

BPM Status

Pengjia Zhu

BPM pedestal doubts:

- Pedestal change with time?
 - Will show in this presentation
- Pedestal change with current?
 - No idea

This two doubts will cause additional uncertainties

- Pedestal change with time

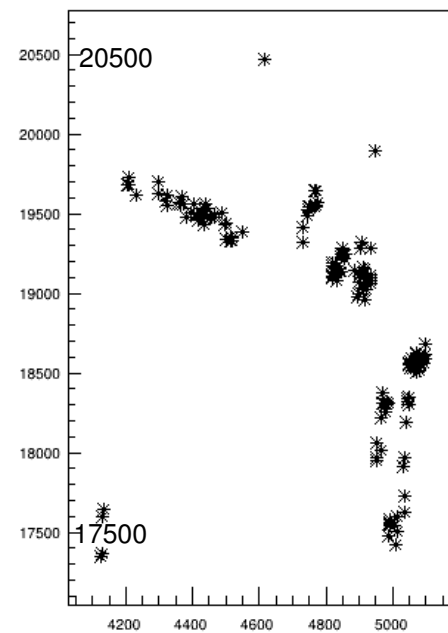
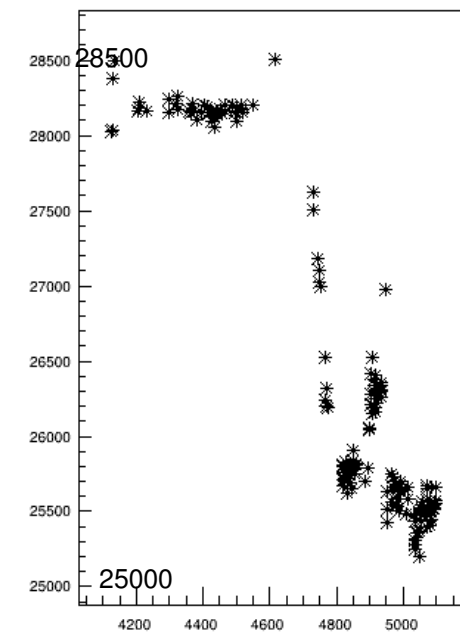
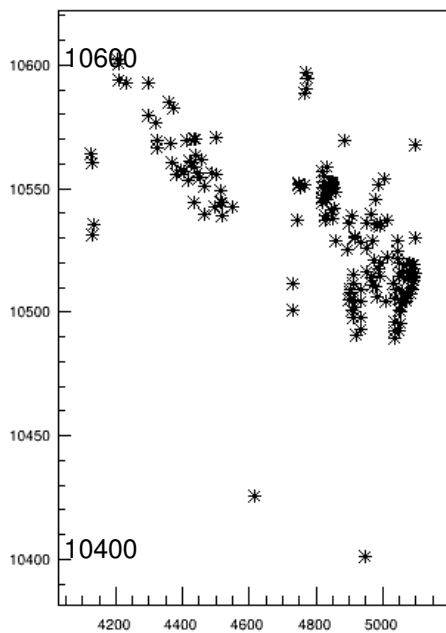
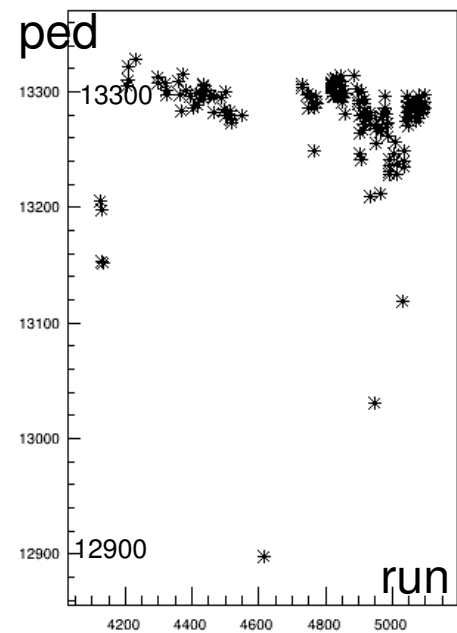
Ave

Graph

Graph

Graph

Graph



Pedestal change during experiment

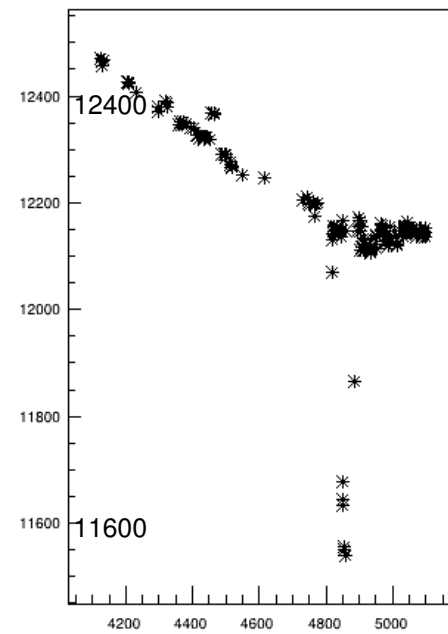
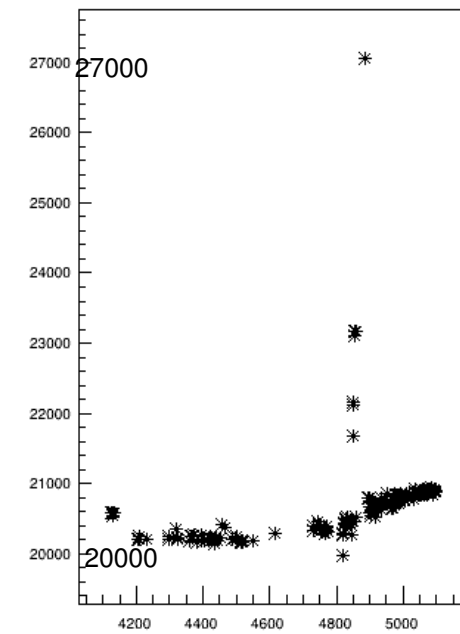
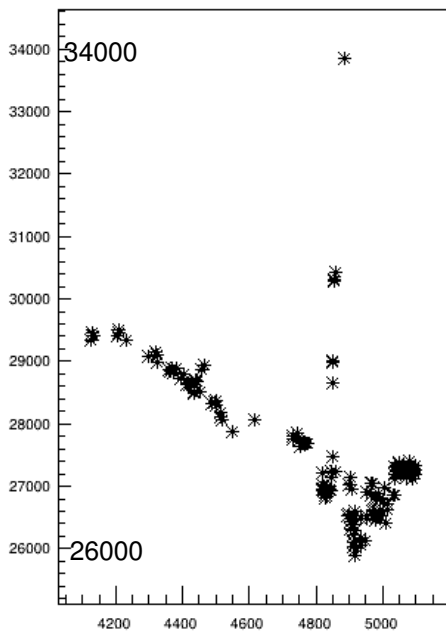
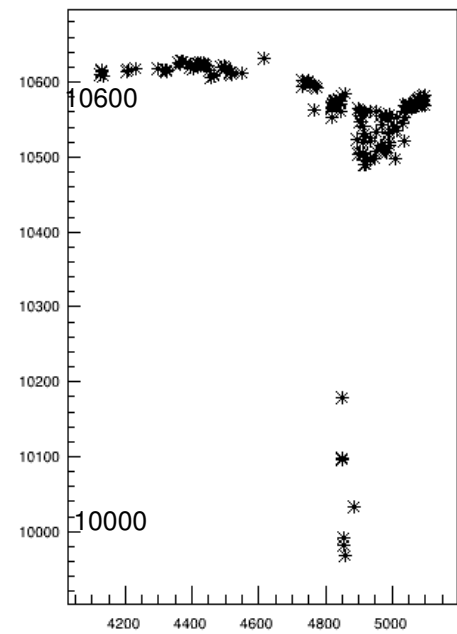
bpm gain set: gain1:80,gain2:77,div1:2,div2:2,

