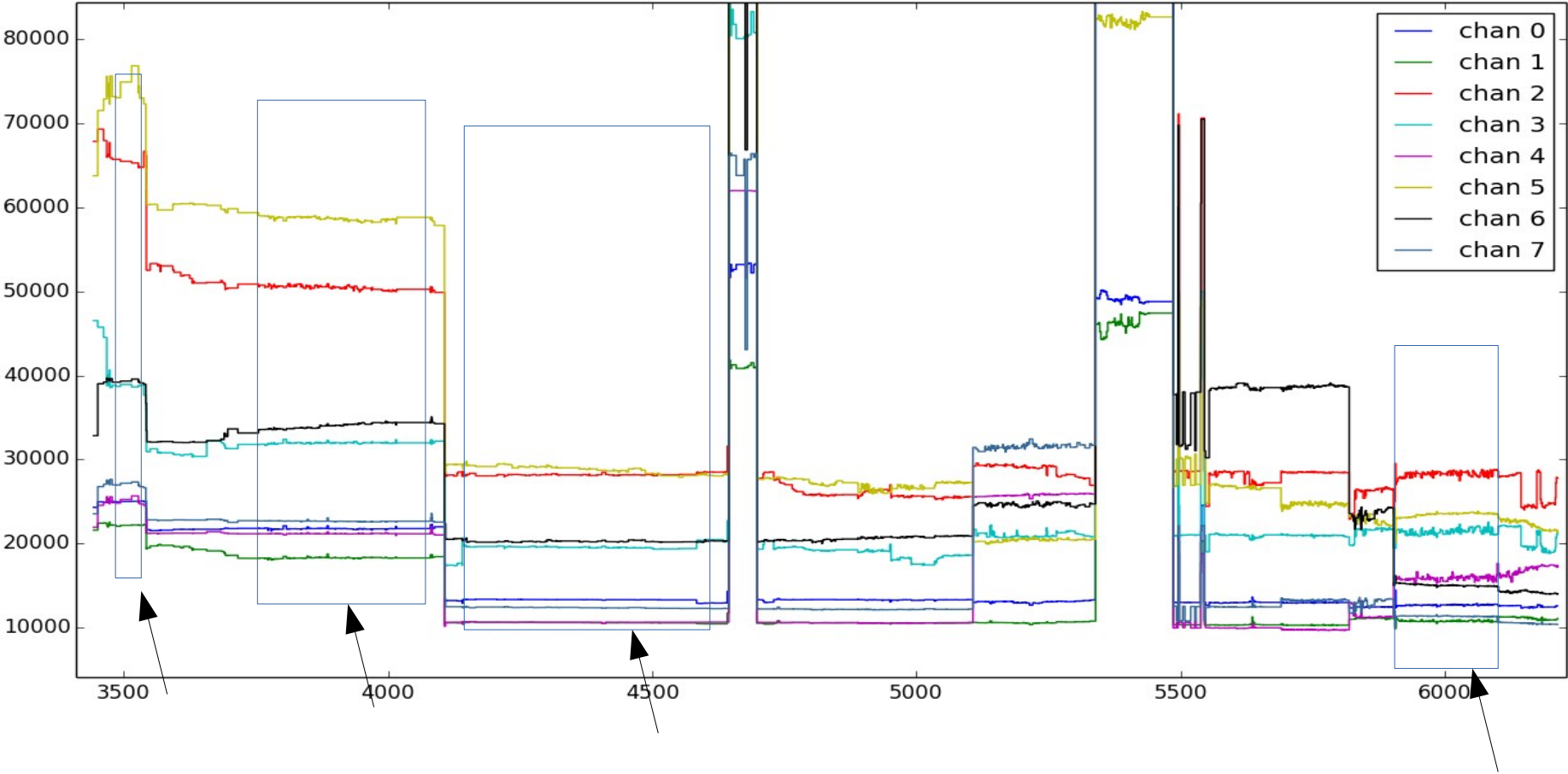


# BPM status

Pengjia Zhu

Pedestal uncertainty: rms for all of events in a relatively stable run range



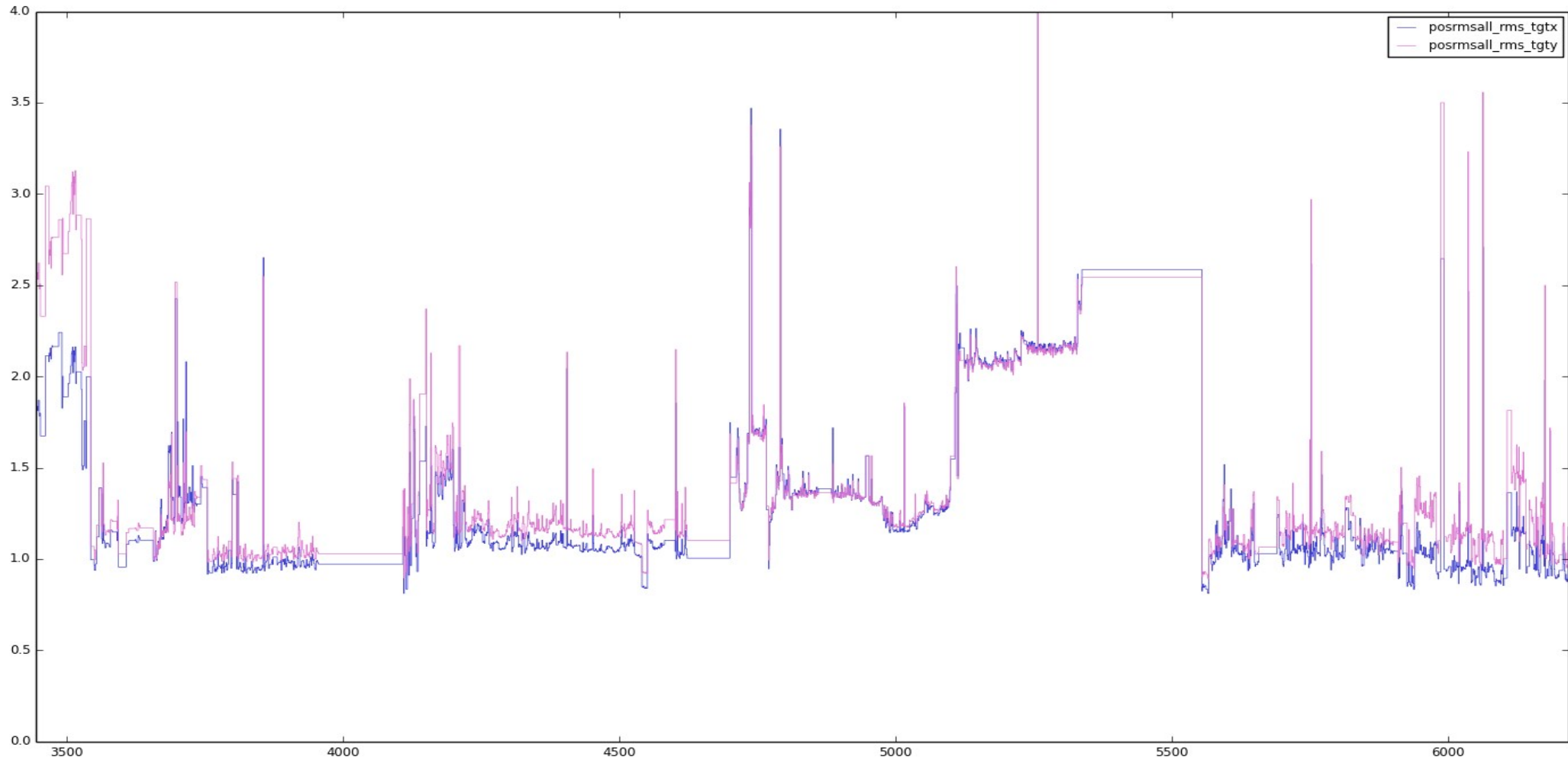
## Calibration constant uncertainty:

- harp's survey uncertainty
- bpm's survey uncertainty(for calibration run)
- calibration run's bpm resolution with 2Hz filter

