

ECL TRG DQM

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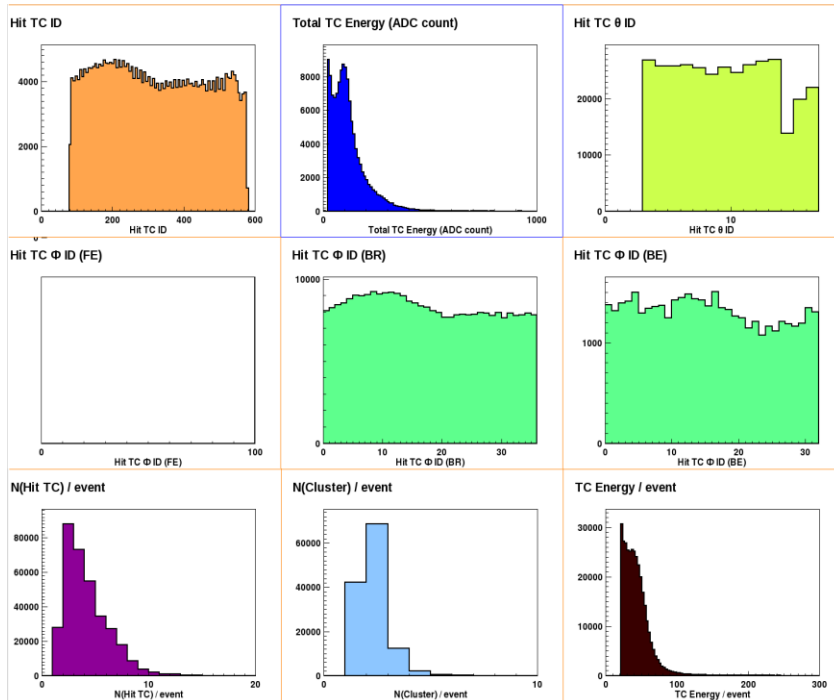
- System
- DQM Description
 - Element
 - Plots
 - manual
- Summary and plan

System

- Unpacker → ECL Trigger DQM → Make plot
- Supporting plots
 - Total TC Energy, TC Energy for event
 - Hit TC ID, Hit TC θ , Φ ID
 - N(Hit TC) for event
 - N(Cluster) for event