Graph

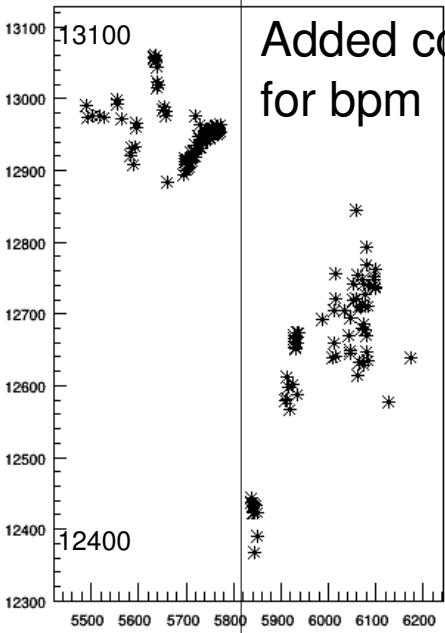
Graph

Graph

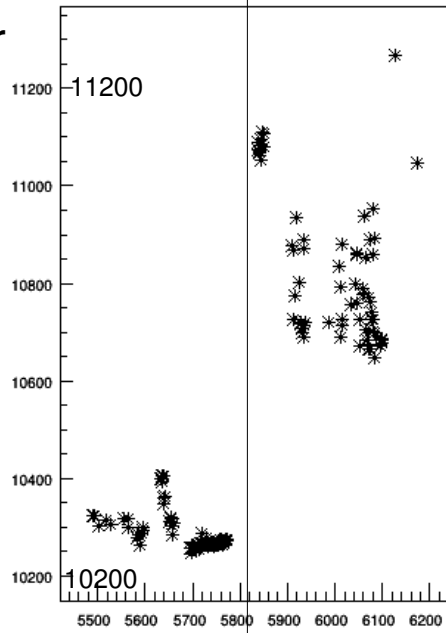
Graph



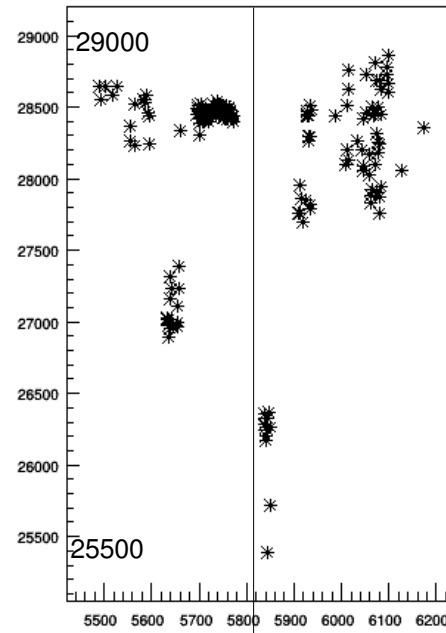
Graph



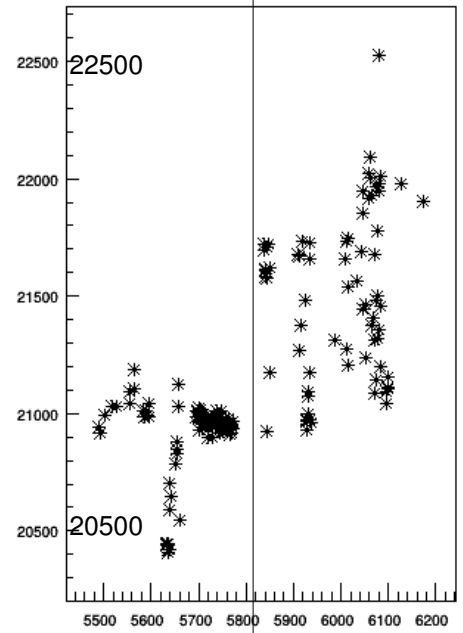
Graph



Graph

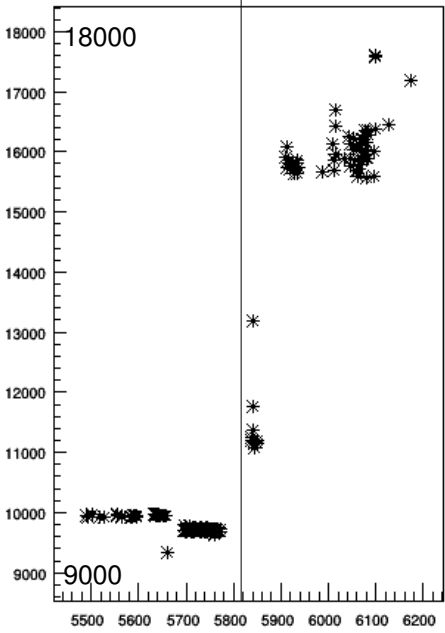


Graph

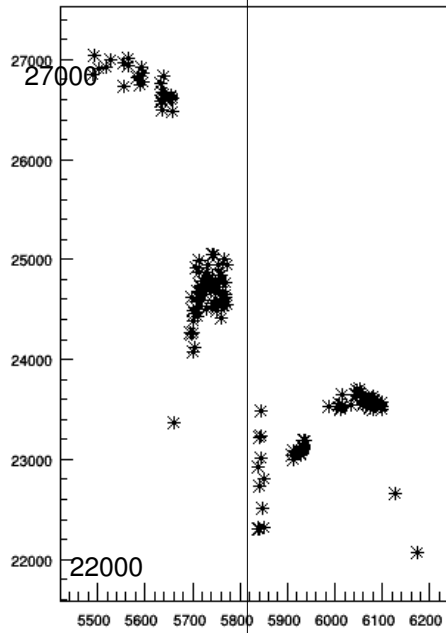


Pedestal change during experiment
 bpm gain set: gain1:80,gain2:90,div1:2,div2:3

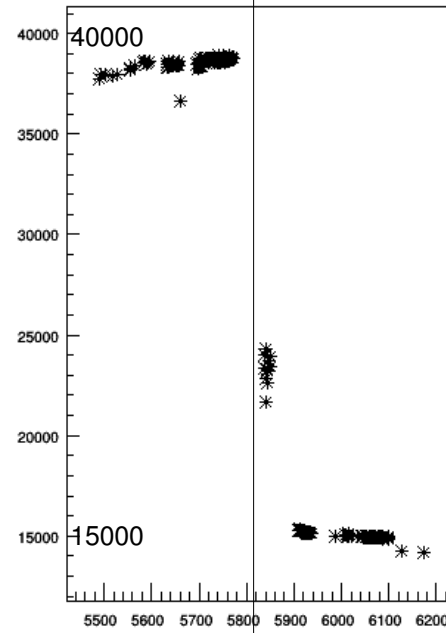
Graph



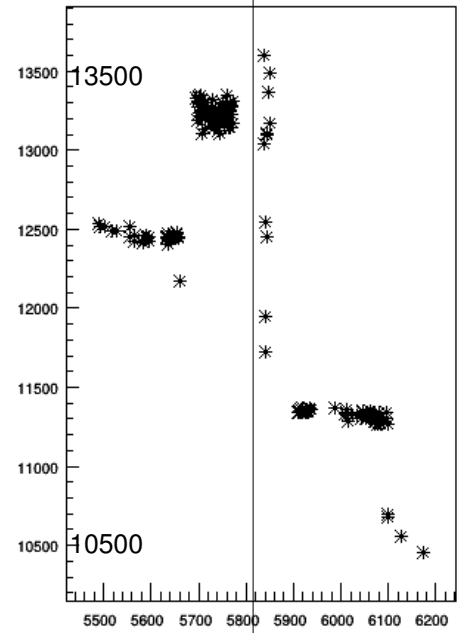
Graph



Graph

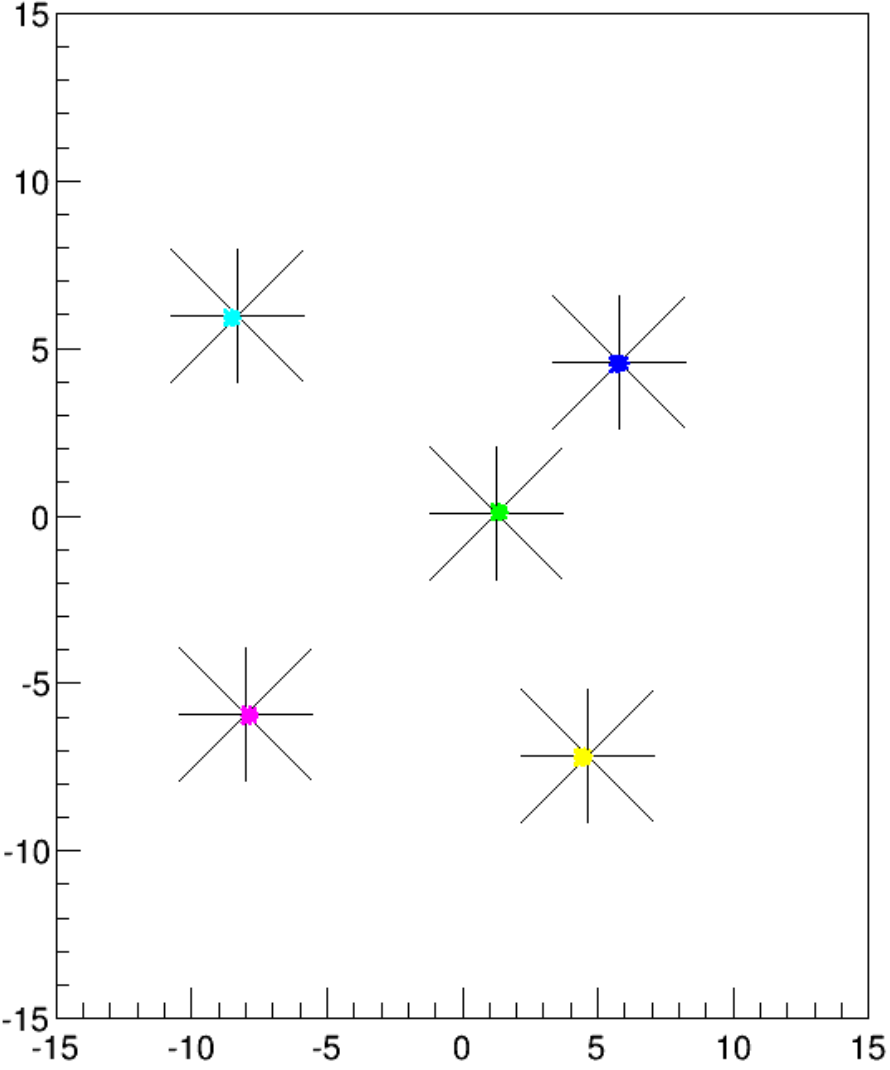


Graph

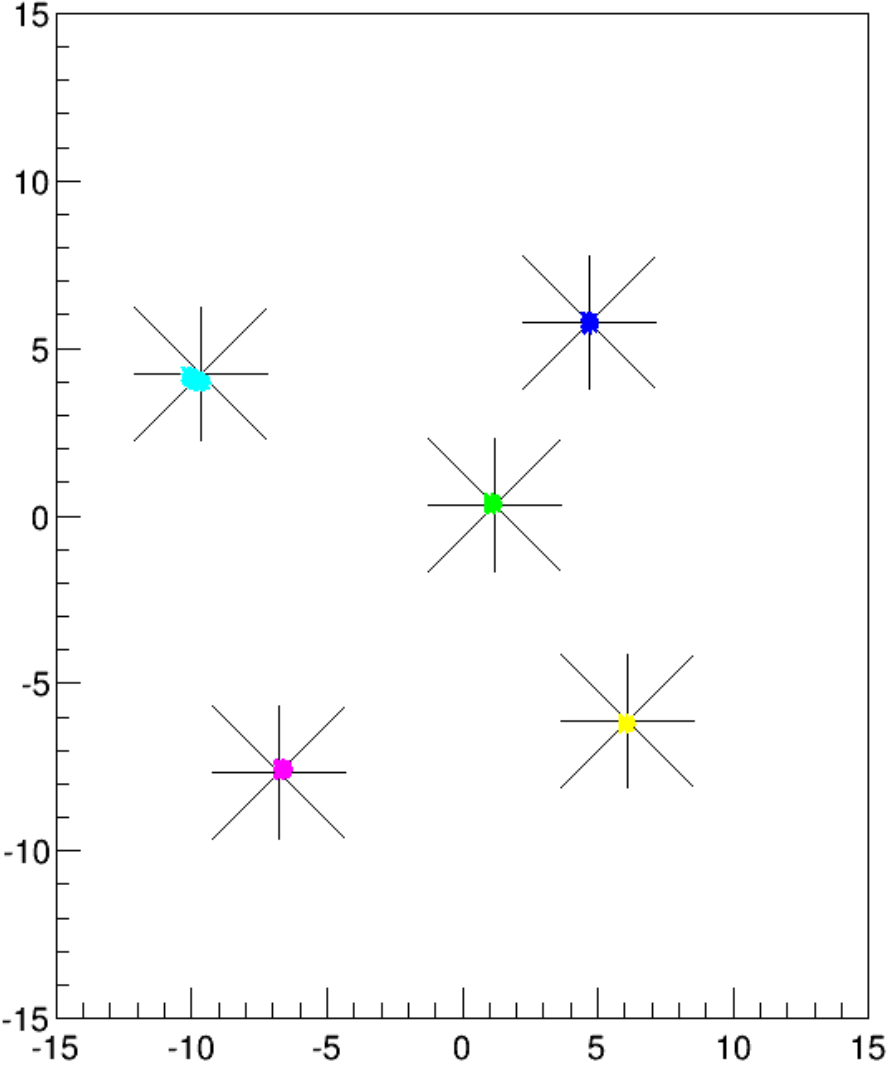


with pedestal subtract - 100nA

bpm calibration



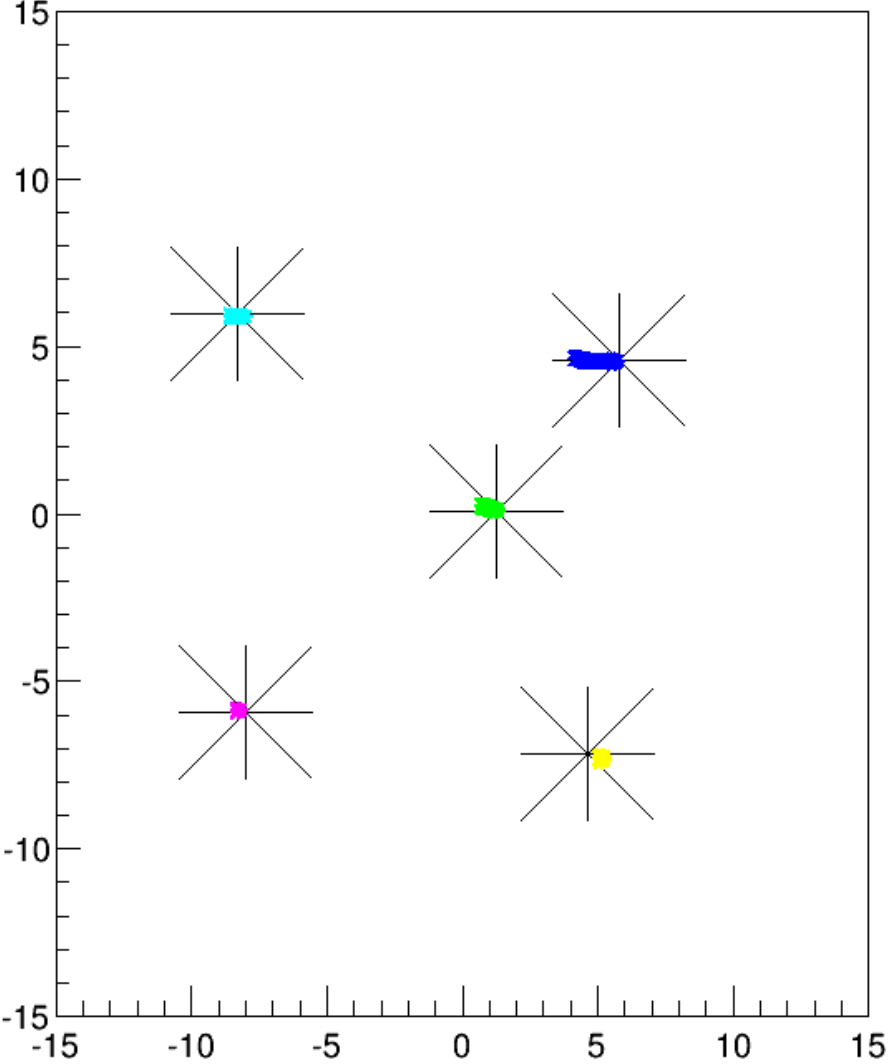
bpm calibration



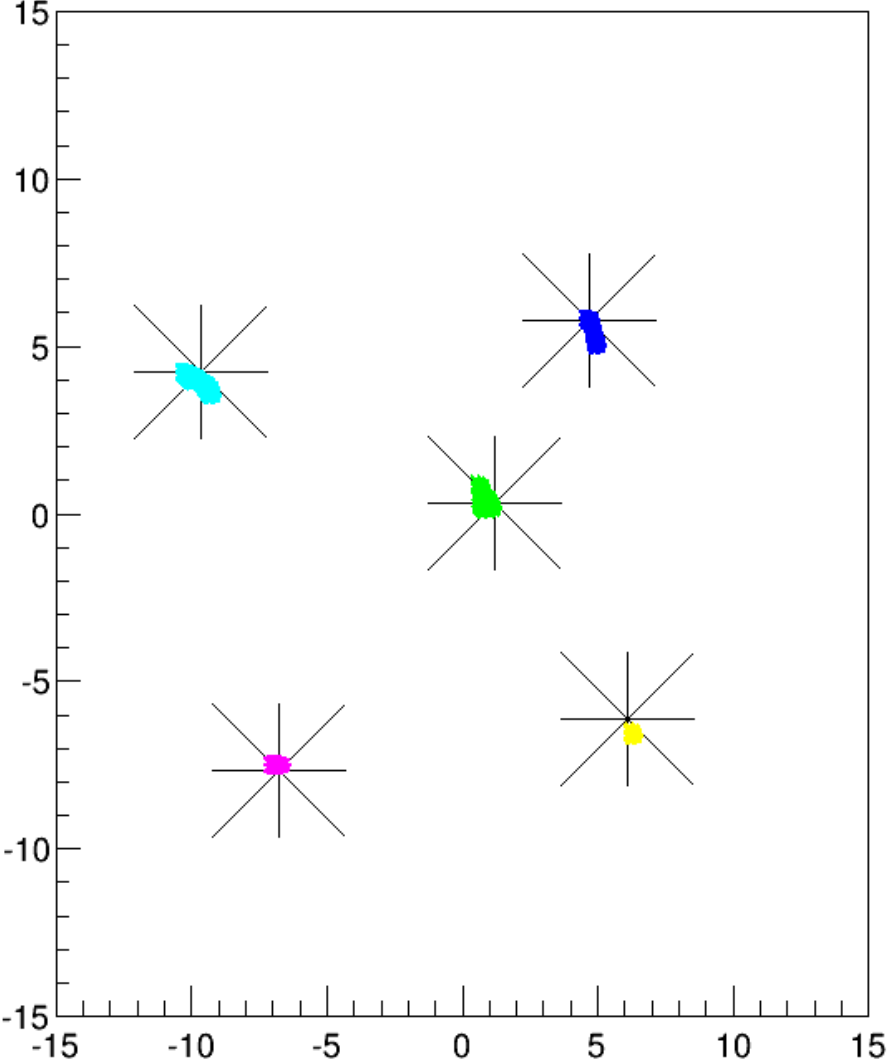
- Position calculation with & without pedestal subtract