BPM's survey uncertainty(for each run)

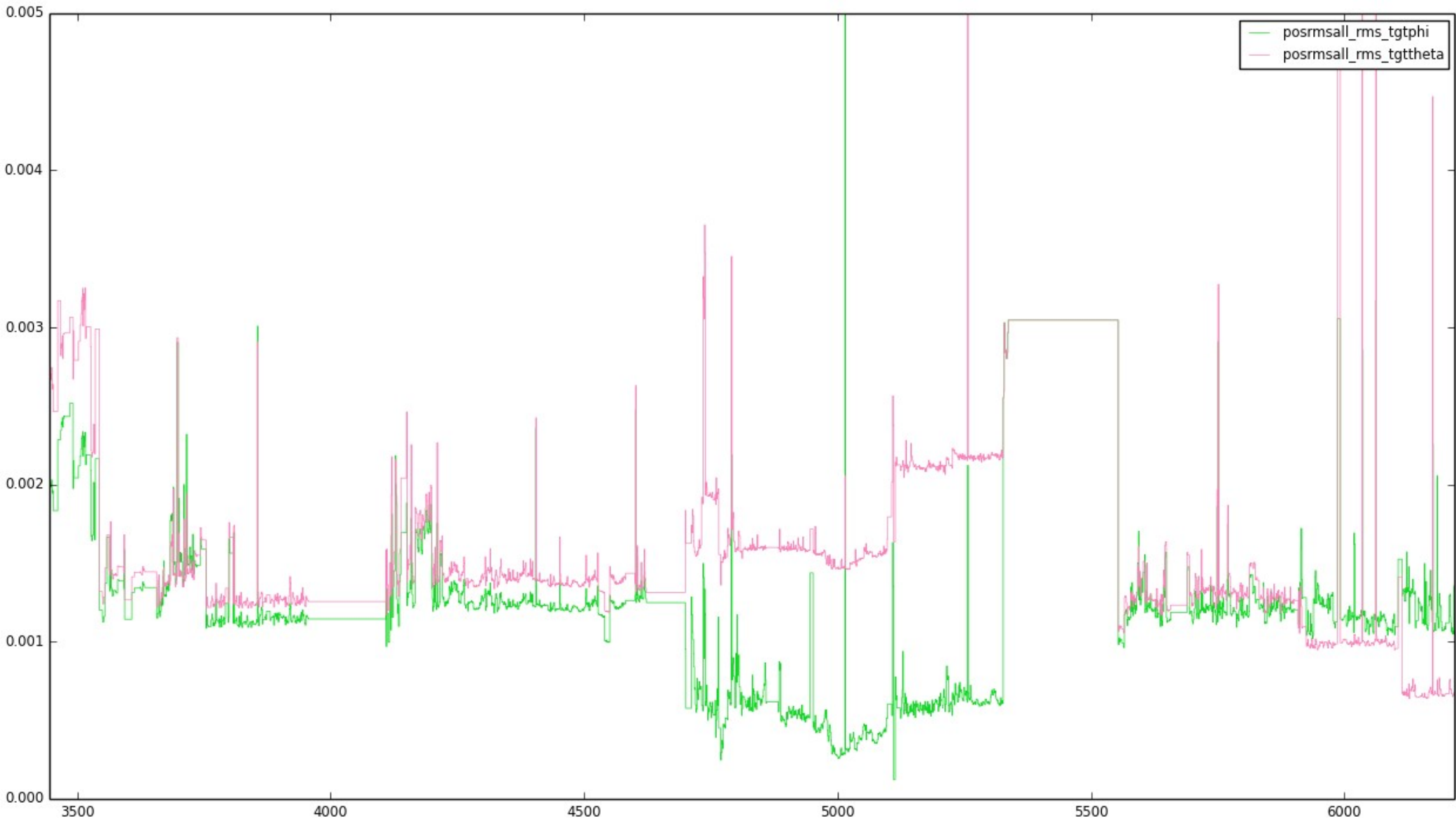
Pedestal uncertainty : detail as previous slide

