

Beamline diagnostics

G2p collaboration meeting

April 18th 2011

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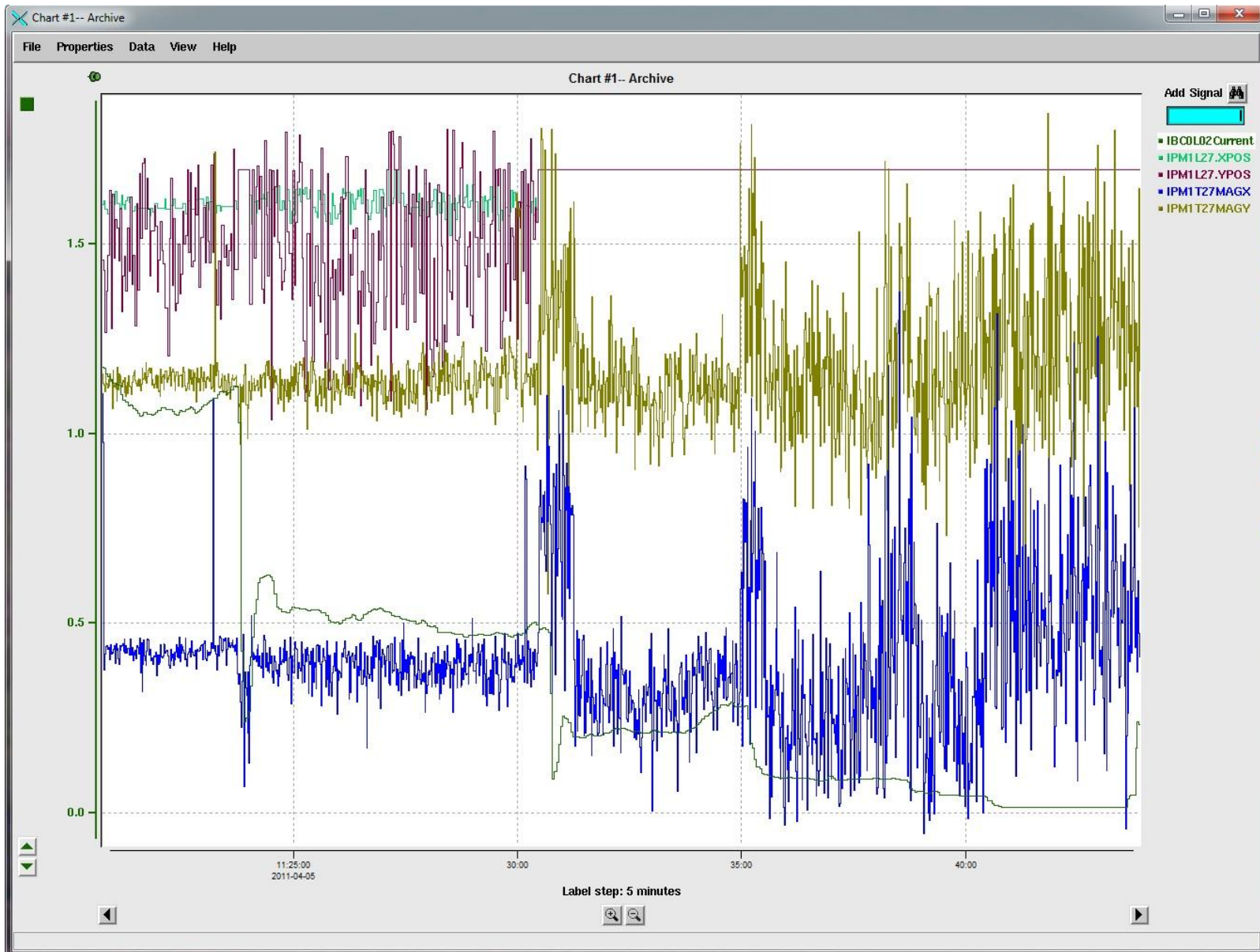
Beam diagnostics

- BPM
- BCM
- Tungsten calorimeter

BPM tests

- Stripline BPMs in LINAC – 6 db compared to antenna BPM
- Signals sent upstairs
- New electronics