ECL TRG DQM element

CSS Viewer



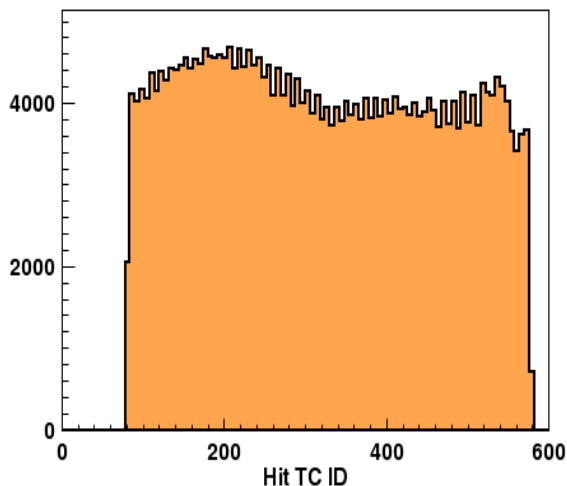
Cosmic data on June 18, 2017

DQM Viewer log

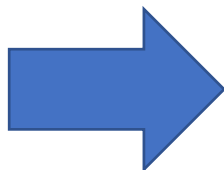
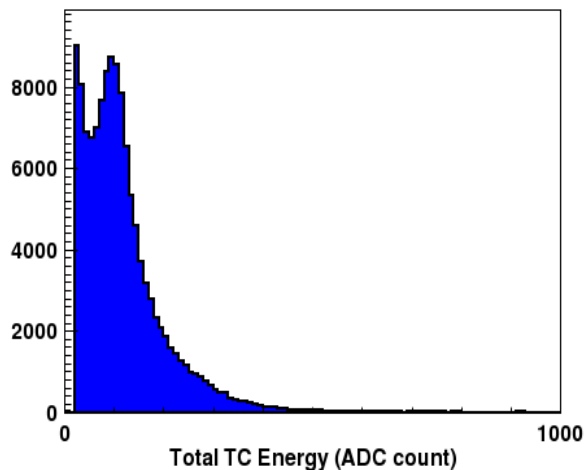
```
[2017-07-21 11:41:37] [INFO] Accepted new connection for data
[2017-07-21 11:41:37] [INFO] new hist: DAQ/h_TCId
[2017-07-21 11:41:37] [INFO] new hist: DAQ/h_TCthetaId
[2017-07-21 11:41:37] [INFO] new hist: DAQ/h_TCpchild_BR
[2017-07-21 11:41:37] [INFO] new hist: DAQ/h_TCpchild_BWD
[2017-07-21 11:41:37] [INFO] new hist: DAQ/h_TotalEnergy
[2017-07-21 11:41:37] [INFO] new hist: DAQ/h_TCEnergy
[2017-07-21 11:41:37] [INFO] new hist: DAQ/h_n_TChit_event
[2017-07-21 11:41:37] [INFO] new hist: DAQ/h_Cluster
[2017-07-21 11:41:37] [INFO] DAQ/h_TCId
[2017-07-21 11:41:37] [INFO] DAQ/h_TCthetaId
[2017-07-21 11:41:37] [INFO] DAQ/h_TCpchild_BR
[2017-07-21 11:41:37] [INFO] DAQ/h_TCpchild_BWD
[2017-07-21 11:41:37] [INFO] DAQ/h_TotalEnergy
[2017-07-21 11:41:37] [INFO] DAQ/h_TCEnergy
[2017-07-21 11:41:37] [INFO] DAQ/h_n_TChit_event
[2017-07-21 11:41:37] [INFO] DAQ/h_Cluster
```

Plots

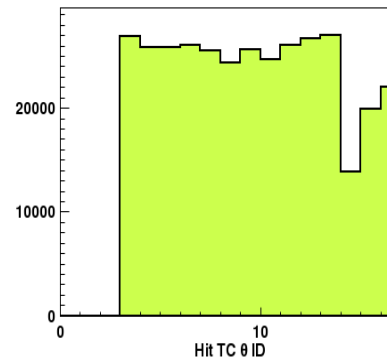
Hit TC ID



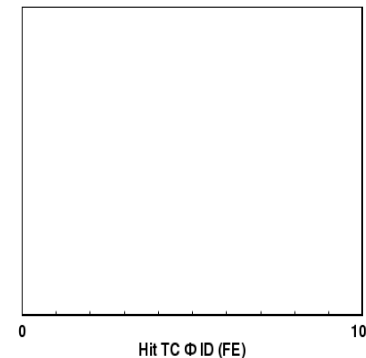
Total TC Energy (ADC count)



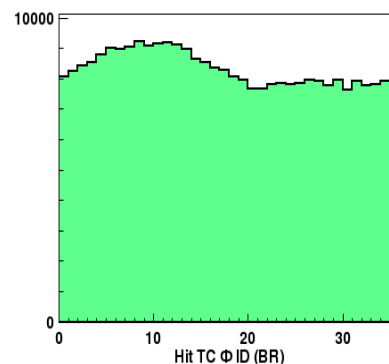
Hit TC θ ID



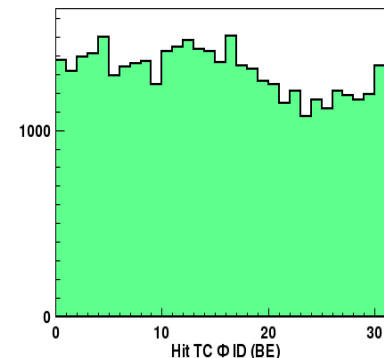
Hit TC Φ ID (FE)



Hit TC Φ ID (BR)



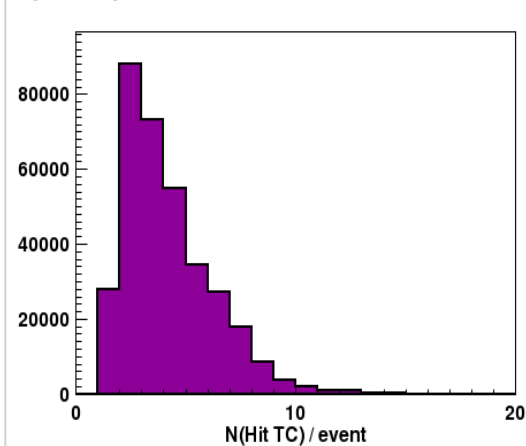
Hit TC Φ ID (BE)



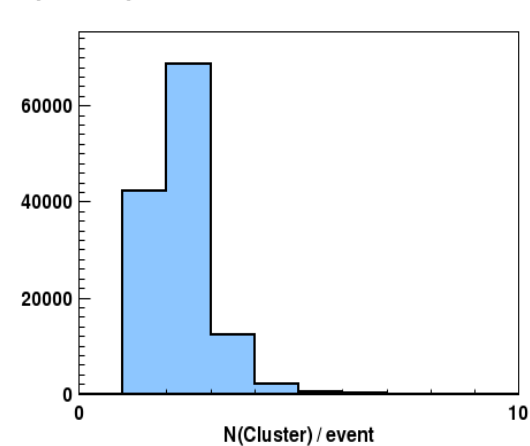
- FE(forward endcap) is not installed.
- Due to different number of phi ID, there need to be divided.