Target field 1% included -> affect  $y \sim 0.03\text{mm}$  ,  $\theta = dy/dz \sim 0.0009\text{rad}$ (for 2.2GeV, 5.0T)



theta(dy/dz) and phi(dx/dz)

Result transported from x and y at two bpms using error propagation formula(in fitted transportation function for position from two bpms to target)



Autogain:

Without subtracting the pedestal value

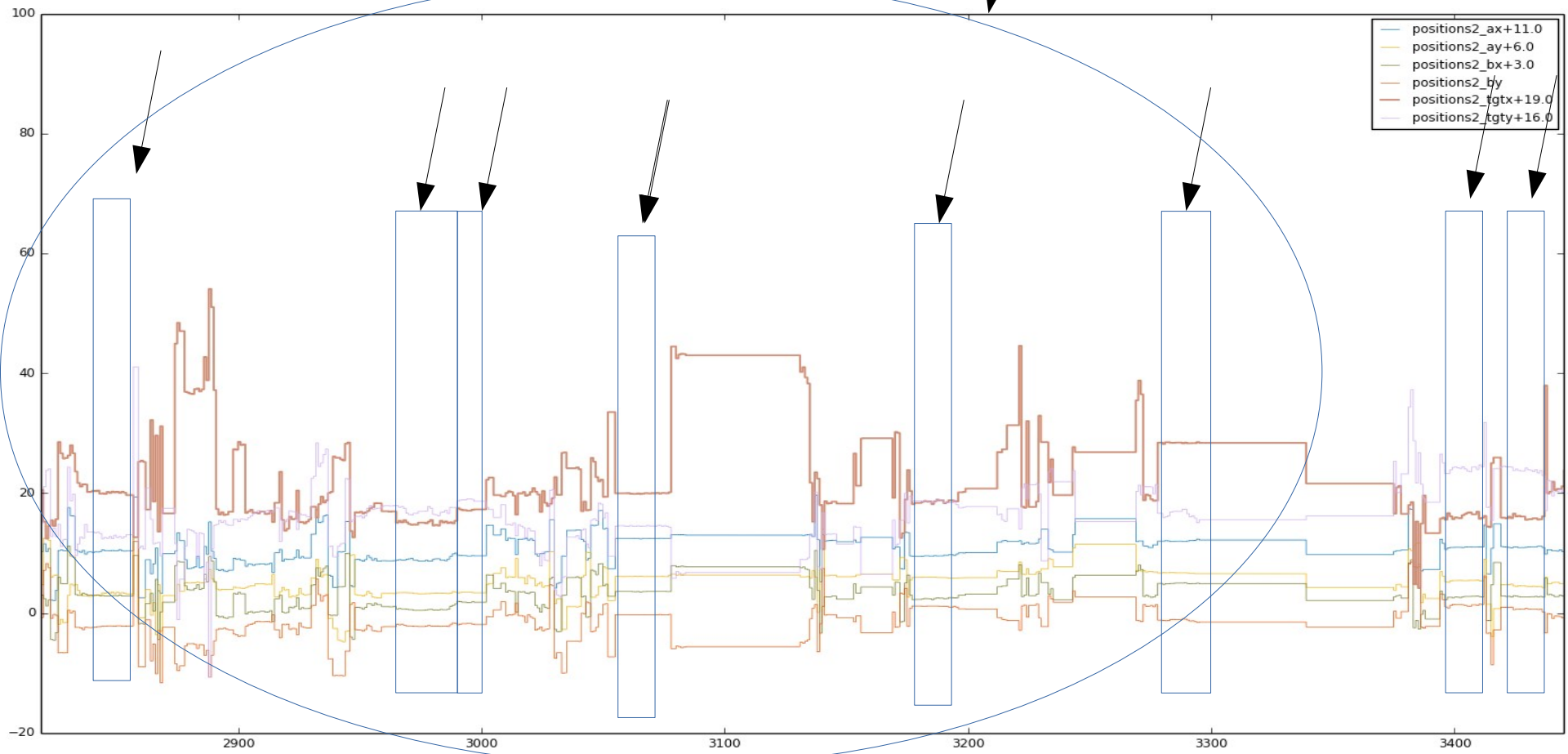
No way to calculate the pedestal value changing during run

