IST calibration Plan

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034/04/14

IST Calibration Plan

- Bad Chip/Channels list
  - Tracked weekly after each major firmware update and check any changed in permanent Dead Chip/Channels
  - Including the DAQ (Tonko's) generated list of mis-configured chips to Study
- Generate istPedNoise noise Db table weekly and after each major firmware update.
  - Using Pedestal/Noise from Tonko's files (pedestal_tcd_only)
  - Using pedAsPhys for Common mode noise .
- Starting systematic study :
  - Channels' ADC to electron charge gain translation. (istGain)
  - Offline reconstruction Cuts (istControl) [IstChanMax/MinRmsNoiseLevel, ApvMaxCmNoise , IstCMNCut , ….]

Back Up slides

Dead Chip/Channels procedure

- Goal is to make Permanent dead Chip/Channels tables based on all run.
  - 209 Cosmic runs is used plots at :
  - http://www4.rcf.bnl.gov/~babakabi/public_html/plots/index.htm
    - I. **Pedestal/noise per ladders (3rd Timebin)**
    - II. **Pedestal/Noise/ComModeNoise for All time bins .**
    - III. **Pedestal/Noise Stability for time bins 0 to 5 from Cosmic runs days 32 to 40**

- General Characteristics of Silicon Strip Modules

1) Pedestal of Strip *i* from *M* events :

$$p_i = \frac{1}{M}\sum_{j=1}^{M} r_{ij} \ ,$$

2) Pedestal-noise of Strip *i* from *M* events

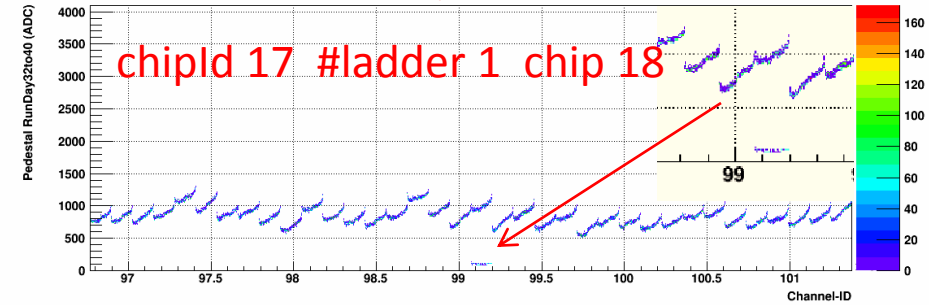
$$\sigma_i = RMS(r_{ij}) = \sqrt{\frac{1}{M}\sum_{j=1}^{M}(r_{ij} - p_i)^2}$$

3) Common mode offset (noise) of APV chip event *j.*
   - The common mode noise is the RMS of the common mode distribution

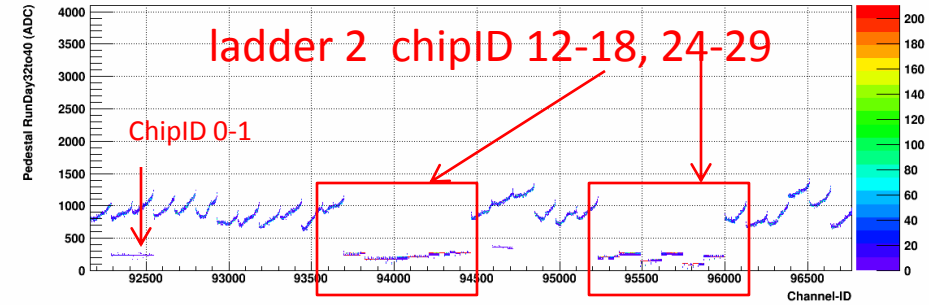
$$CM_j = \frac{1}{128}\sum_{i=1}^{128}(r_{ij} - p_i)$$