BPM test



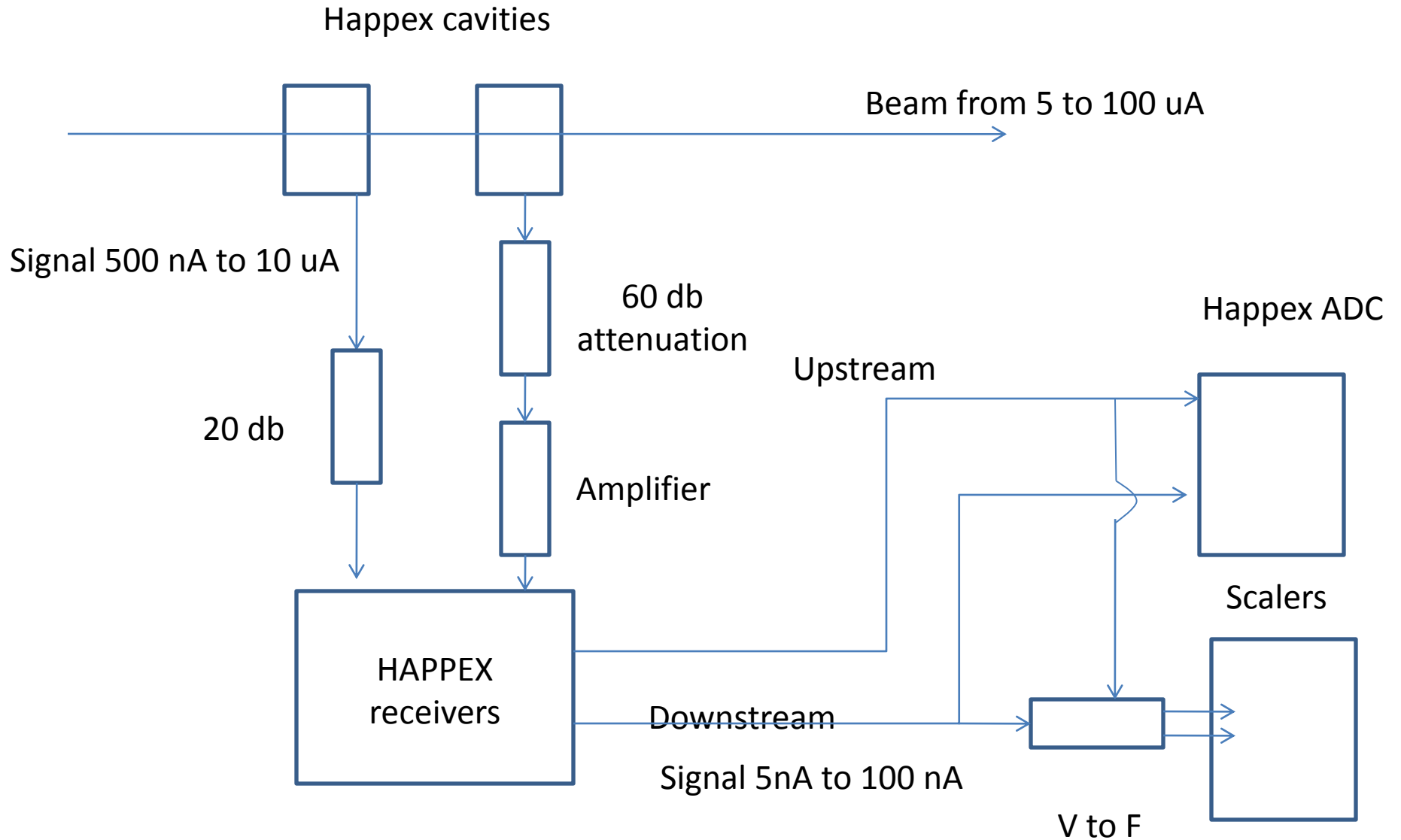
BPM tests

- <http://opsweb.acc.jlab.org/CSUEApps/elog/entry/1578039>
- BPMs give good results at 500 nA and sees signal at 50 nA
- Some optimization to be done