with pedestal subtract - 75nA

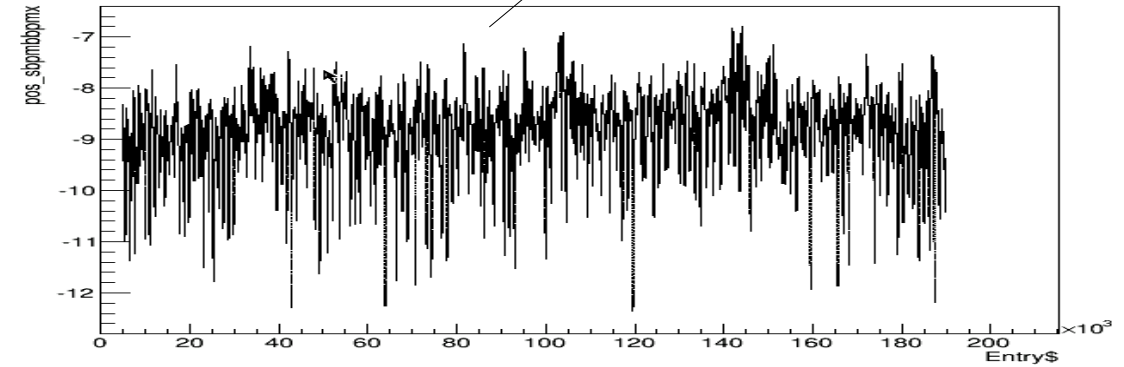
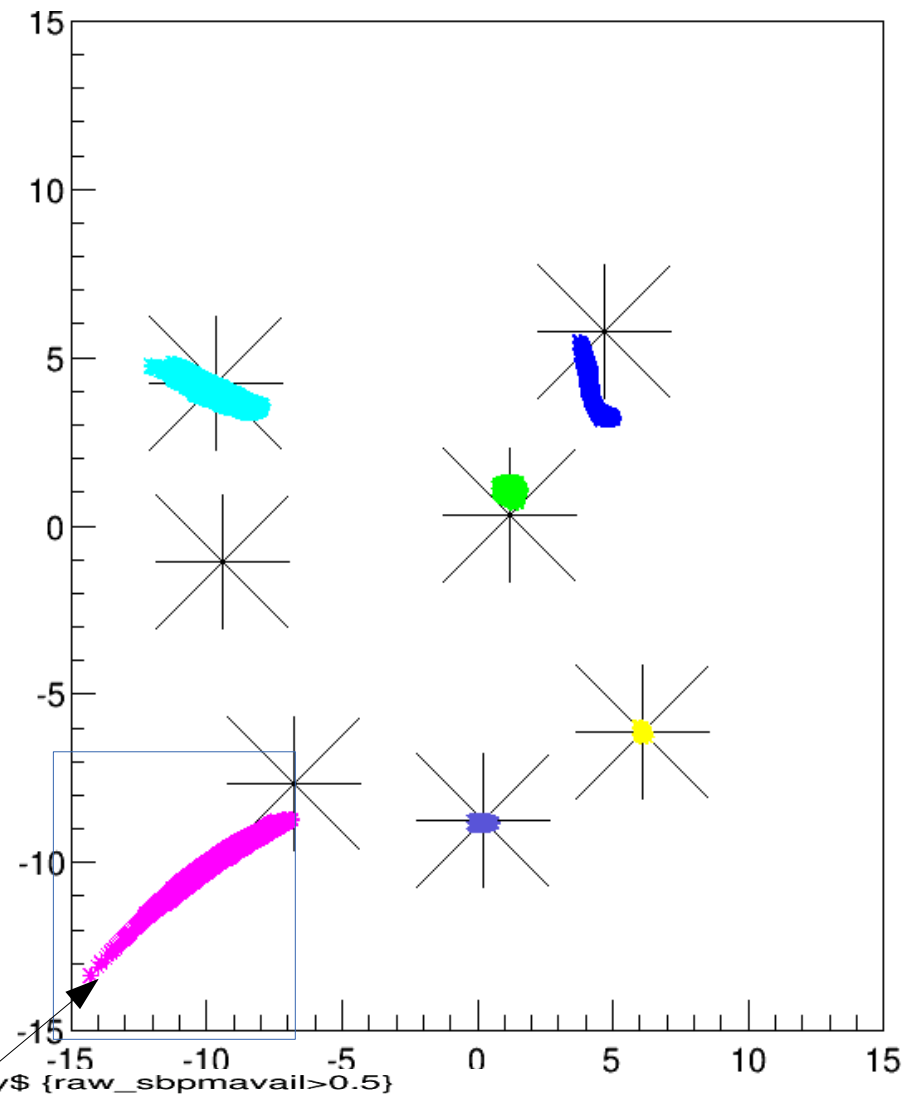
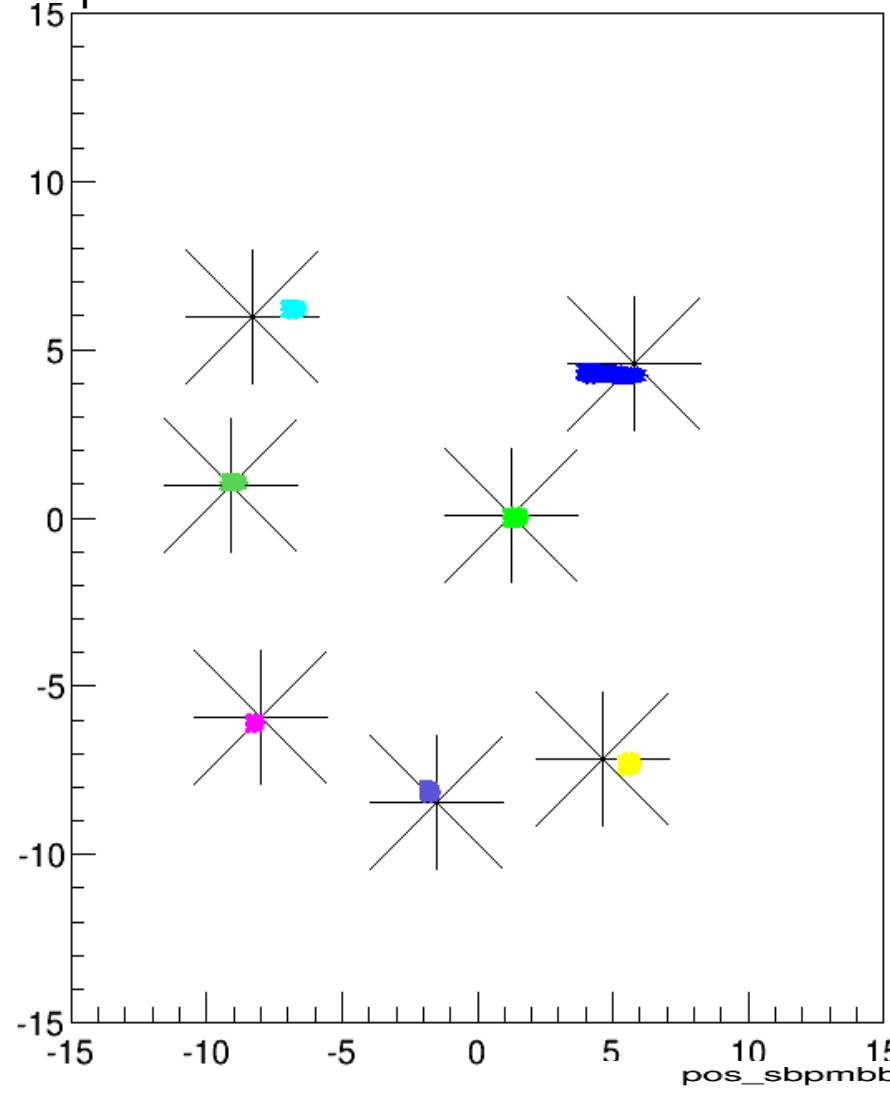
bpm calibration