Ladder #1 Time-bin1

Pedestal distribution /allruns

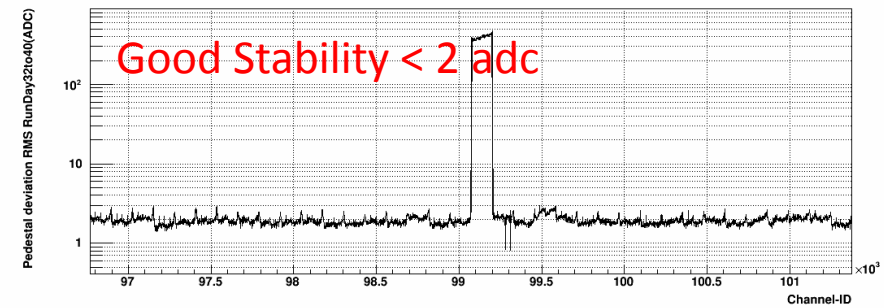


Ladder #2 Time-bin1

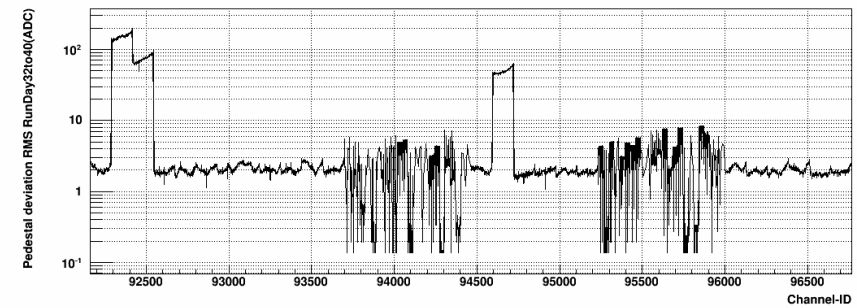


Ladder #1 Time-bin1

Pedestal deviation rms/allruns

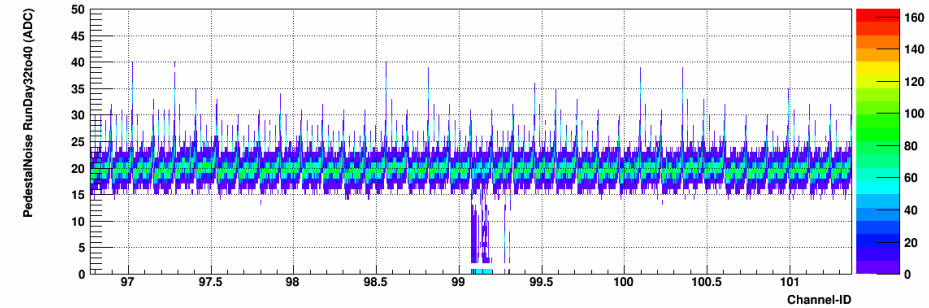


Ladder #2 Time-bin1

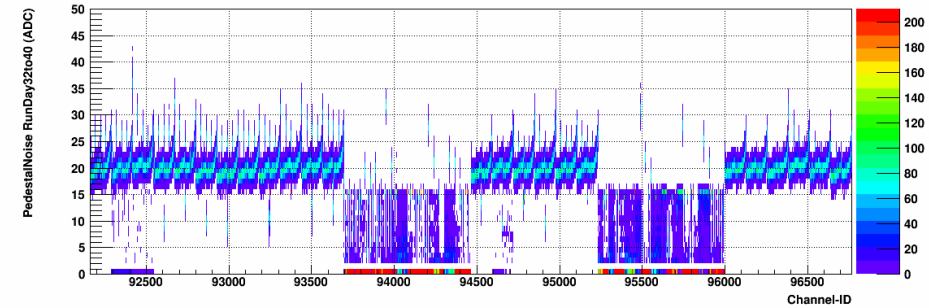


Ladder #1 Time-bin1

Pedestal -Noise distribution /allruns



Ladder #2 Time-bin1



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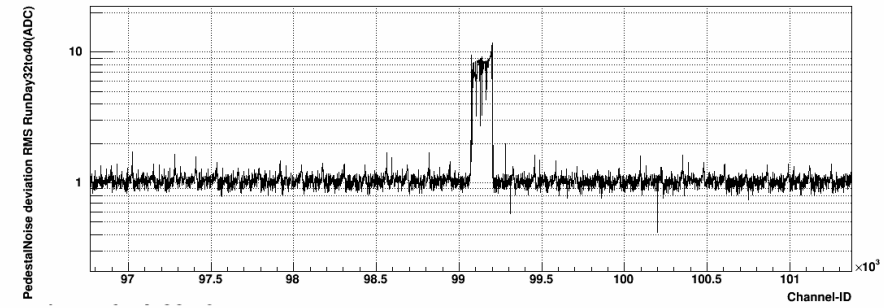
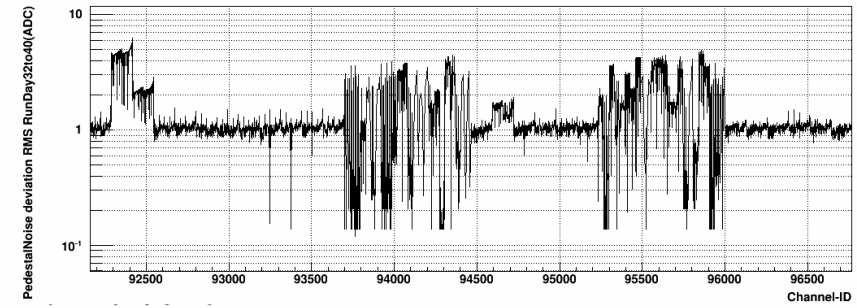
Pedestal –noise deviation rms/allruns