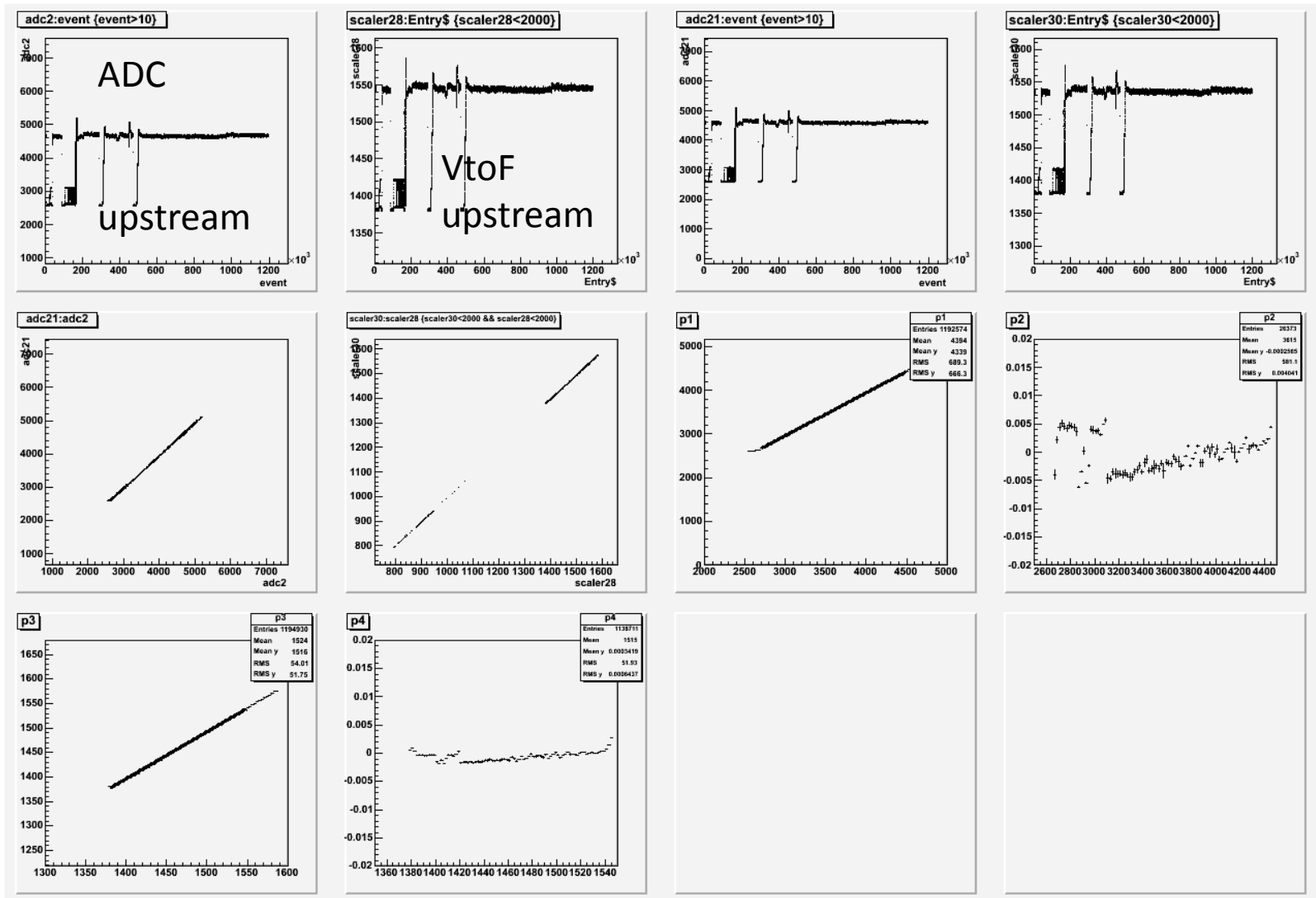
BCM

- HAPPEX DAQ deployed
- Parasitic test on going , looking at the data
- Might take dedicated beam data if needed
- Preliminary results look encouraging