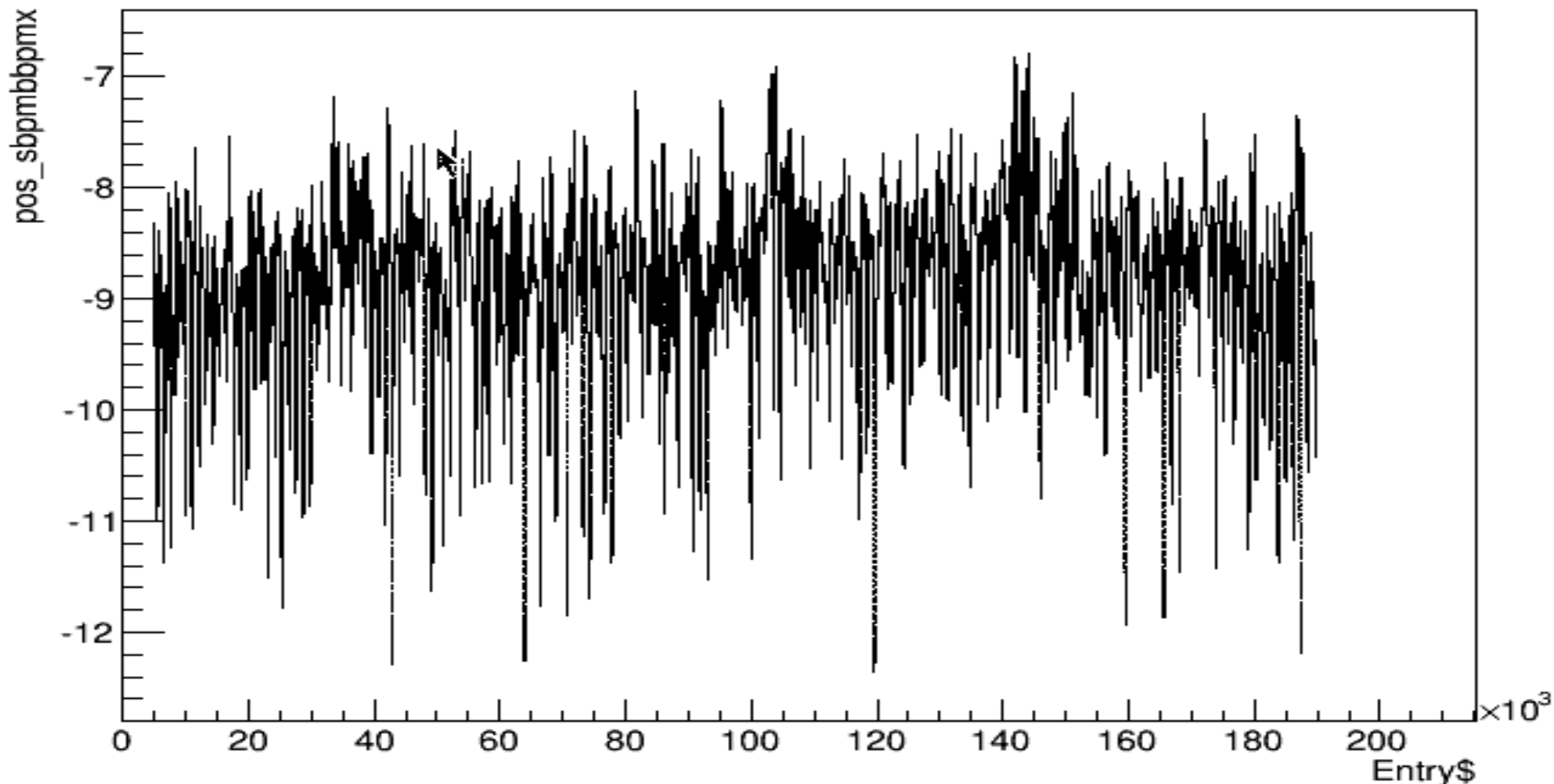
bpm calibration



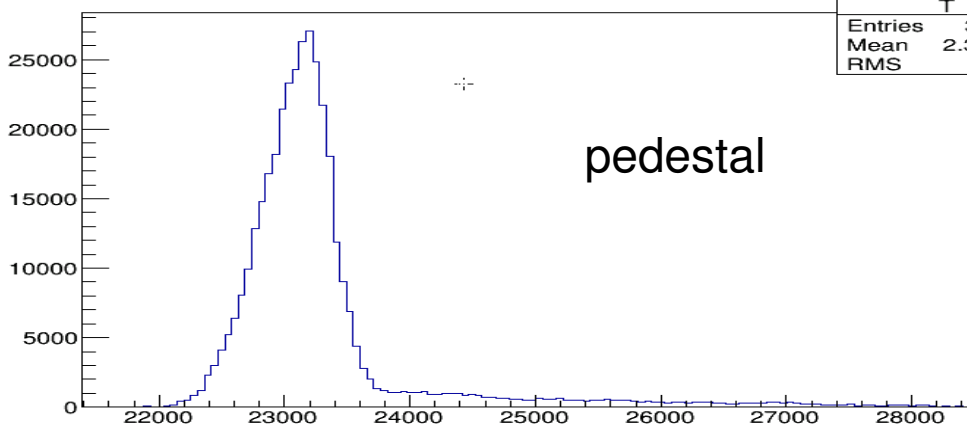
with pedestal subtract - 50nA



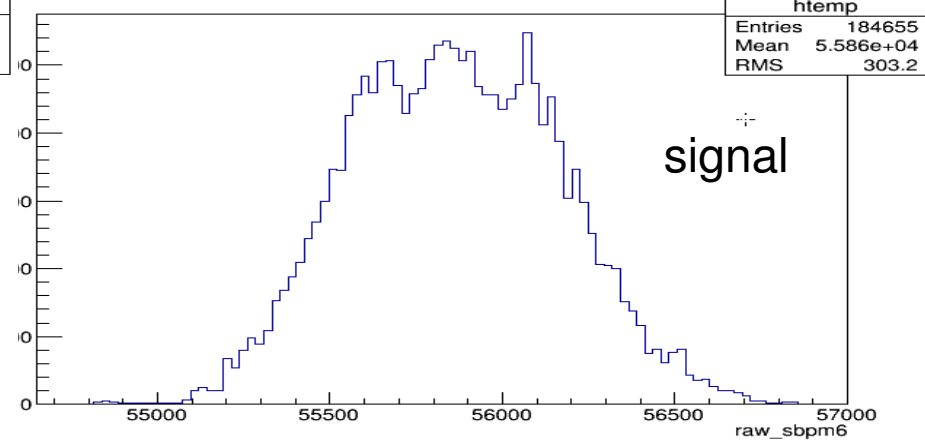
pos_sbpm6:Entry\$ {raw_sbpmavail>0.5}



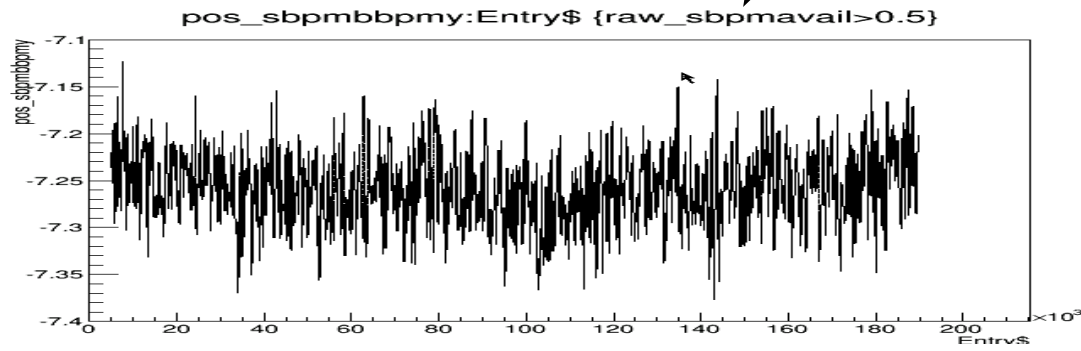
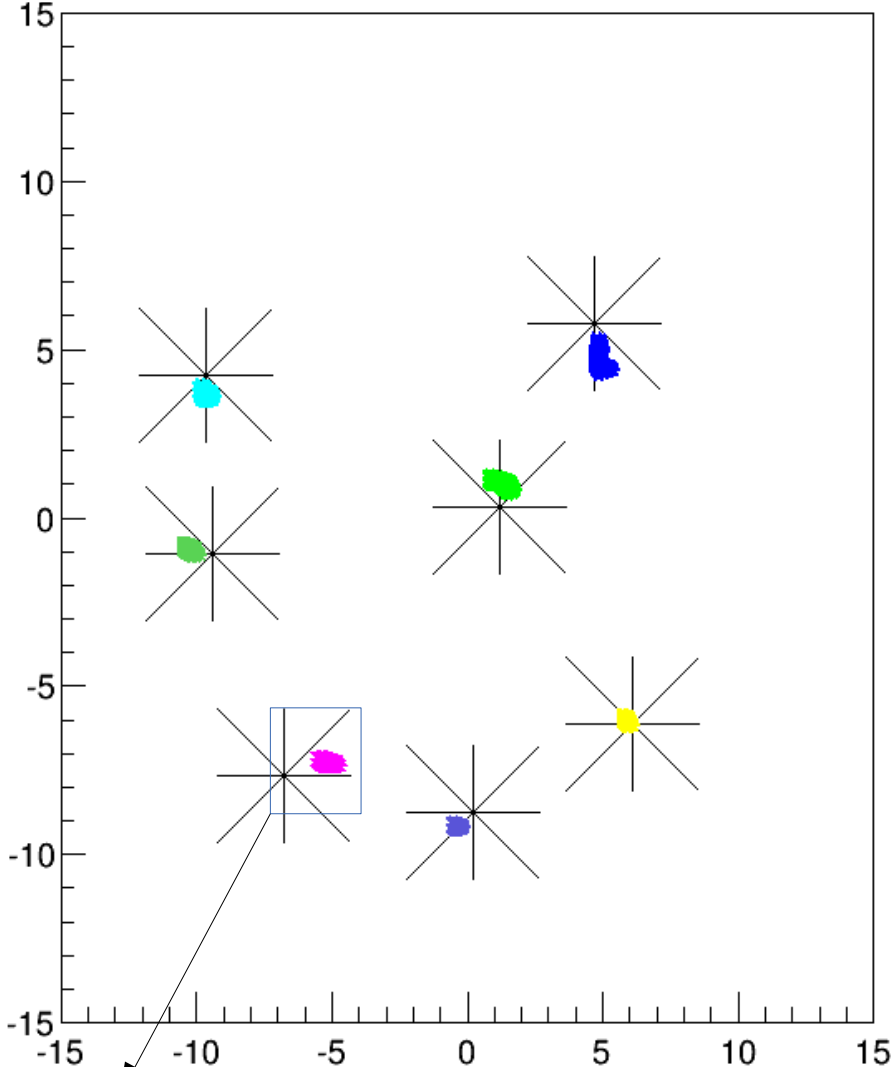
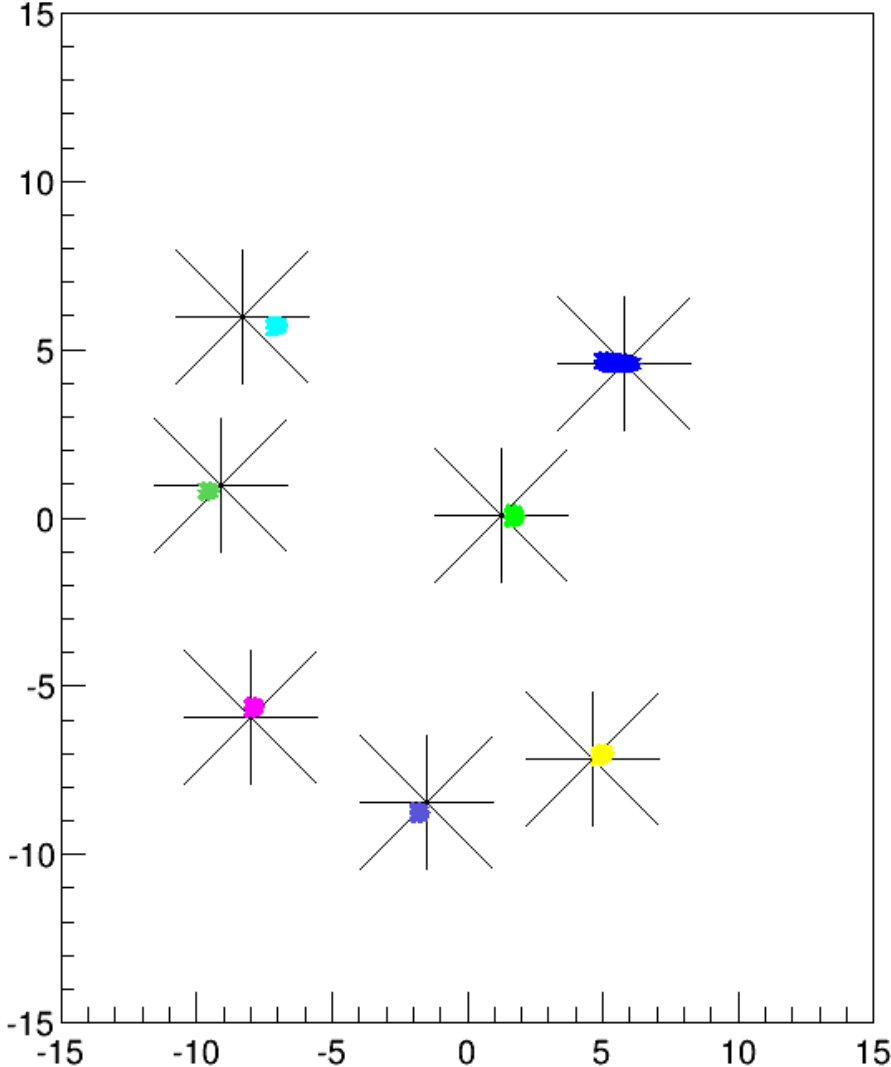
bpmraw5



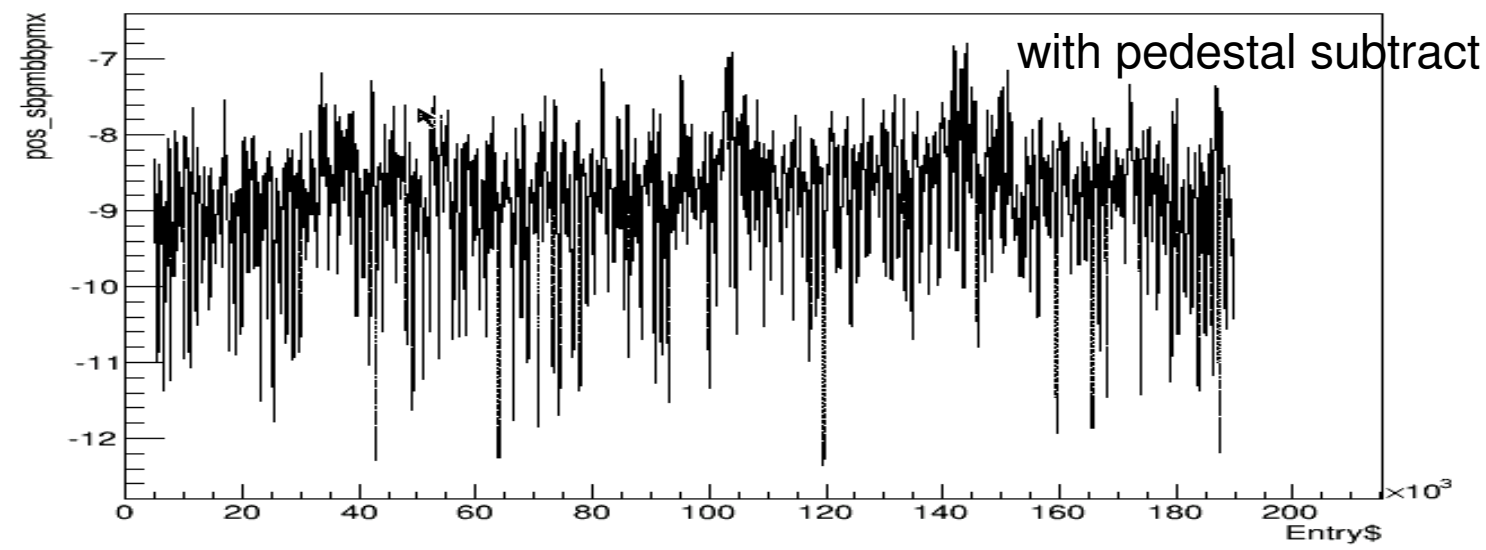
raw_sbpm6 {raw_sbpmavail>0.5}



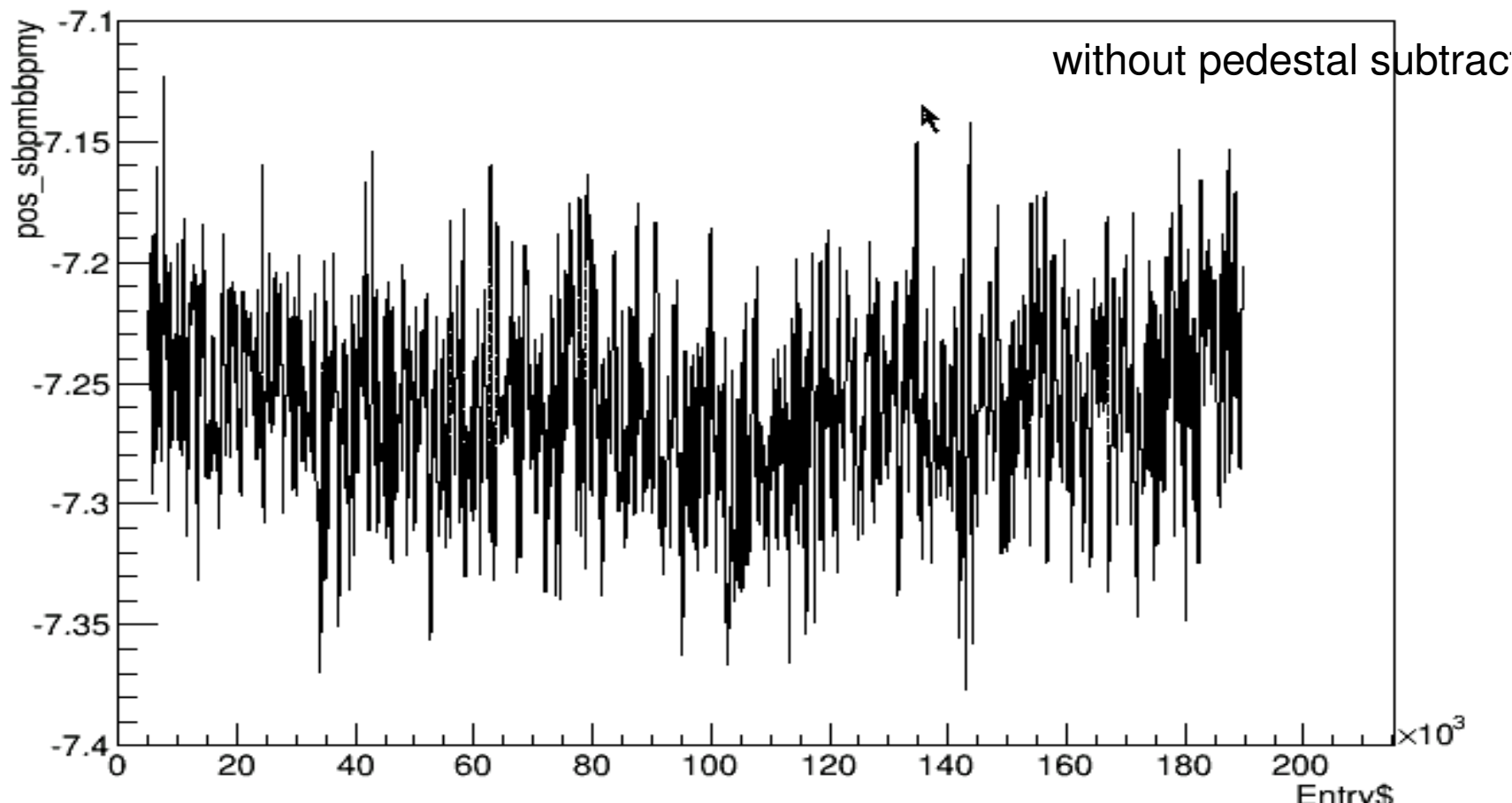
without pedestal subtract - 50nA



pos_sbpmbbpmx:Entry\$ {raw_sbpmavail>0.5}



pos_sbpmbbpmx:Entry\$ {raw_sbpmavail>0.5}

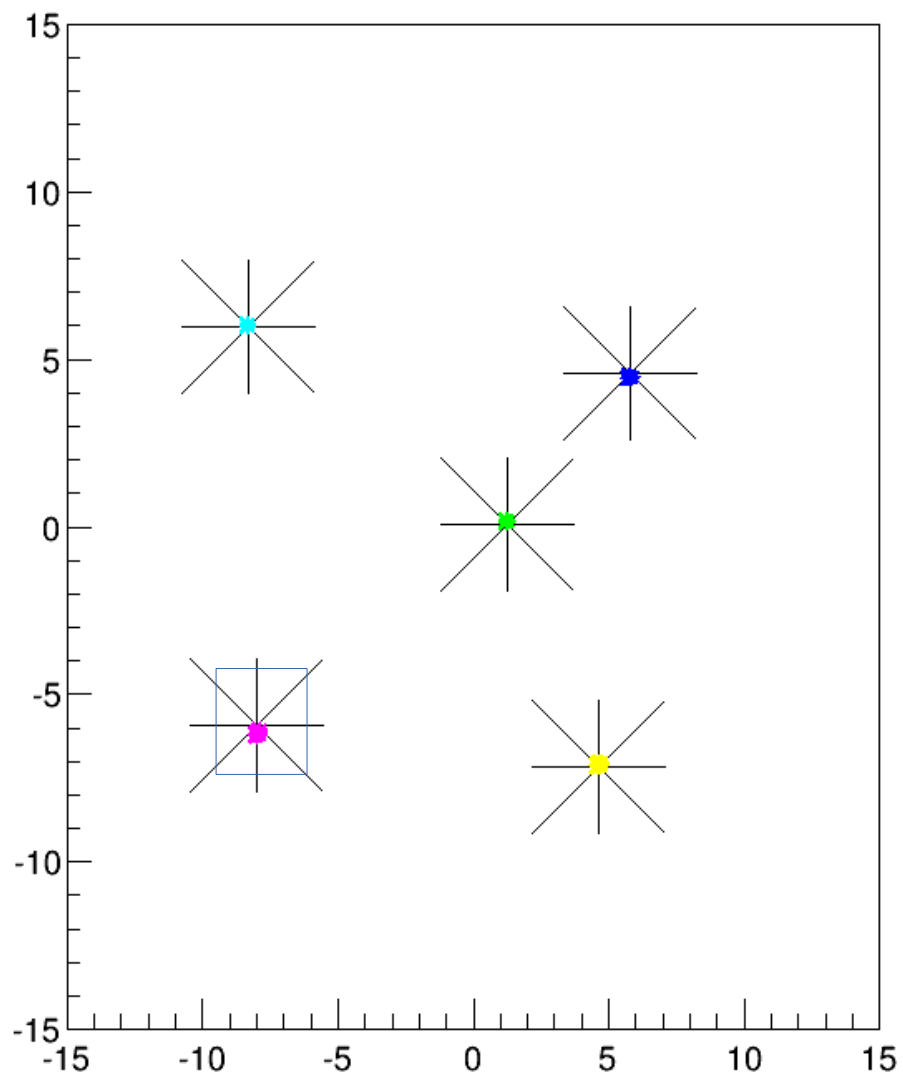


- Position calculation change with current
 - With pedestal subtract
 - Without pedestal subtract

