

Data Quality Monitoring for the CMS Electromagnetic Calorimeter

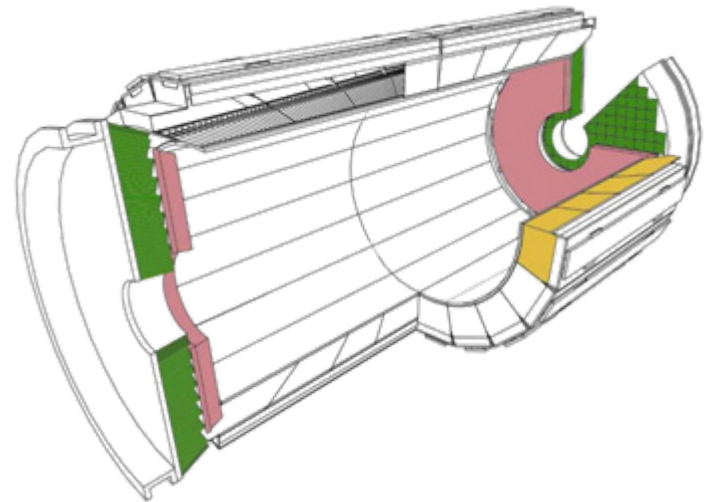
Giuseppe Della Ricca, Emanuele Di Marco, Giovanni Franzoni, Benigno Gobbo

contributors: Fabio Cossutti, Colin Bernet, Alessio Ghezzi



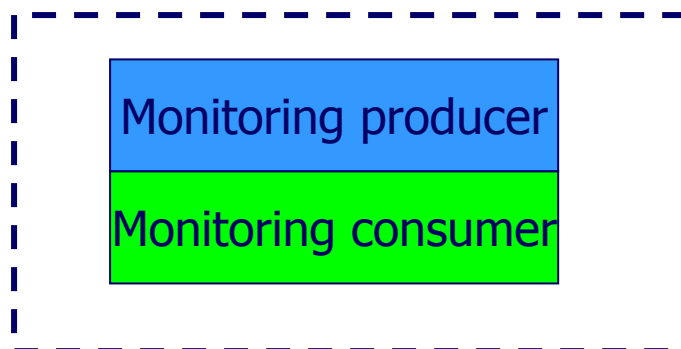
Overview

- the CMS Data Quality Monitor framework, past and present
- what we have already (with snapshots)
- what we are working on
- what we are planning
- conclusions



The past CMS DQM Architecture - 1

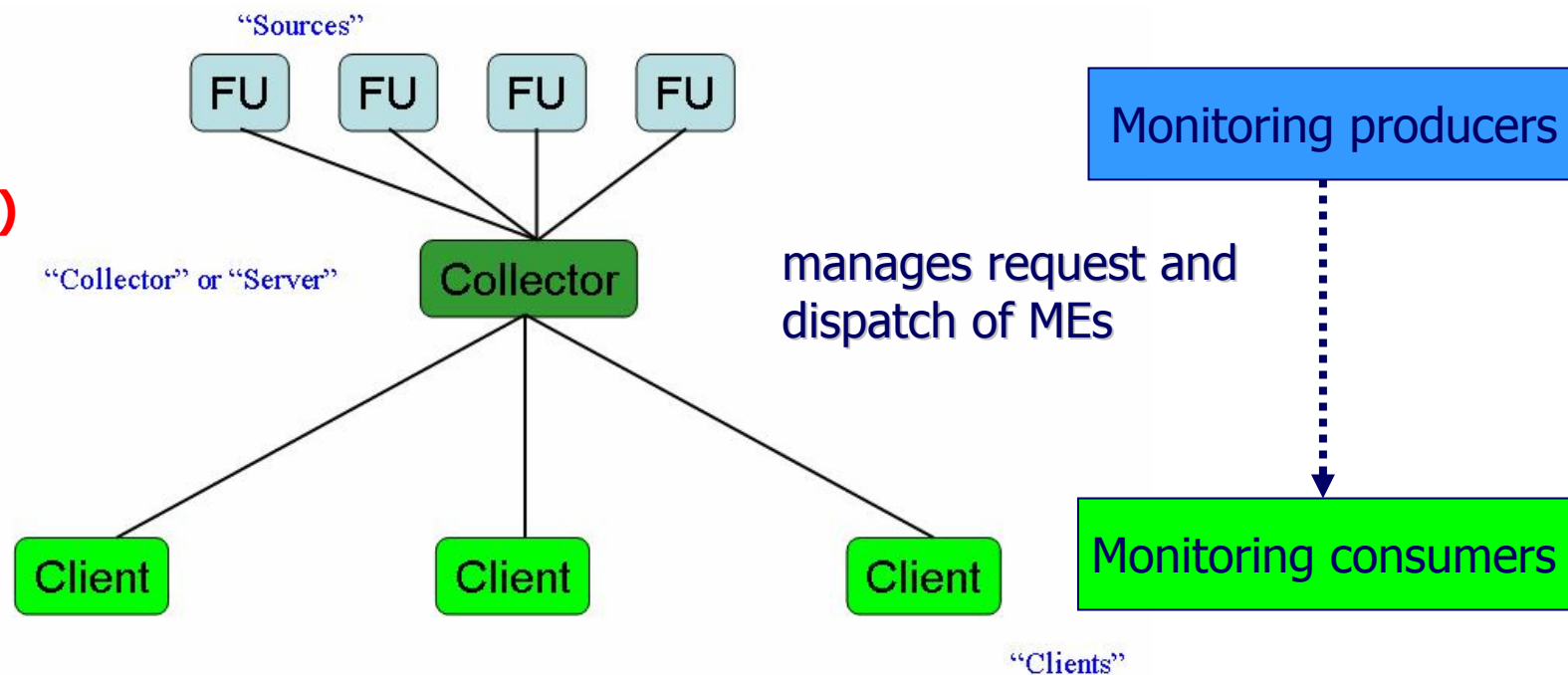
(1)