Plots - supplement

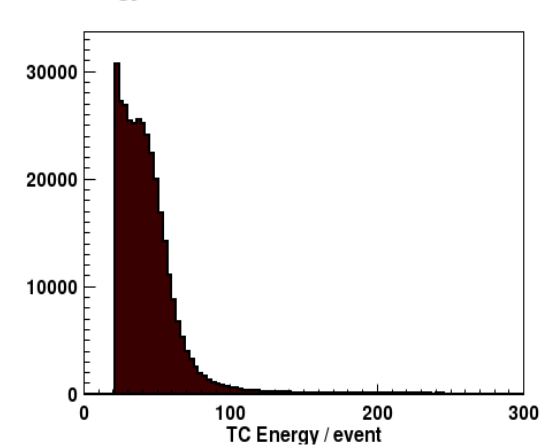
N(Hit TC) / event



N(Cluster) / event



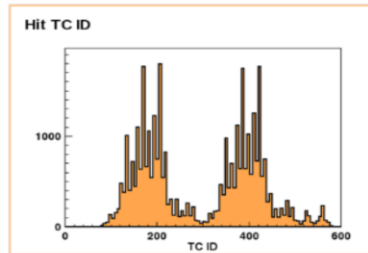
TC Energy / event



- Three plots have been prepared.
- Timing deference plot will be added.

ECL TRG DQM Manual

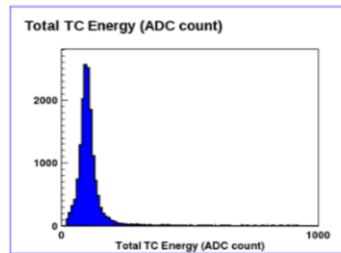
1. Hit TC ID



Reference plot

- **Underlying Physics:** The TC hit ID is shown. Bin 0 ~ 80 show Forward endcap, Bin 81 ~ 512 show barrel, Bin 513 ~ 576 show backward endcap.
- **Key features of the distribution:** Two peaks are present. The location of TC which make a first peak is on the top and location of TC which make a second peak is on the bottom.
- **You should check that** the shape of histogram is similar to the reference. Forward endcap(Bin0 ~80) is not installed yet. So there must be nothing.
- **If something is wrong:** If the peak is only at a partucularly point, check ECL noise. If ECL noise is set nomally, please send mail to ECL Trigger Group(trg-ecl@belle2.org).

2. Total TC Energy



Reference plot

- **Underlying Physics:** The Total TC Energy is shown.
- **Key features of the distribution:** There is a peak around 100 ADC count.
- **You should check that** the shape of histogram is similar to the reference.
- **If something is wrong:** If there is a stack around 0, It might caused by ECL noise. If ECL noise is set nomally, please send mail to ECL Trigger Group(trg-ecl@belle2.org).

- Only two plots (Hit TC ID & Total TC Energy) are available.
- It will be supplied.

Summary and plan

- Summary

- First version of ECL TRG DQM is ready.
- Hit TC ID & Total Energy plots have been used on global cosmic run.
- Manual for shifter is available and submitted.

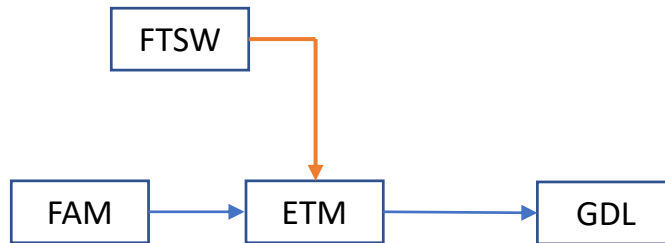
- Plan

- Timing deference plot will be added.
- More plots will be used on global cosmic run.
- Manual will be supplemented.

BACK UP

Timing Deference

- T1 : Time measured in FAM
- T2 : Time from FTSW to ETM
- Timing Deference : T1-T2



TC MAP