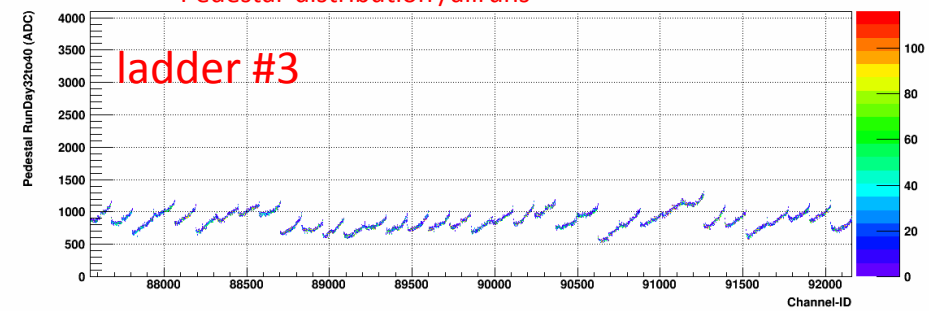


Ladder #2 Time-bin1

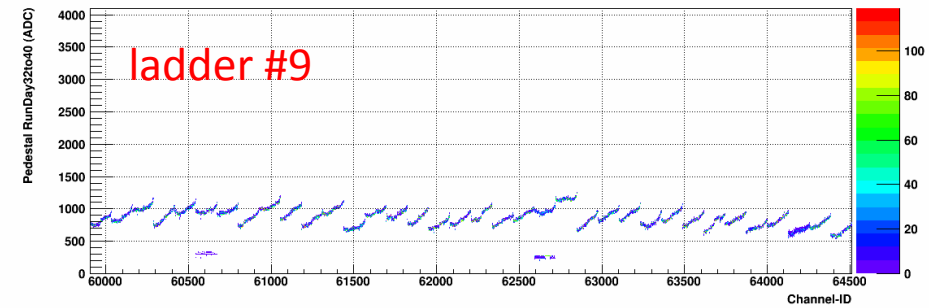


Ladder #3 Time-bin1

Pedestal distribution /allruns

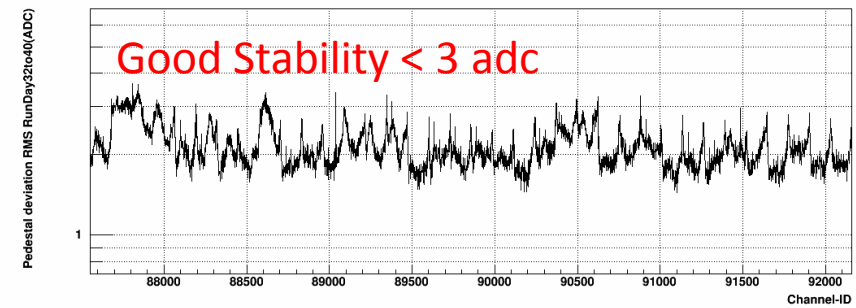


Ladder #9 Time-bin1



Ladder #3 Time-bin1

Pedestal deviation rms/allruns