single program/node:

- defines and fills monitoring elements (MEs)
- subscribes and receives MEs and periodic updates

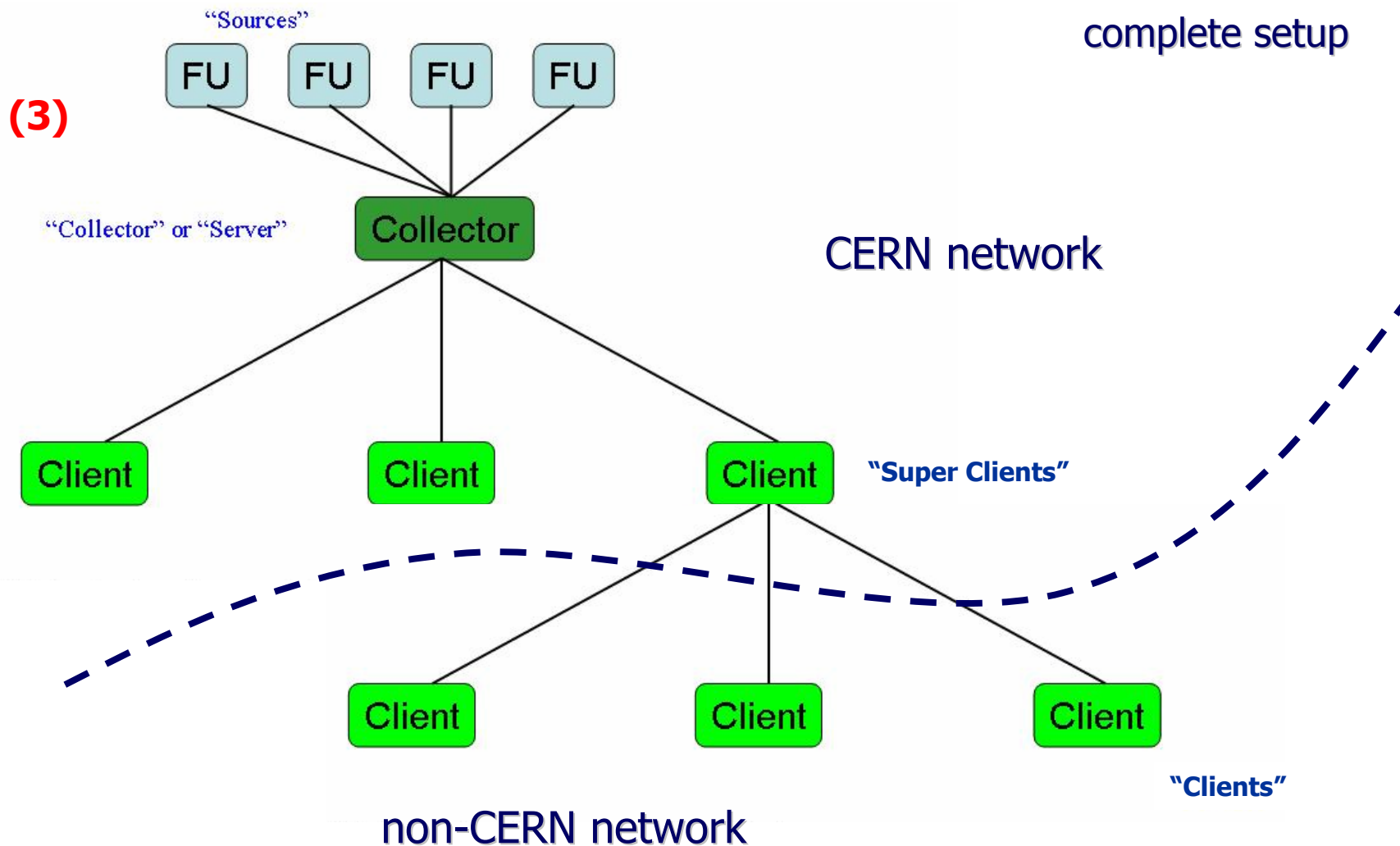
(2)