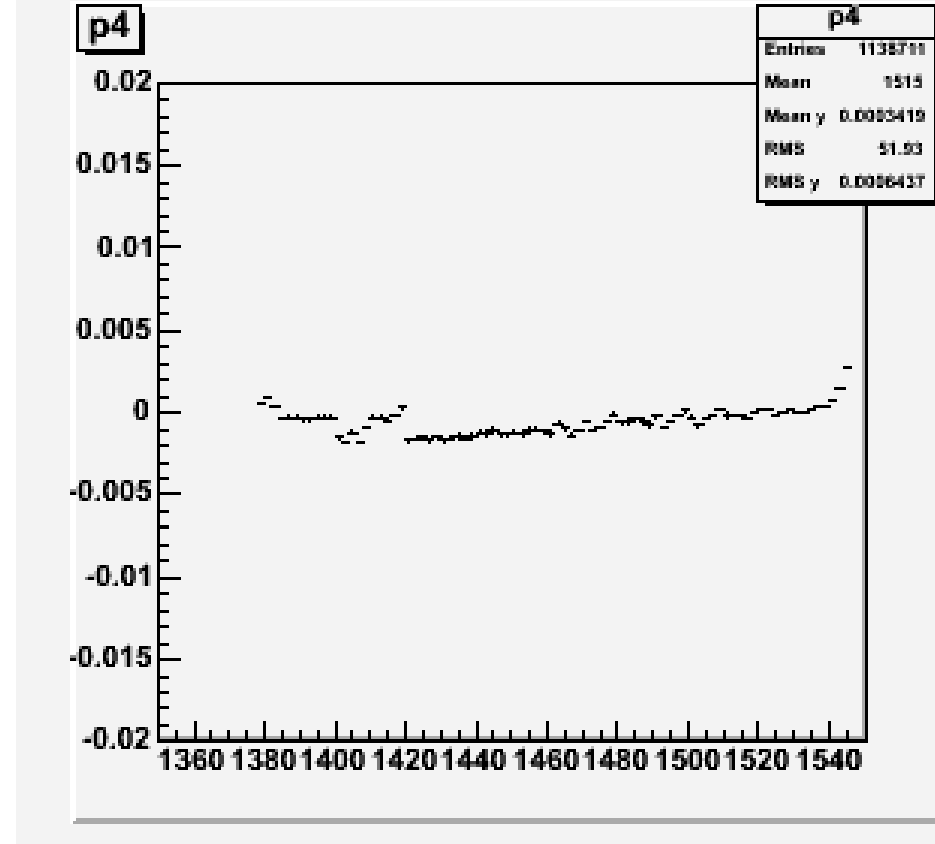
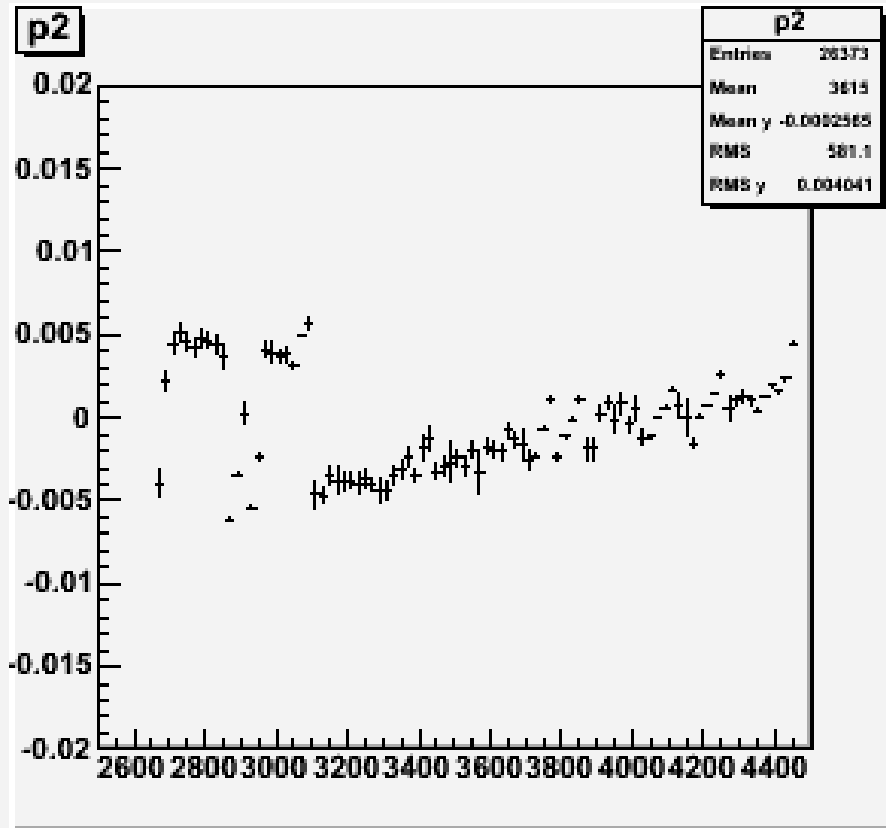
BCM setup