Solution:

Choose several relatively stable position range(run range) for getting maximum deviation position, without any hand position change during range

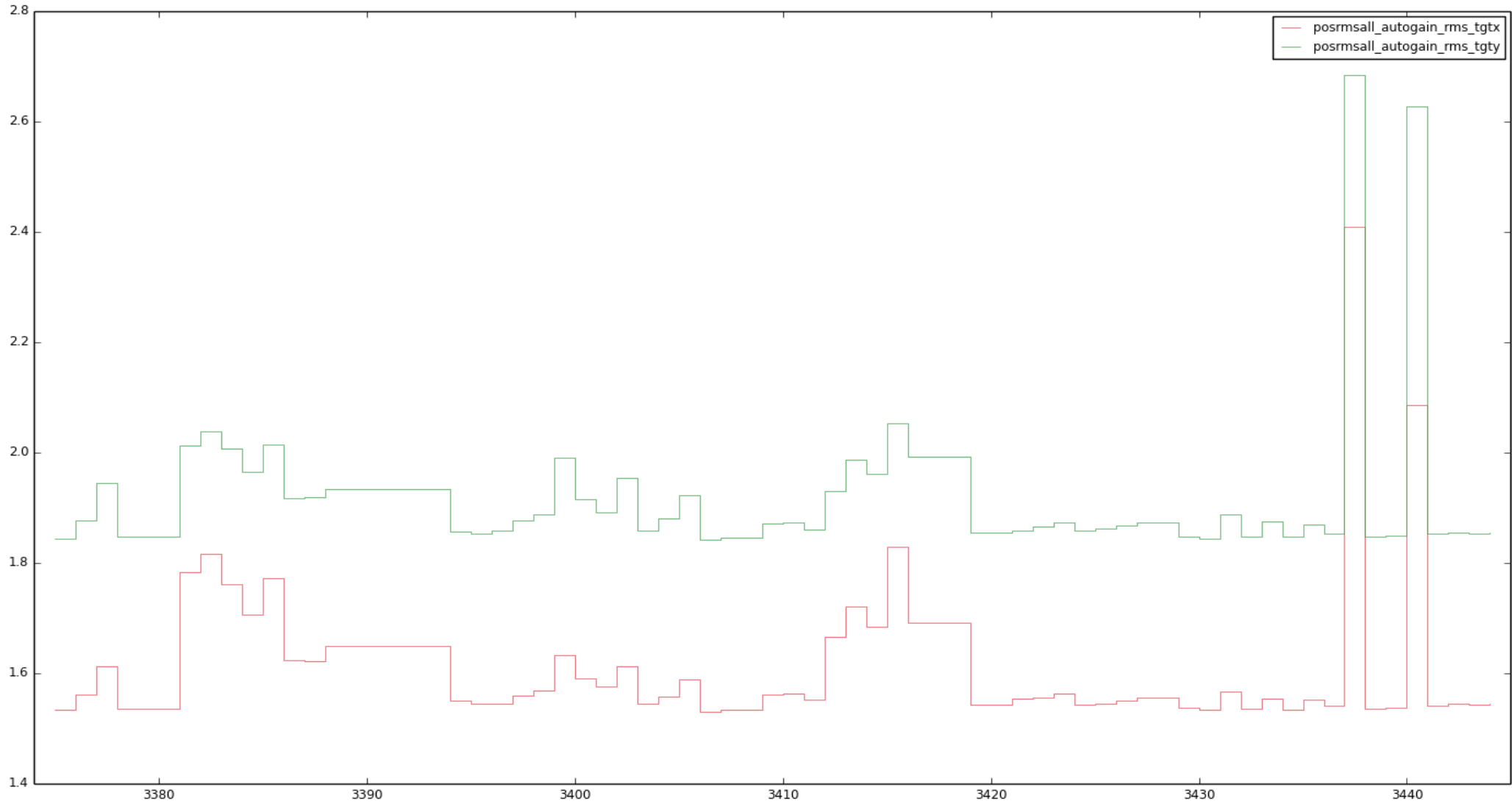
Choose maximum deviation position during whole calibration range as additional position uncertainty