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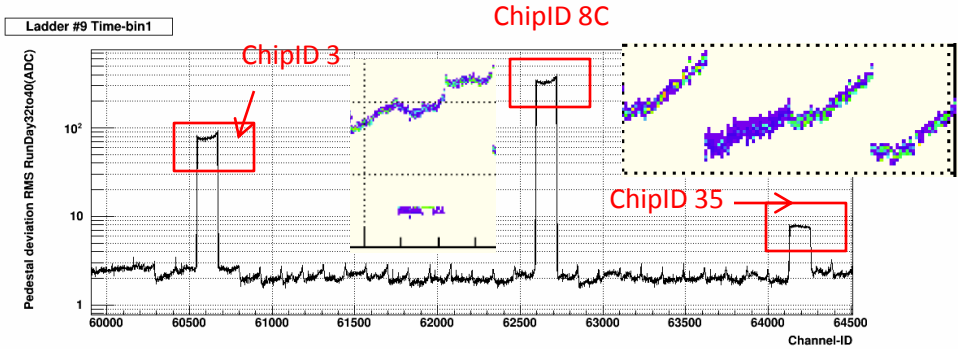
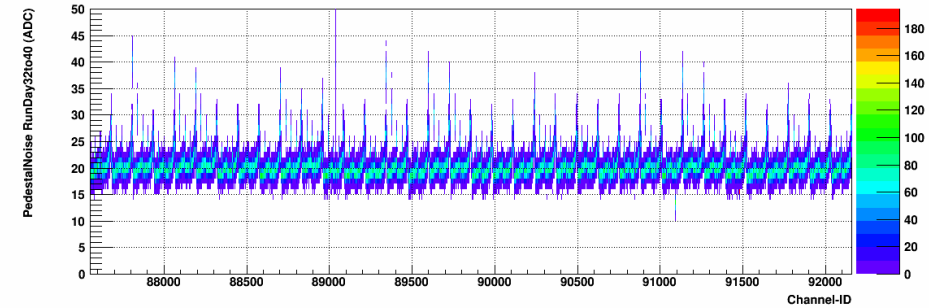


Ladder #3 Time-bin1

Pedestal -Noise distribution /allruns



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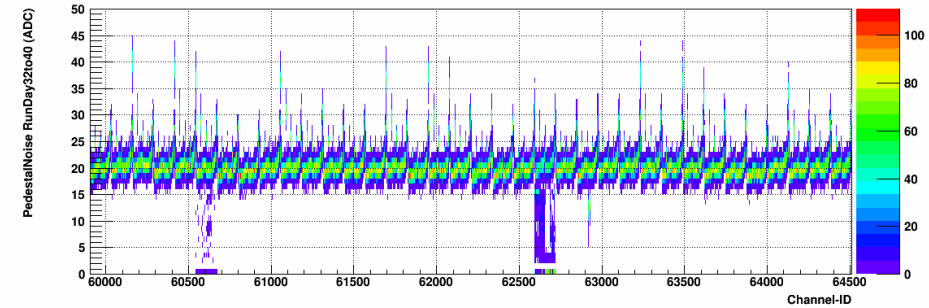
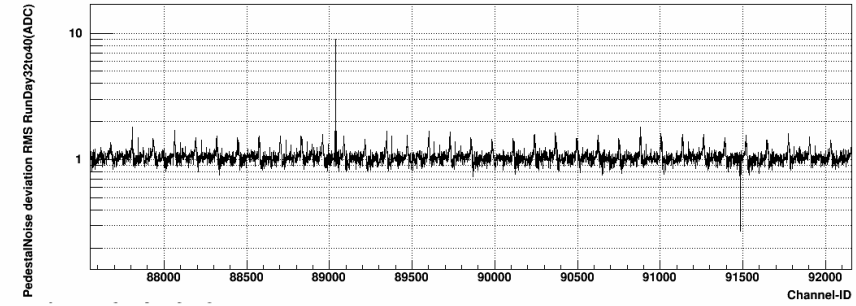