BCM test 5 uA run



5 μA run



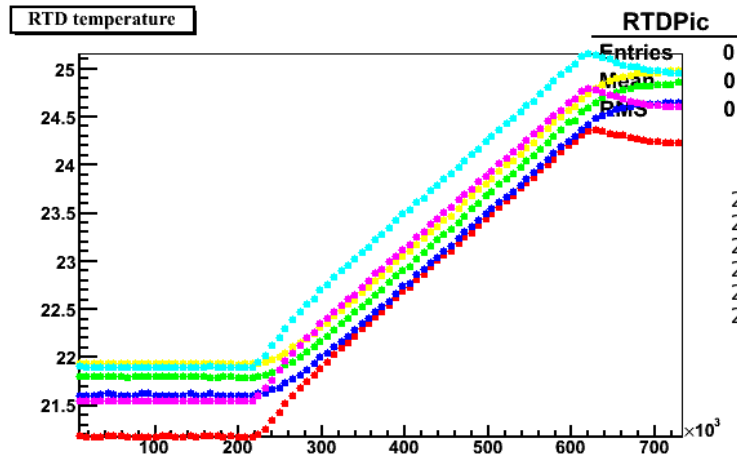
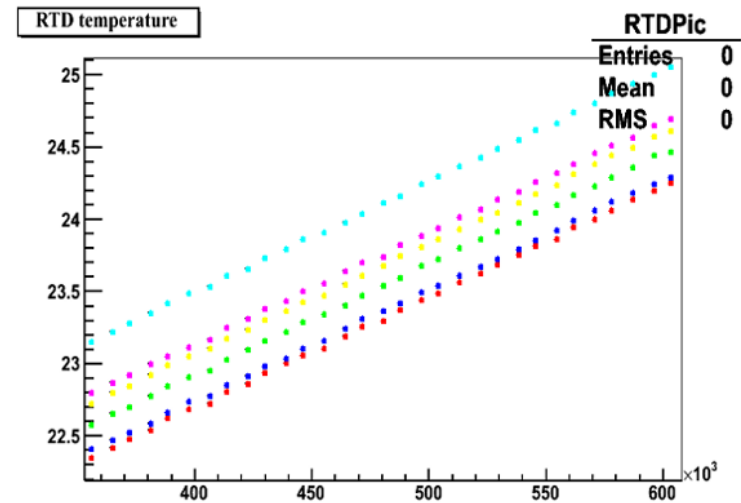
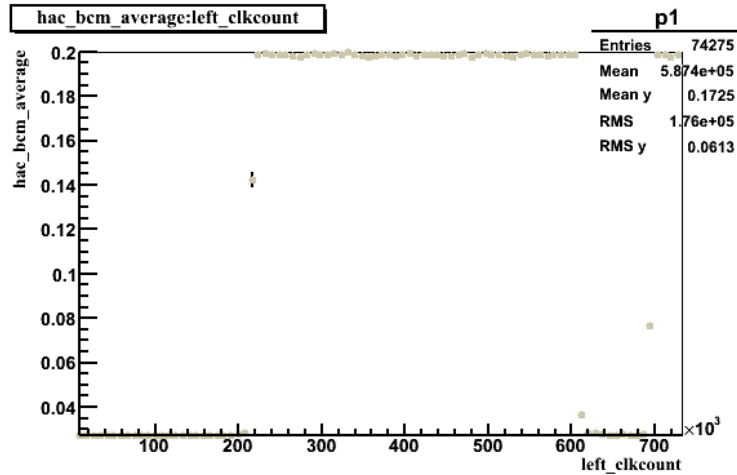
Preliminary result

Non linearities from 0 to 5 nA non linearities seems to be less than 1%

Tungsten calorimeter

- LEDEX data reanalysis
- New electronics
- Software to be completed in August

Tungsten calorimeter



T0	T1	dT	t0	t1	dt
22.35125	24.251562	1.9003122	360105.73	611482.01	251376.29
22.58	24.464063	1.884063	360105.73	611482.01	251376.29
22.409999	24.29375	1.8837506	360105.73	611482.01	251376.29
22.72625	24.614063	1.8878133	360105.73	611482.01	251376.29
22.7975	24.69375	1.8962494	360105.73	611482.01	251376.29
23.15125	25.051563	1.9003128	360105.73	611482.01	251376.29

Tungsten calorimeter

- Run at 200 nA
- Rise of 2 degrees at 300 MeV in 8 minutes
- Need 10 C to have less than 1 % error
- Run taken at 1.1 GeV can take run at higher energy to make measurement faster (need to study neutron loss contribution, quoted loss 0.4 %)
- Should be ok to take 1% measurement 50 nA at 3.3 GeV in reasonable time : about 16 minutes by scaling

Conclusion

- Preliminary tests for BCM look good still a few days to get final results and do dedicated test. Final results for review
- BPM tests signal seen but need some optimization more data coming
- Tungsten calorimeter Hardware ready mostly software work. Should be ready by August. Reanalysis of LEDEX data on going. Running time reasonable at higher energies