(replacement for the pedestal caused uncertainty)



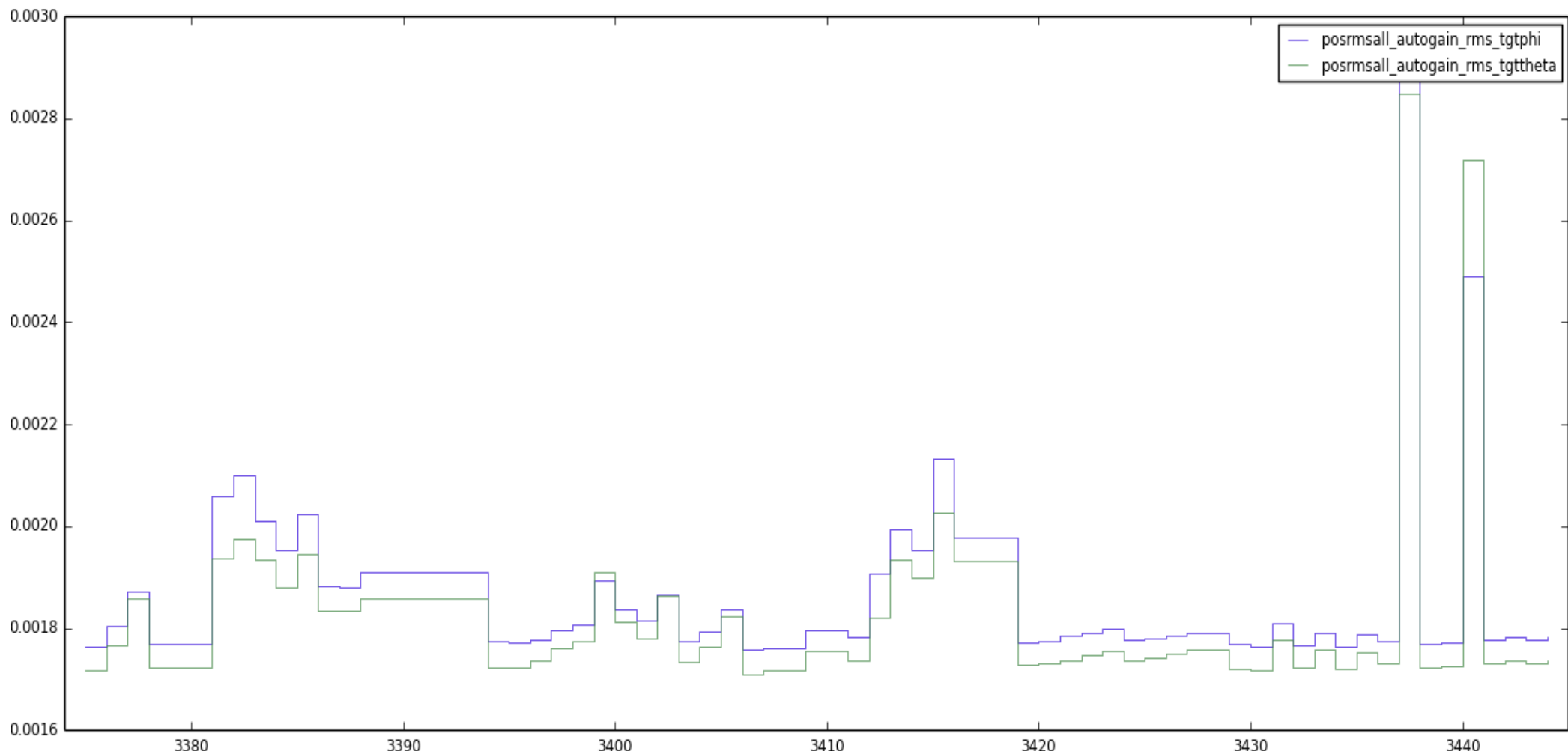
Run range 3374~3444

Pedestal difference between runs and calibration runs not considered  
(using calibration run in 5/3, which run range around 5496)