Ladder #3 Time-bin1

Pedestal –noise deviation rms/allruns



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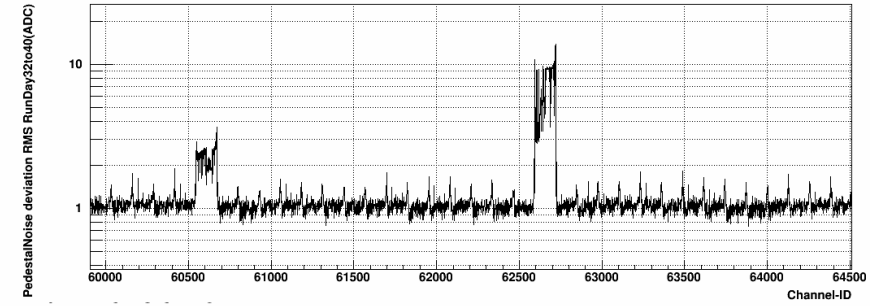
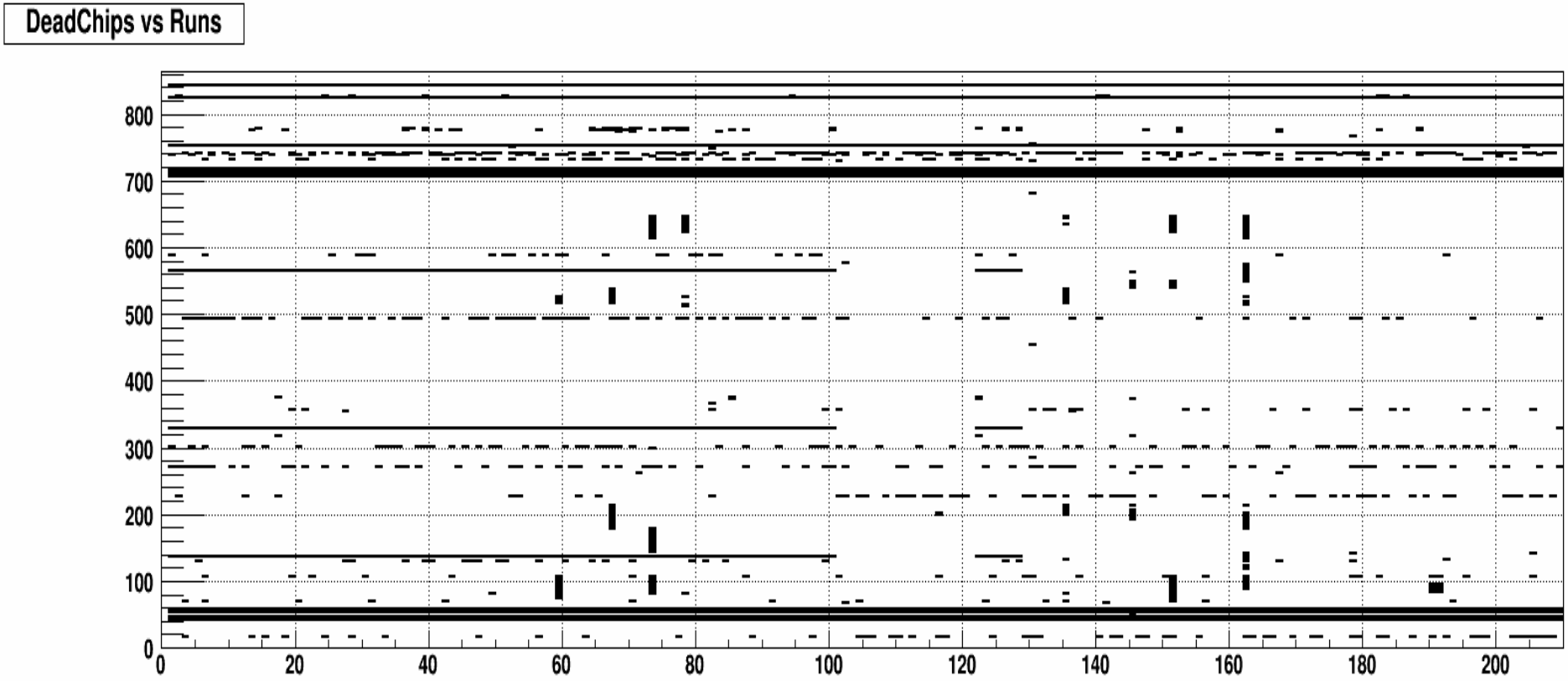
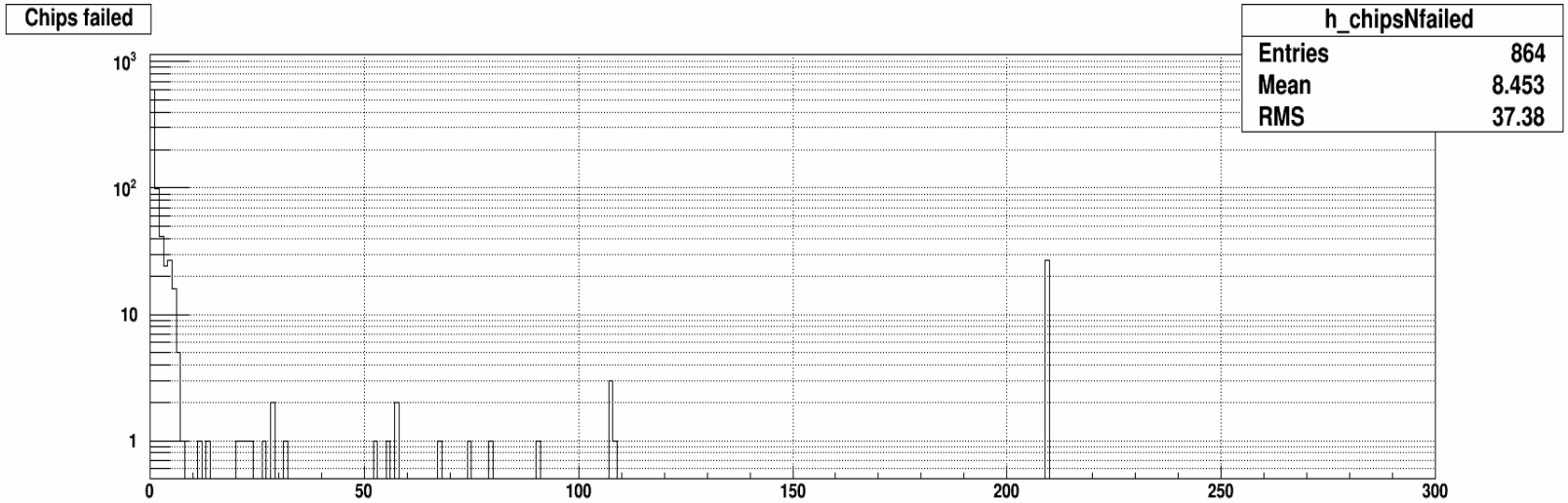