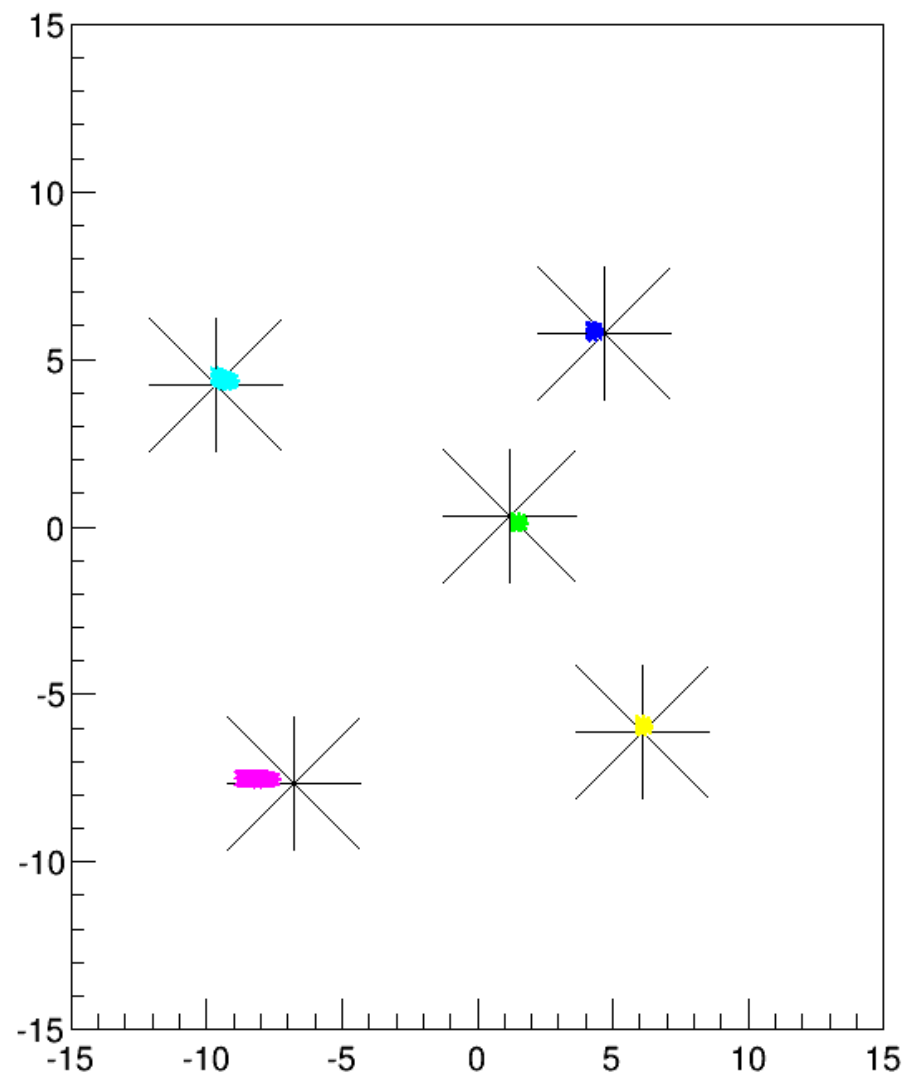
- With pedestal subtract

100nA(100nA calibration run)

bpm calibration

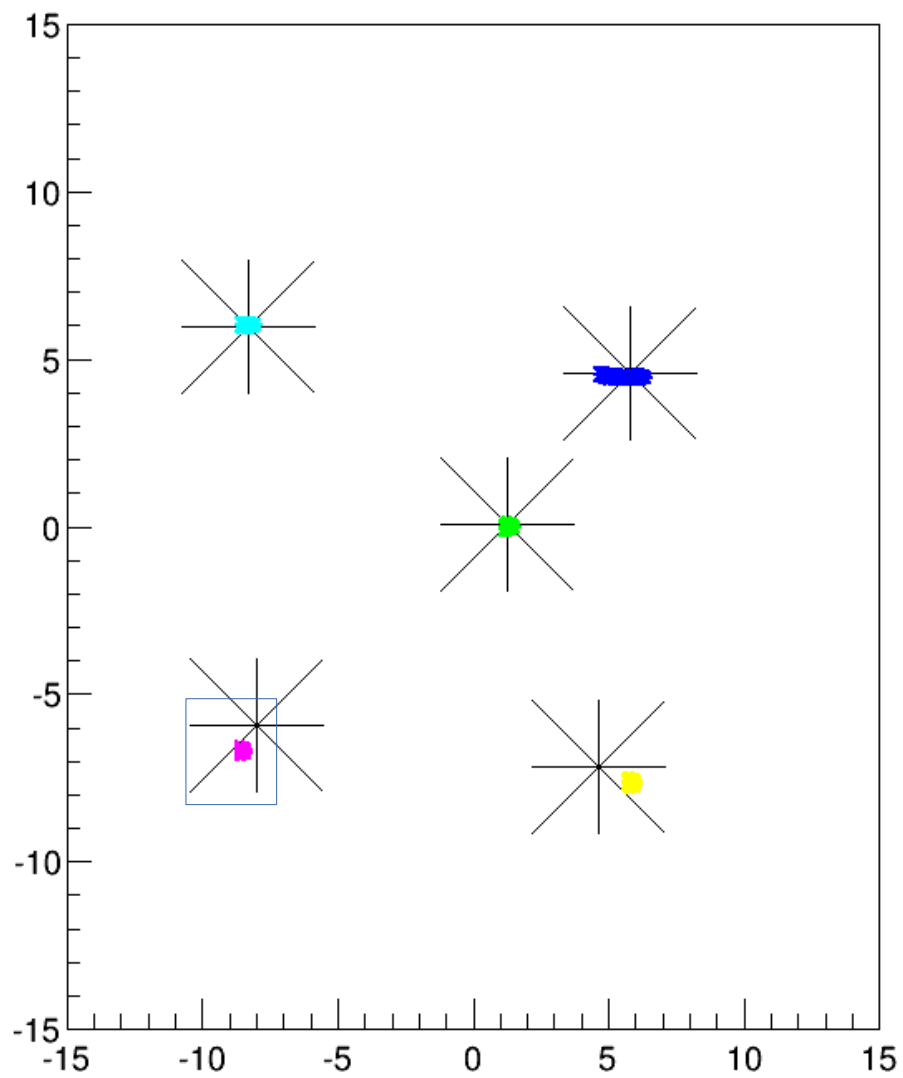


bpm calibration

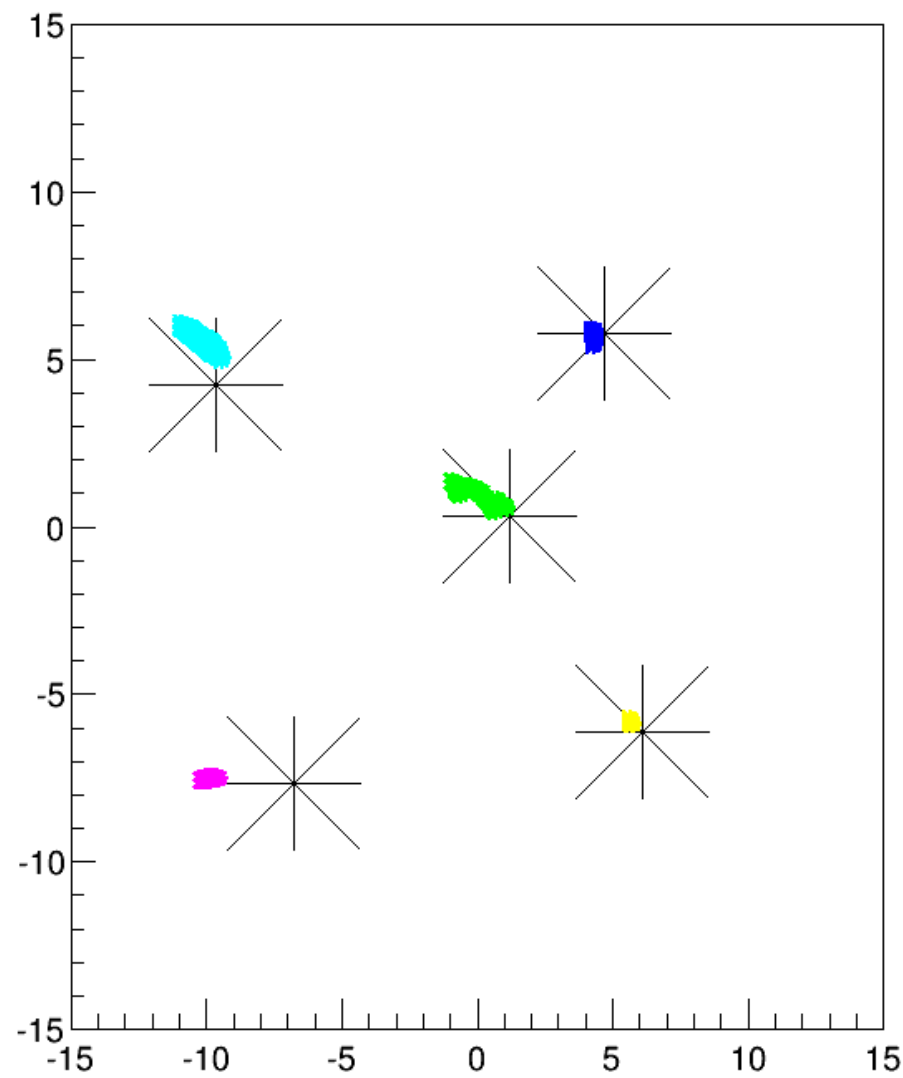


75nA(use same calibration constant as before)

