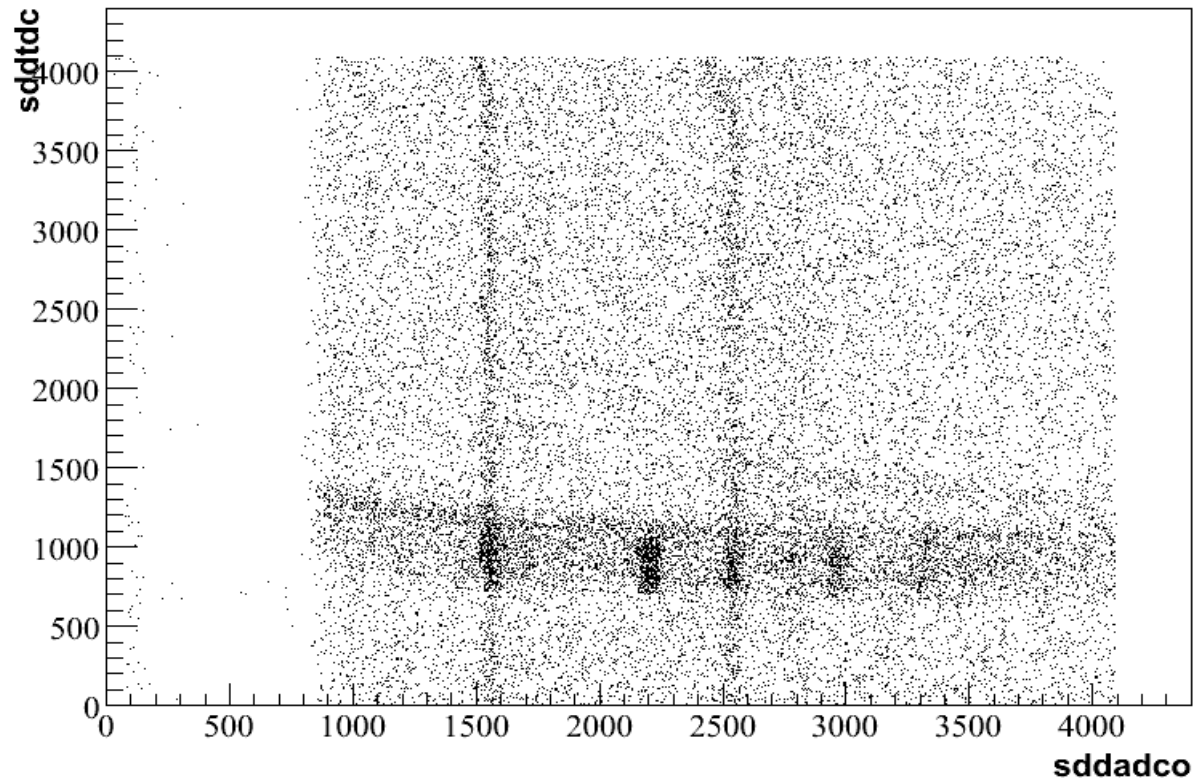
5. ADC slewing

ADC has some slewing at the last of TDC (full scale 5 micro seconds)

→ ADC gate closes before catching the mean of pulse induced from pion come a few micro sec later than kaon

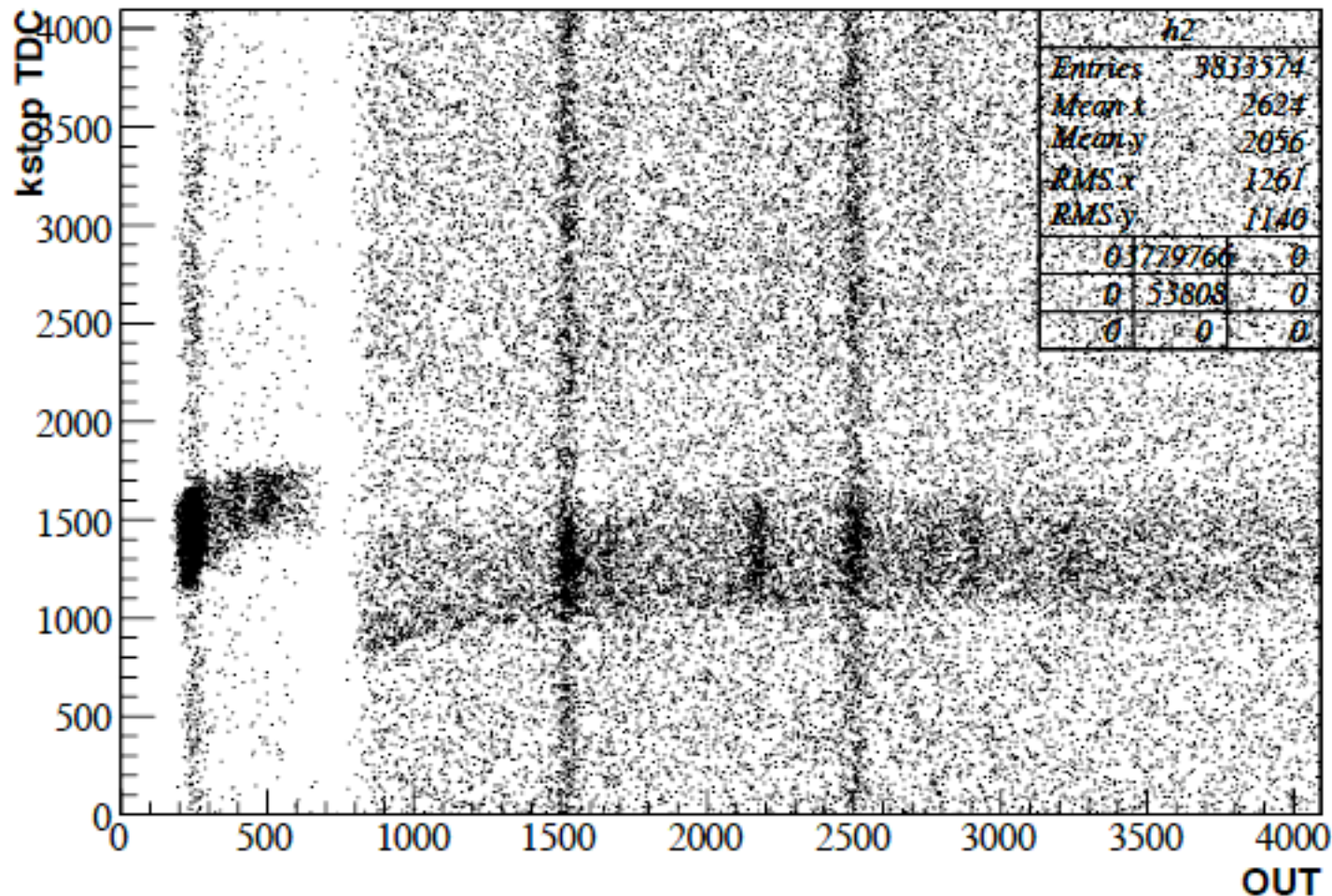
`sddtdc:sddadco {sddid==2 && sddtdc<4095 && sddadco<4095}`

Kaon
trigger



Self trigger data doesn't have a slewing
at the last of TDC

self trigger sdd1 second cycle



6. Linearity and energy resolution

Is there a plan to detect one more peak to check linearity of the data taking system and to confirm the E and Fano factor dependence of energy resolution.



If the K beta mean problem is fixed, we can use Ti and Ni K beta peaks to check the linearity by four points fit.