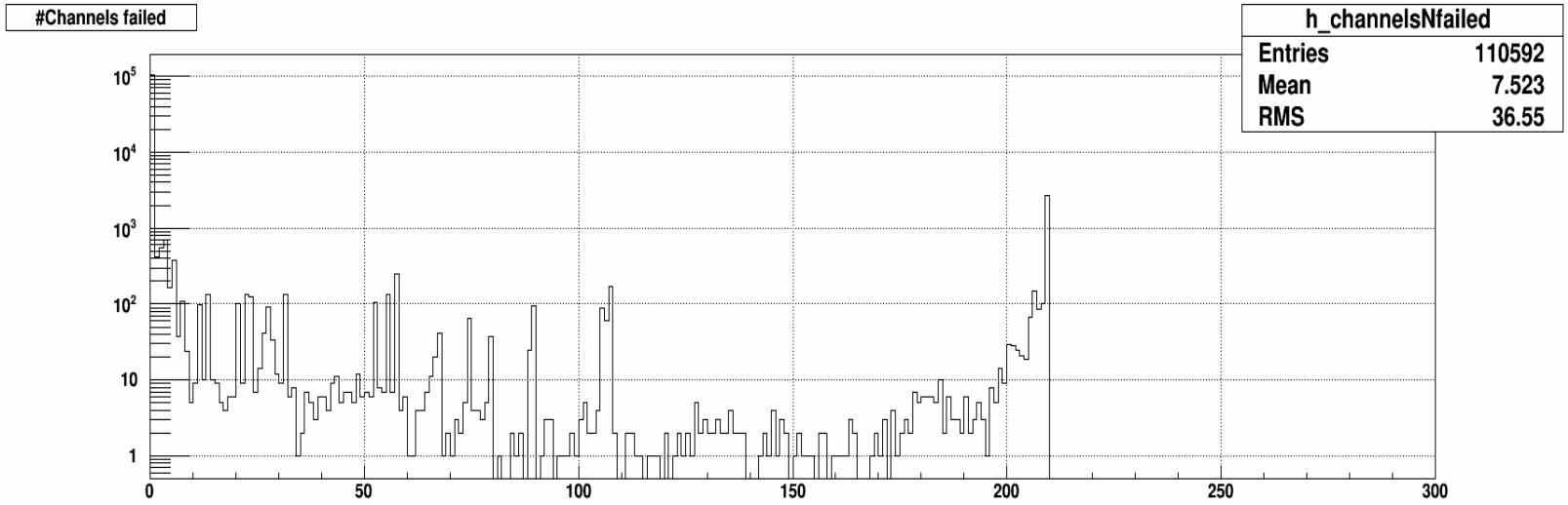


Distribution of Bad Chip/channels current scheme

- Latest results at : (would be updated and ,ore detaile)

http://www4.rcf.bnl.gov/~babakabi/public_html/plots/BCC/bcc.htm



Rate failure for 209 runs