bpm calibration

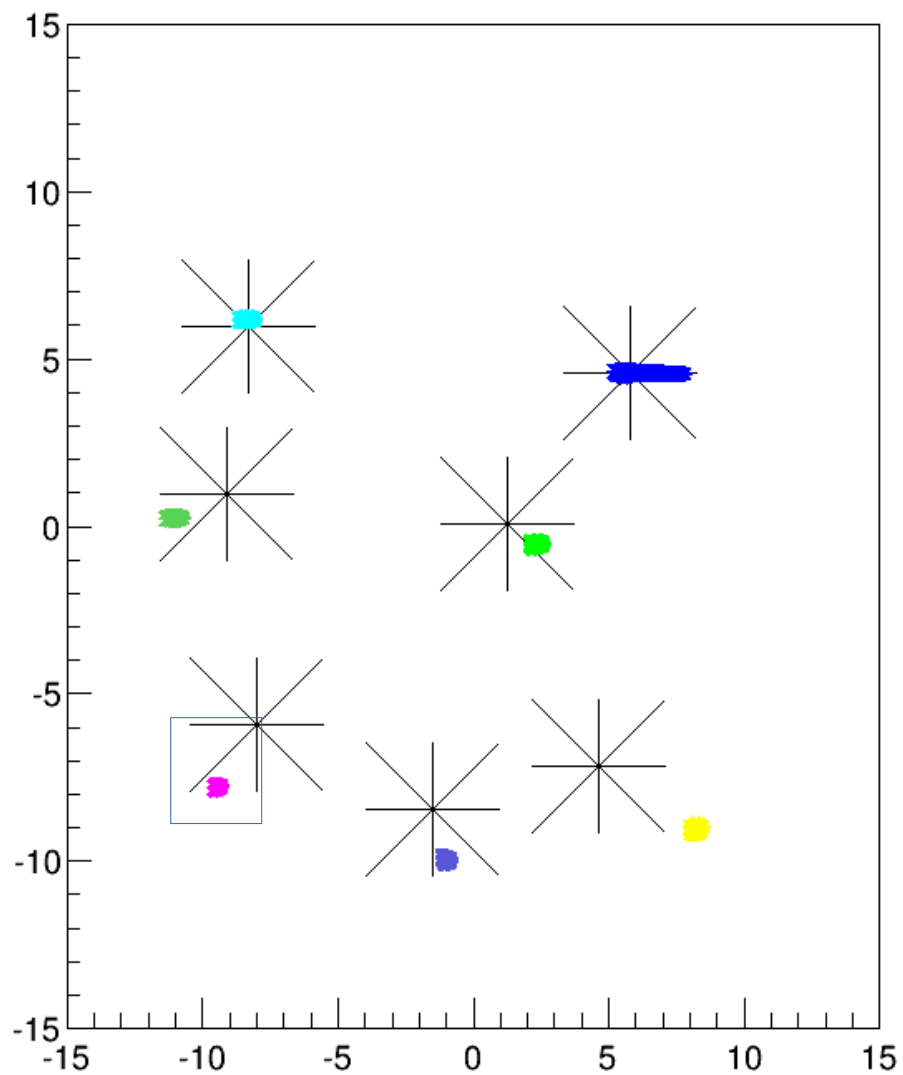


bpm calibration

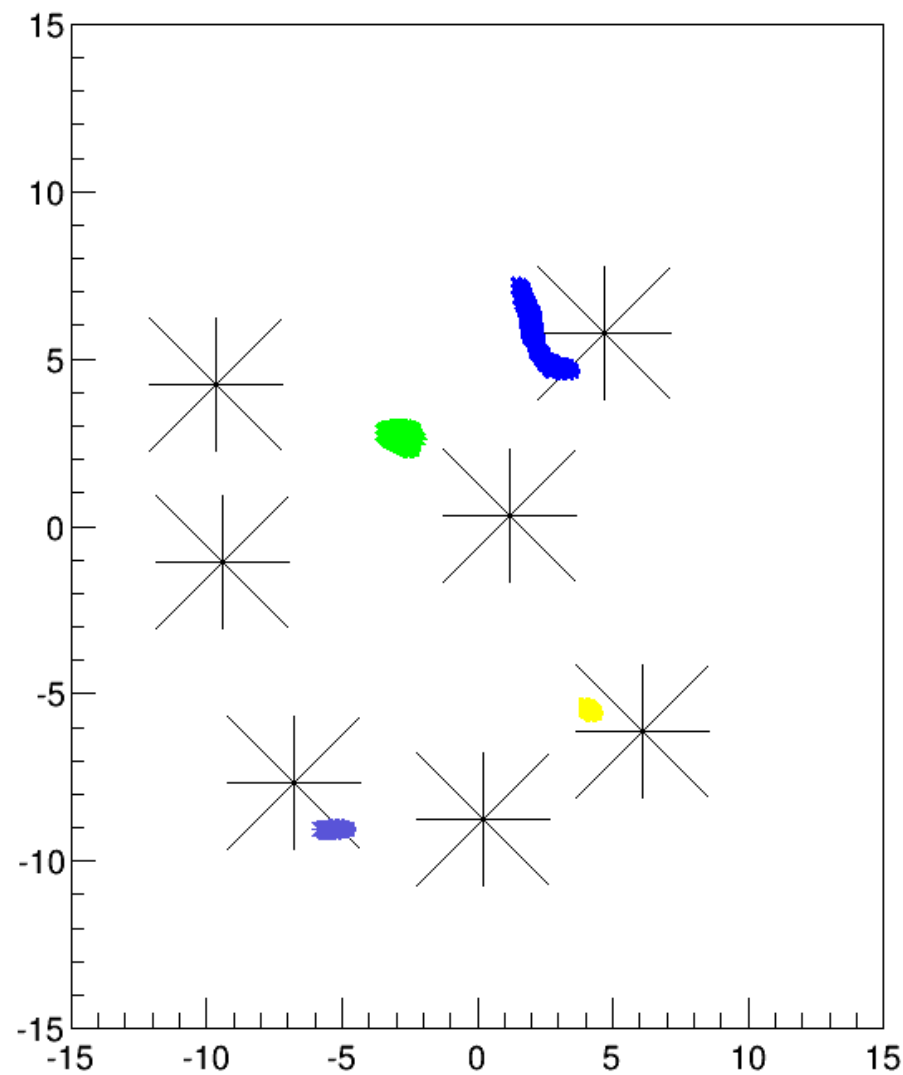


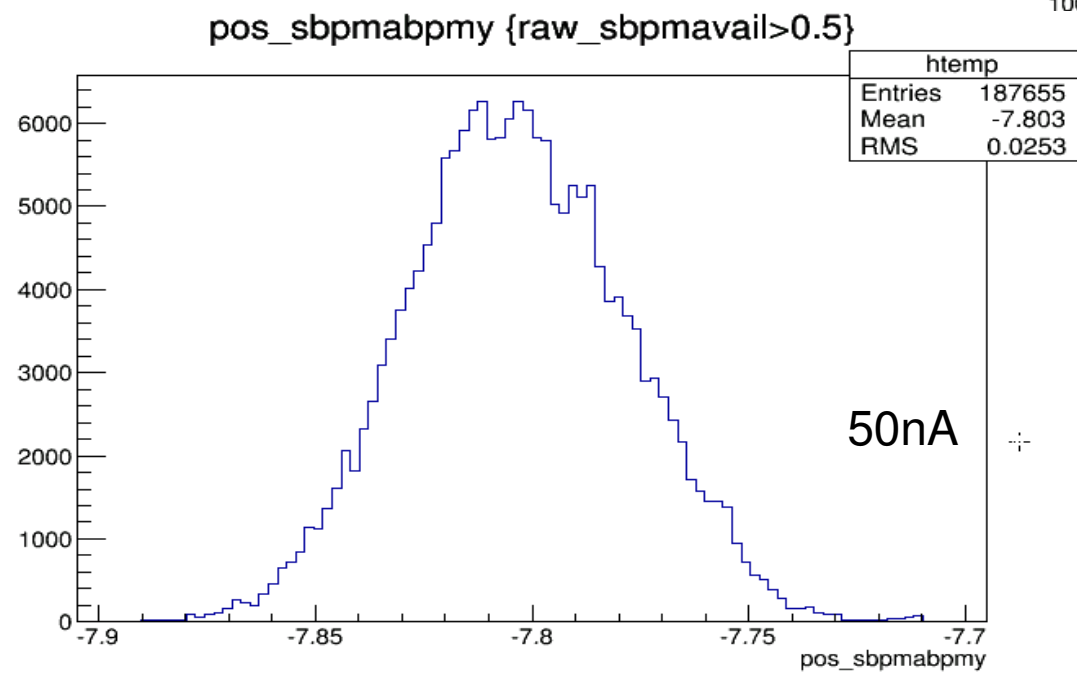
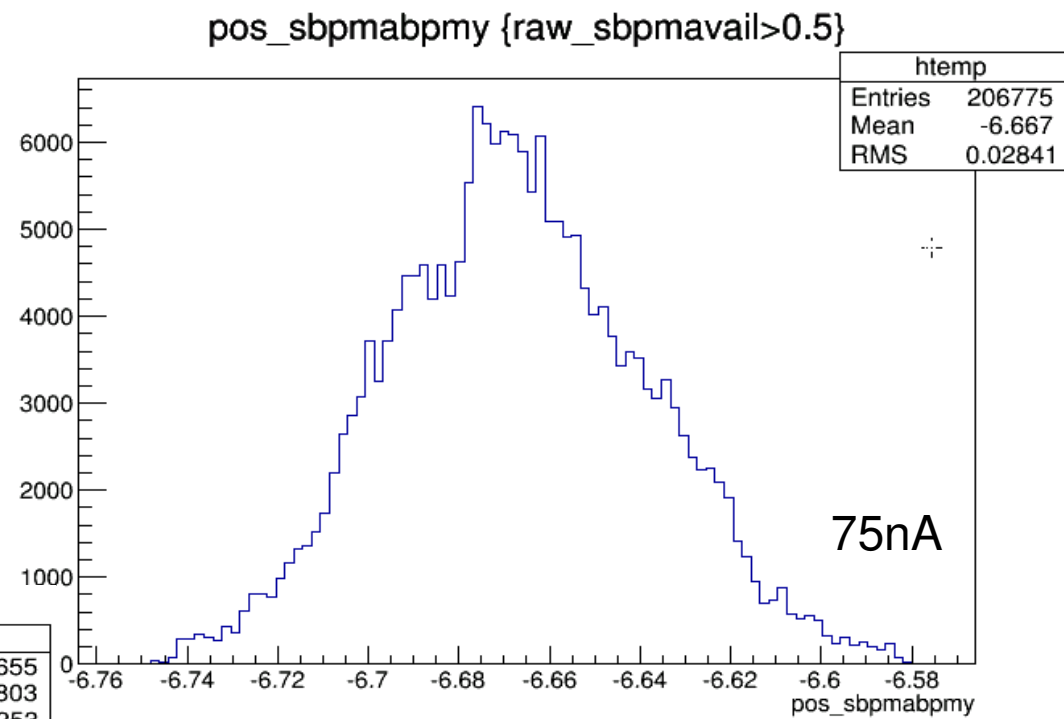
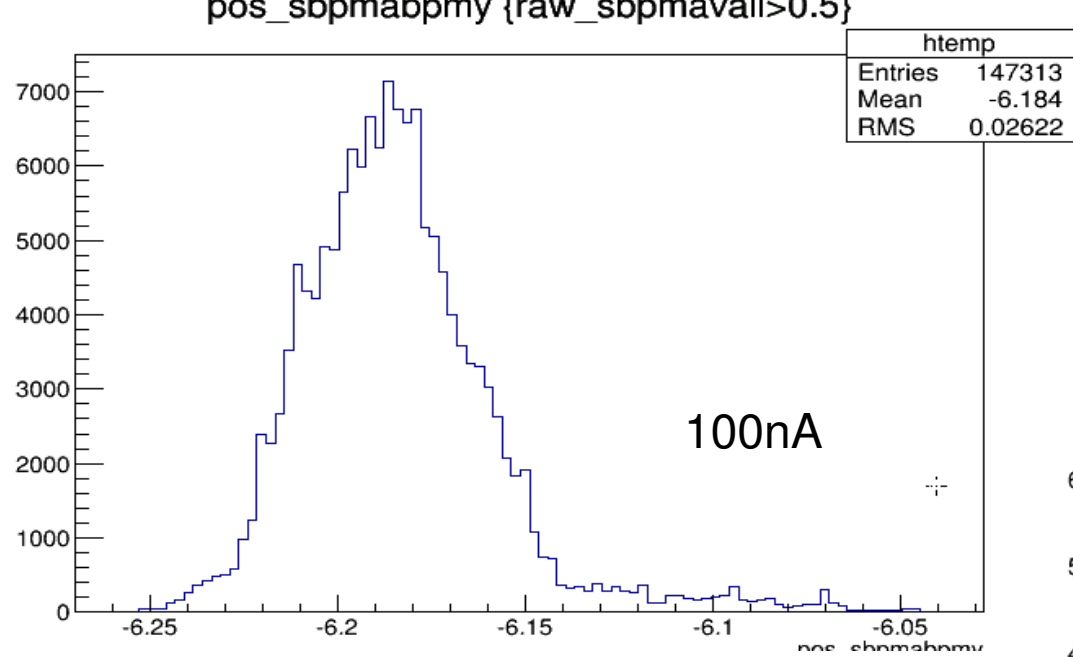
50nA(use same calibration constant as before)

bpm calibration



bpm calibration

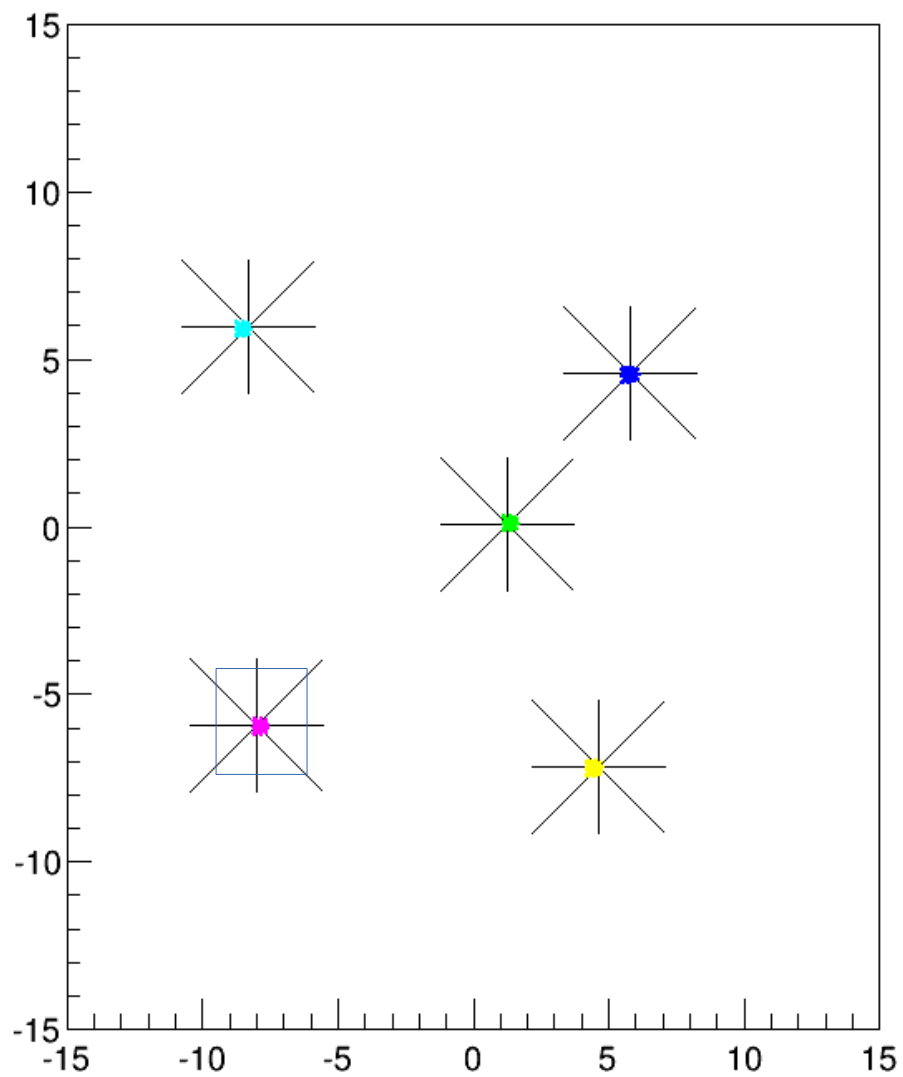




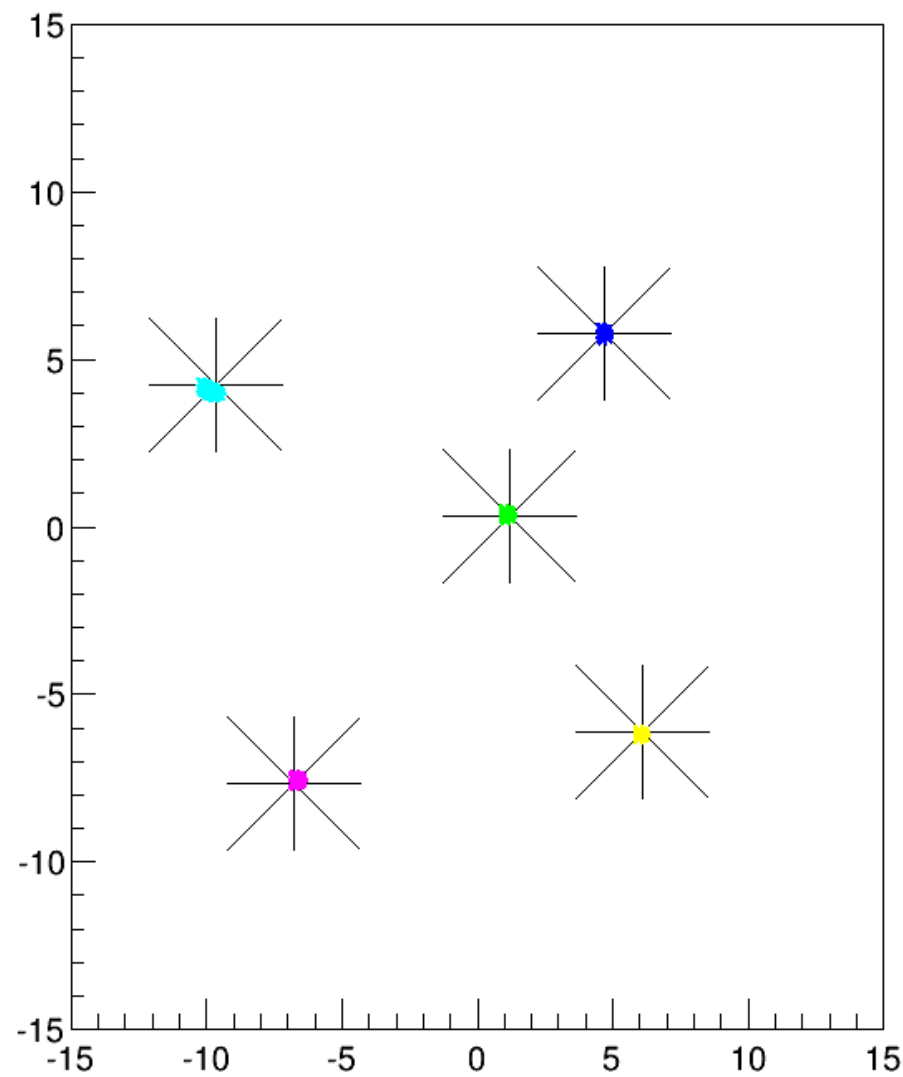
- Without pedestal subtract

100nA(100nA calibration run)