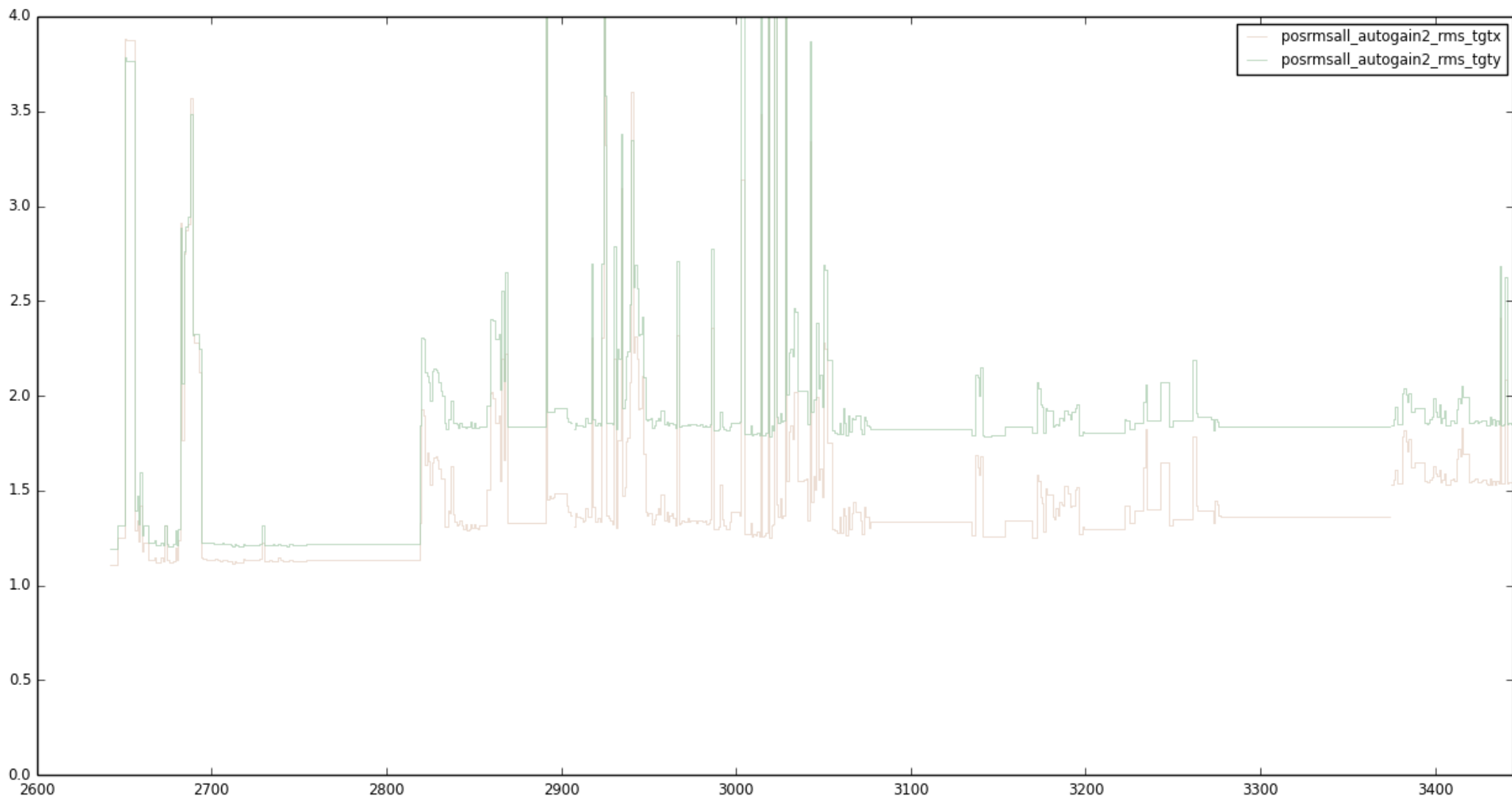


Run range 3374~3444

Pedestal difference between runs and calibration runs not considered  
(using calibration run in 5/3, which run range around 5496)



# Run range – all autogain run x/y





# Run range – all autogain run theta/phi