bpm calibration

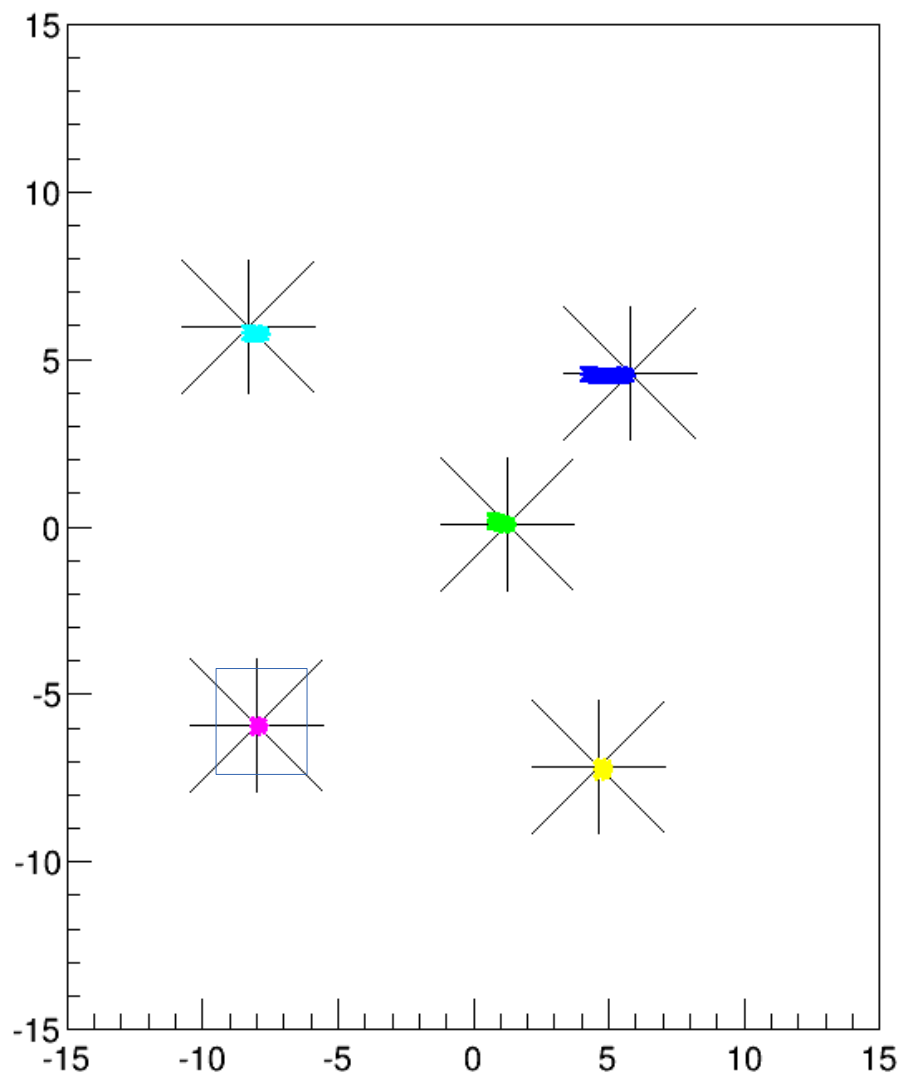


bpm calibration

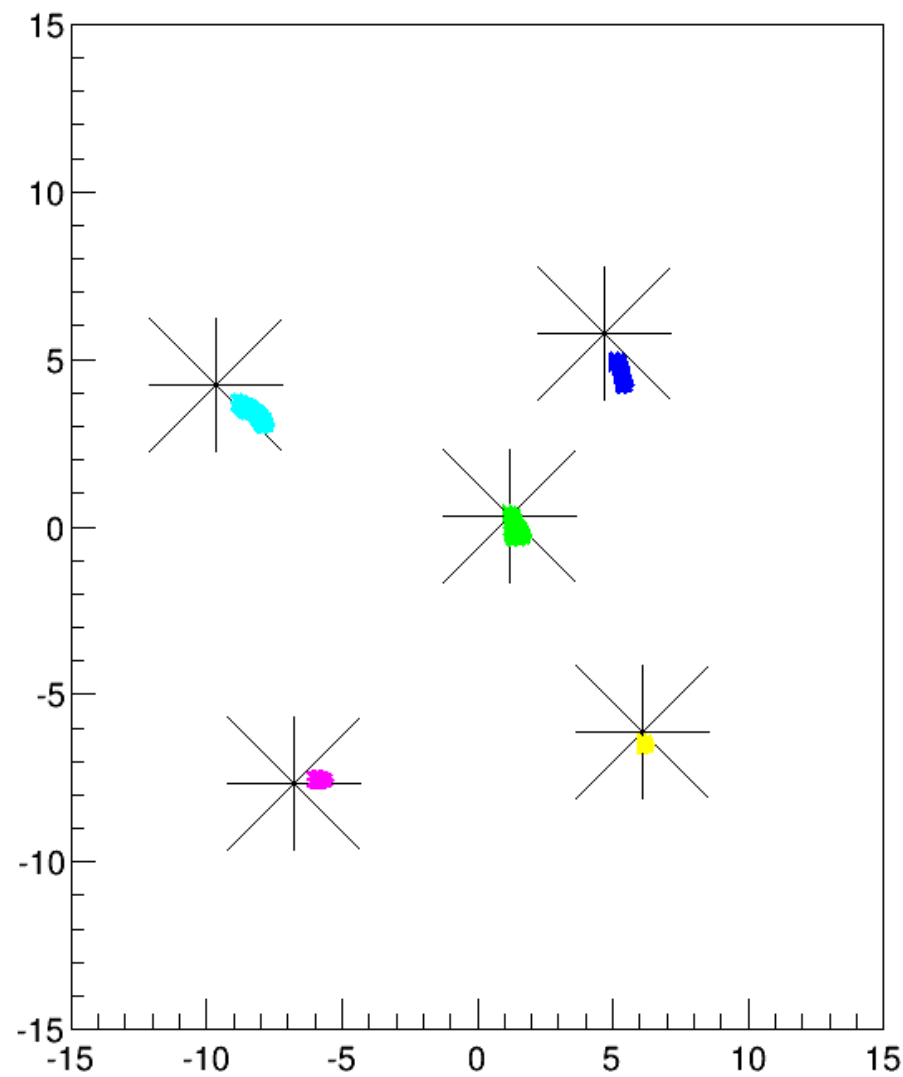


75nA (use same calibration constant as before)

bpm calibration

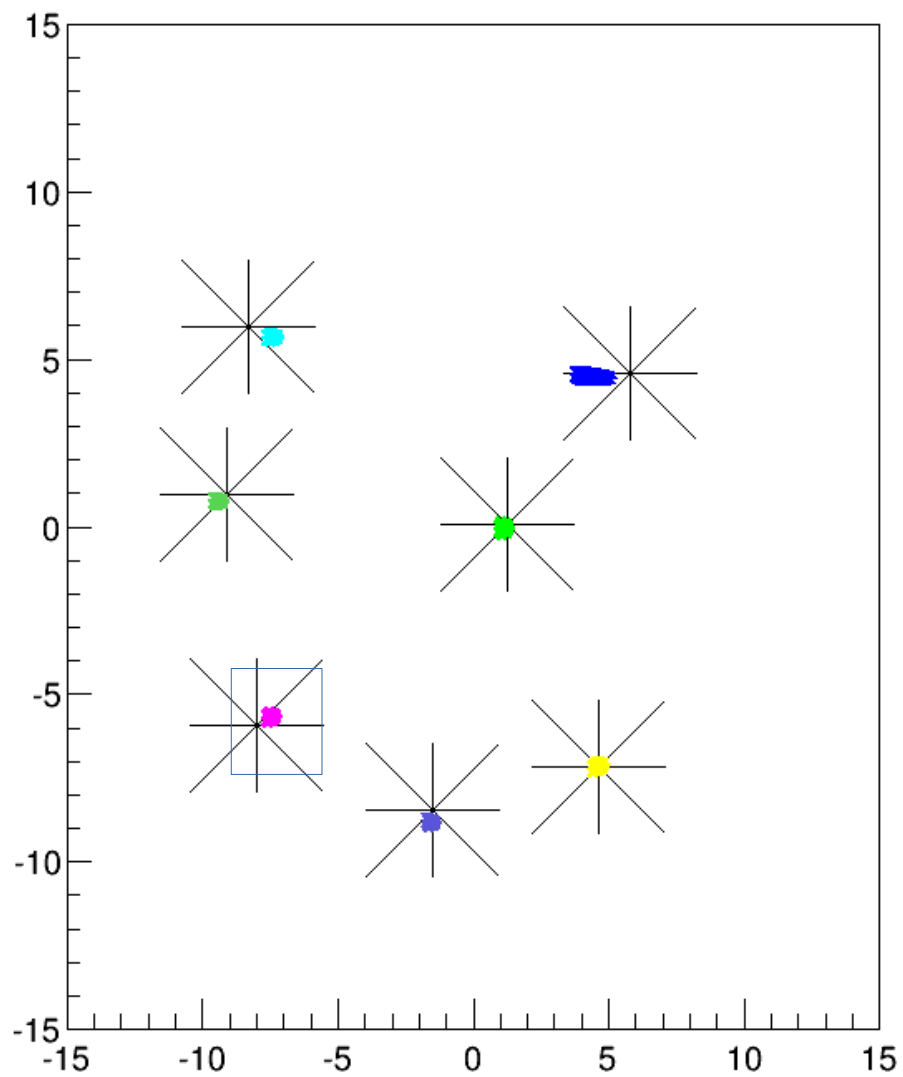


bpm calibration

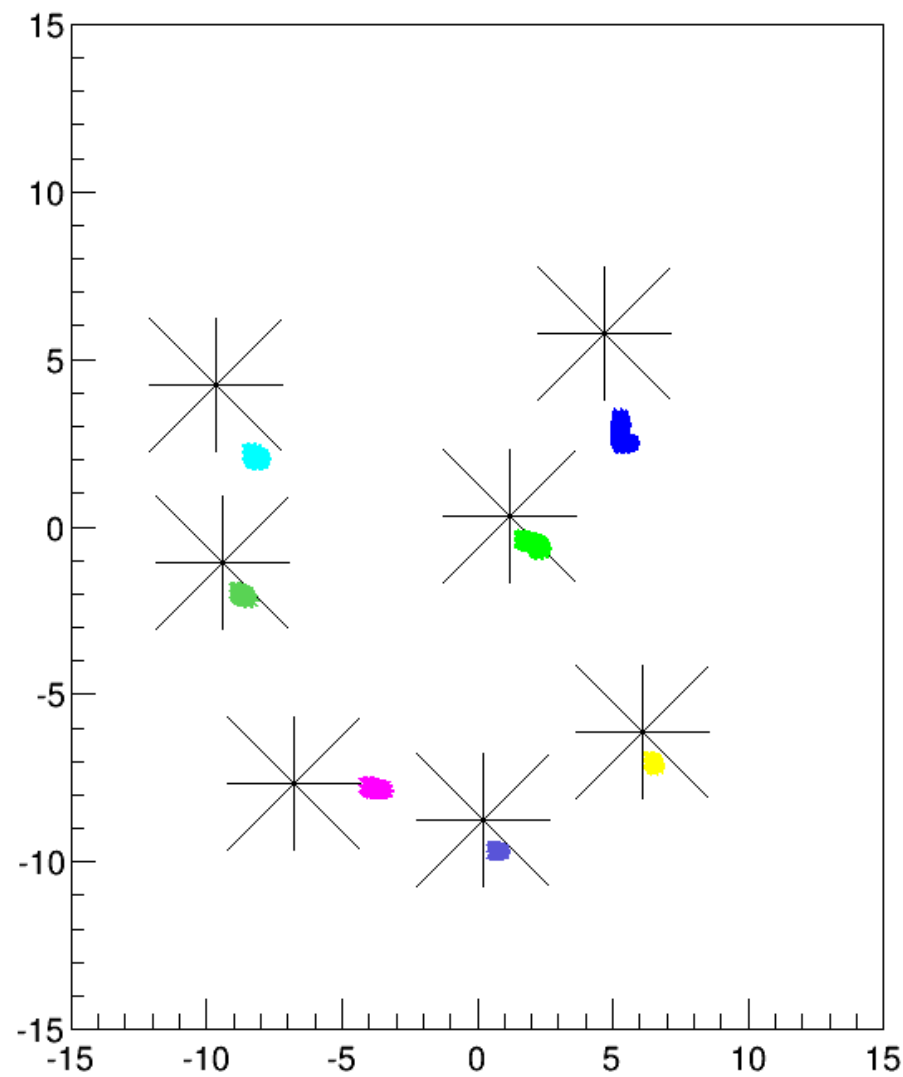


50nA(use same calibration constant as before)

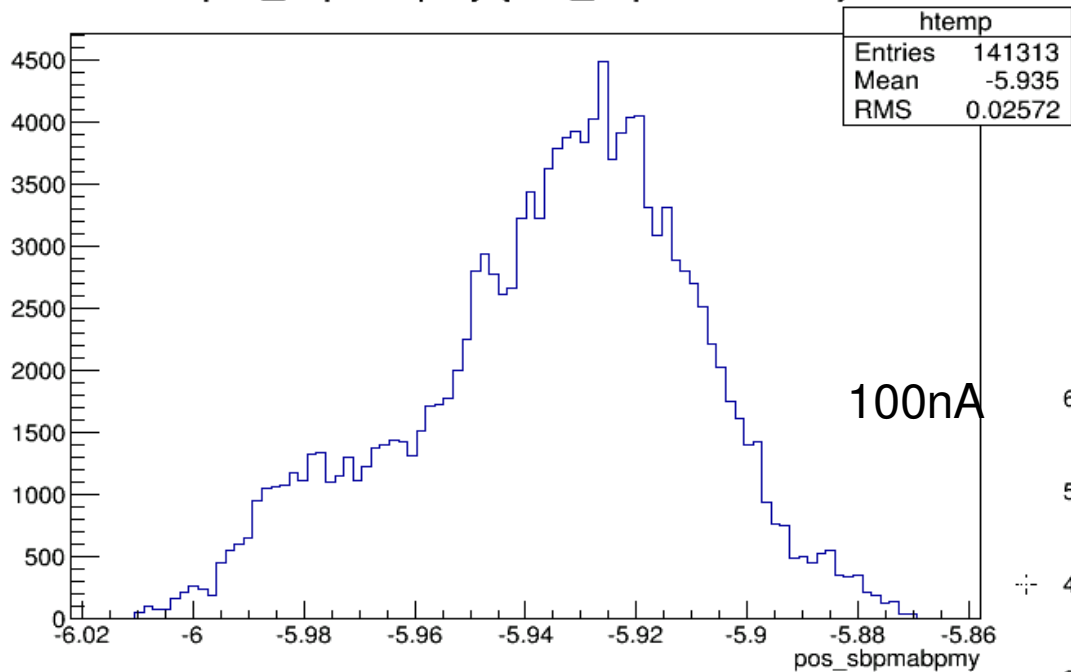
bpm calibration



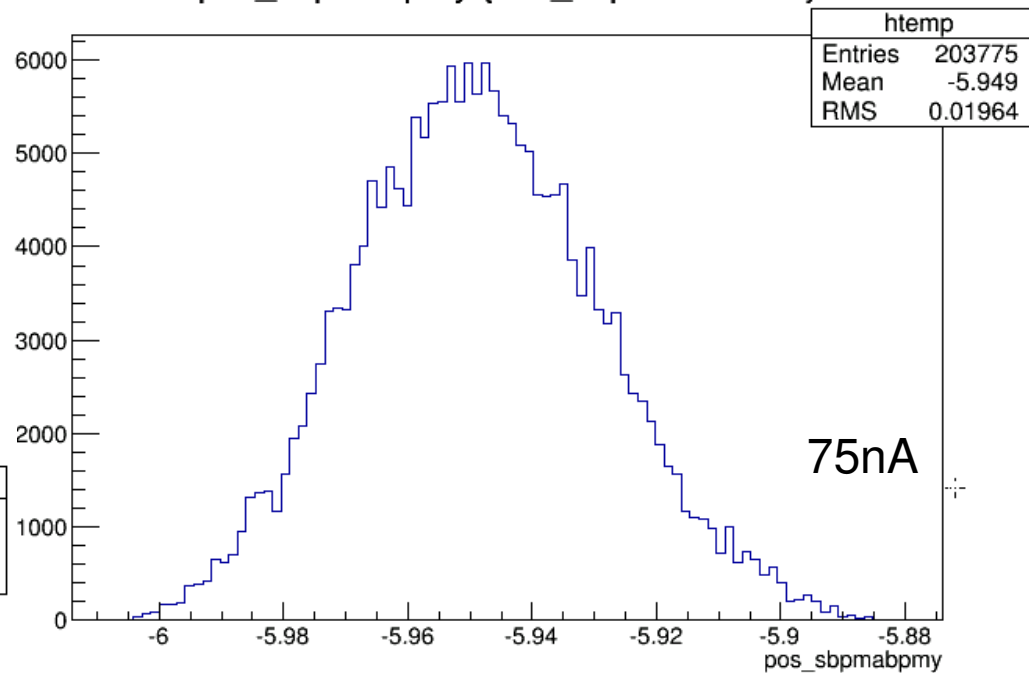
bpm calibration



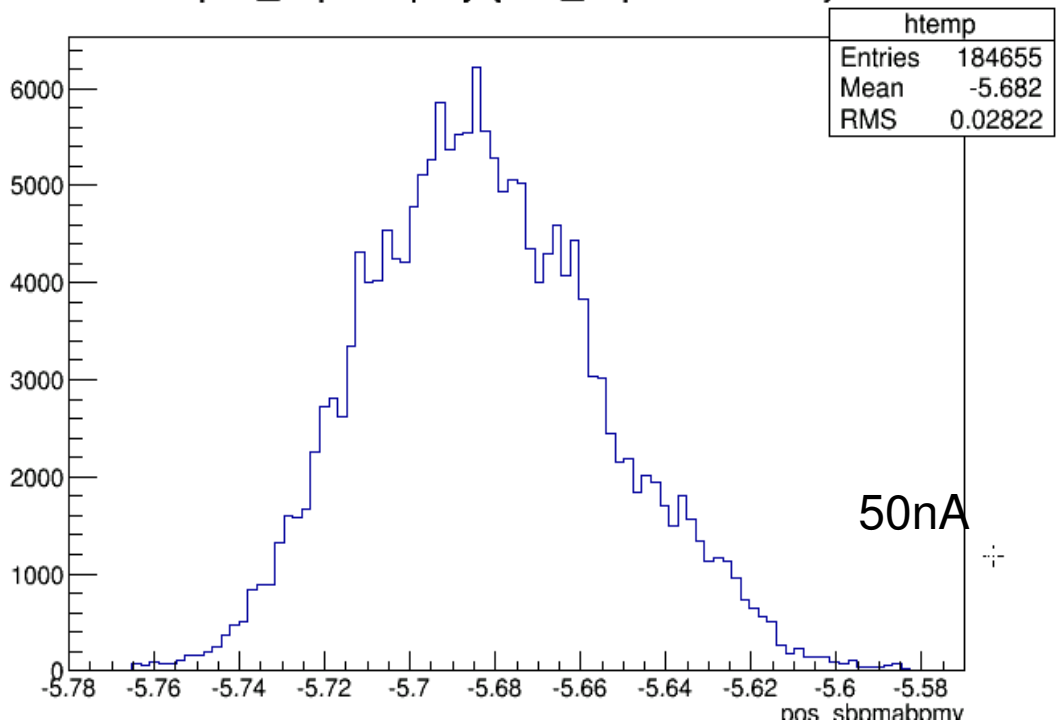
pos_sbpmbpmy {raw_sbpmbavail>0.5}



pos_sbpmbpmy {raw_sbpmbavail>0.5}

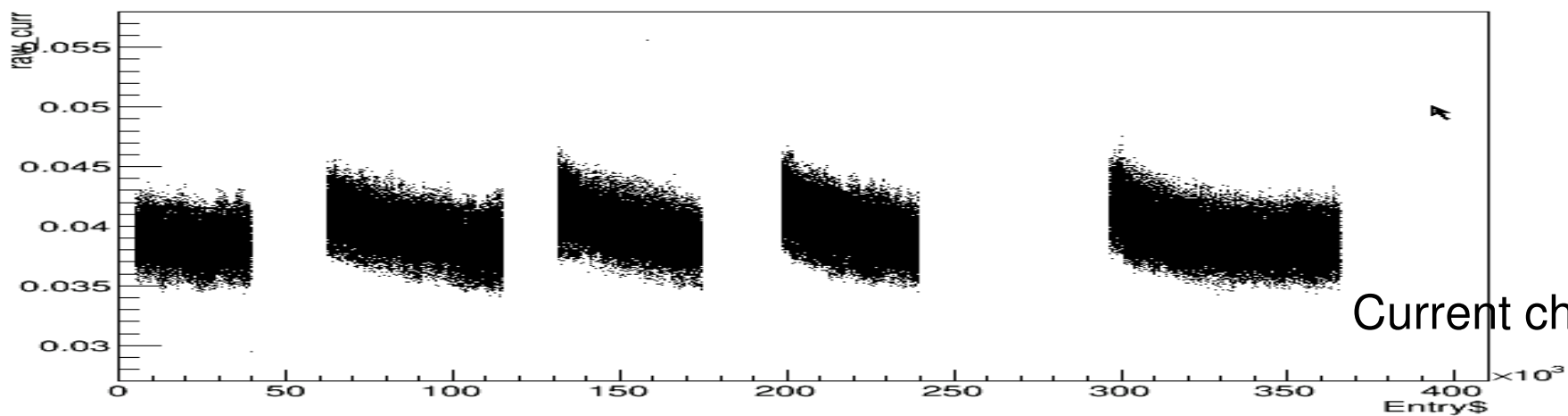


pos_sbpmbpmy {raw_sbpmbavail>0.5}



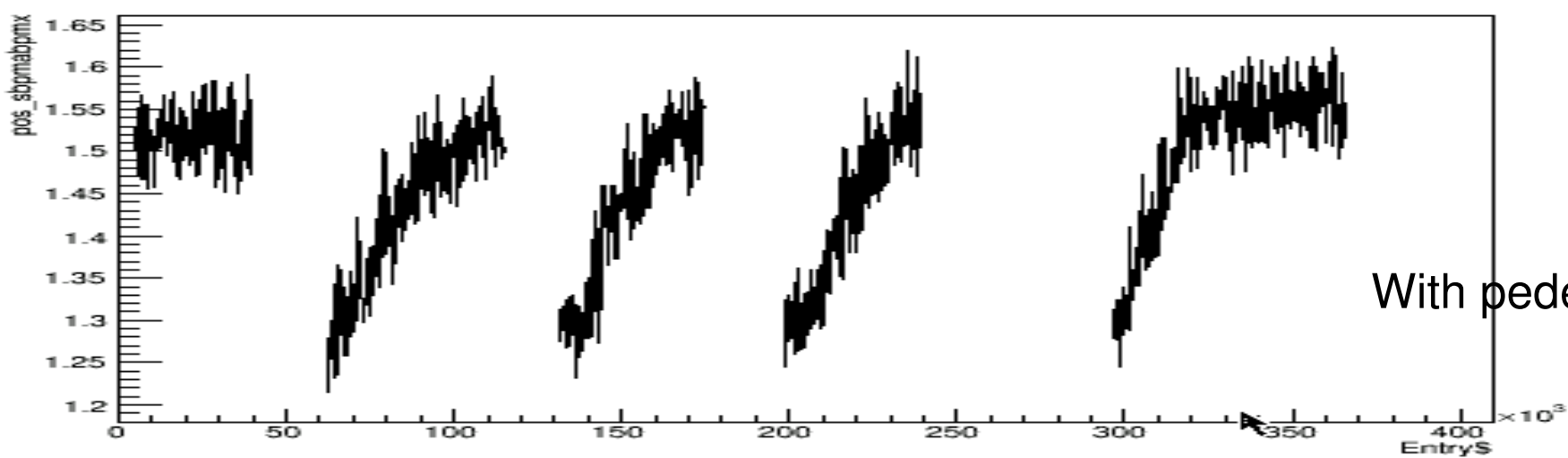
Compare again

raw_curr:Entry\$ {raw_sbpmaavail>0.5}



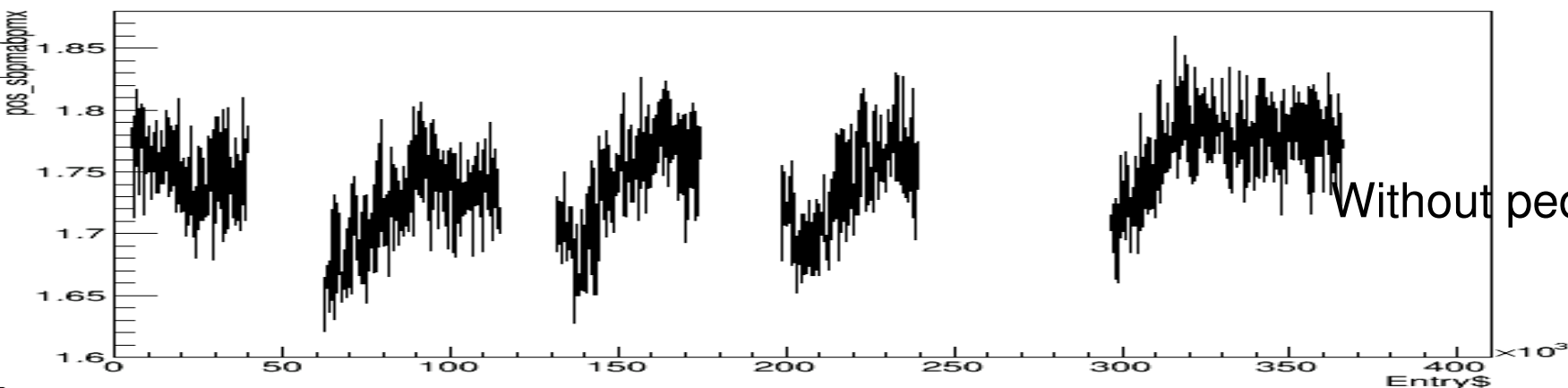
Current change

pos_sbpmaabpmx:Entry\$ {raw_sbpmaavail>0/5}



With pedestal subtract

pos_sbpmaabpmx:Entry\$ {raw_sbpmaavail>0/5}



Without pedestal subtract

Conclusion:

Although without subtract pedestal will introduce additional uncertainty, But from the study before, the method that subtract a average pedestal value will cause much larger uncertainty than without subtract pedestal.

Will try more methods to minimize current effect