manages request and dispatch of MEs

clear separation of production and processing of monitoring information

The past CMS DQM Architecture - 2



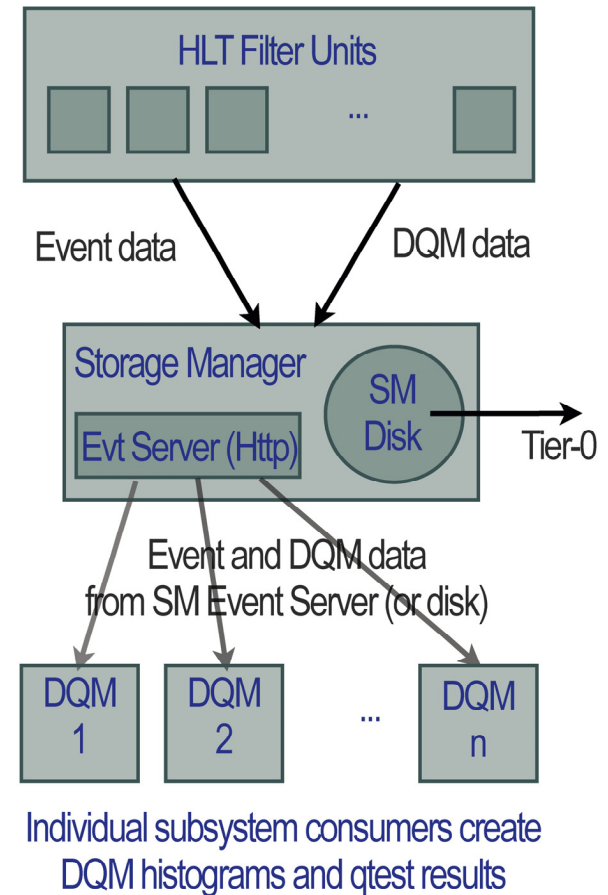
The present CMS DQM Architecture

EXP. NETWORK
MUST USE CMSSW
MUST USE RC
LIMITED ACCESS TO DB
DCS: NO
DAQmon: NO

- HLT
 - Input rate: 100 kHz
 - all L1 triggered events
 - small fraction of CPU for DQM
 - use ~% of bandwidth for DQM (1GB/s)
 - needs to be absolutely stable !

EXP. OR CAMPUS NETWORK
MUST USE CMSSW
CAN USE RC
FREE ACCESS TO DB (EXP)
DCS: via PSX or DB
DAQmon: via DB

- Storage Manager / Event Server
 - provides event and DQM data (~5 Hz)
 - DQM histograms collated by SM
 - Individual subsystem consumers of event and DQM data
 - Delay: seconds



At present: focus on Commissioning and Integration of DQM from SM Event Server

What we have already

- DQM analysis for all DAQ event-types:
 - pedestal, test-pulse, laser, led, cosmics, physics and variations (local/gap/global)
- masking features for known problematic channels
- automatic quality tests on DQM plots
- set of DQM DB tables for DQM history (thanks to Francesca, Rick)
- standardized DQM static web pages
- full detector synoptic views

ECAL DQM - web static pages - EB

Executed tasks for run: 30000628

Run type: PHYSICS

GLOBAL SUMMARY

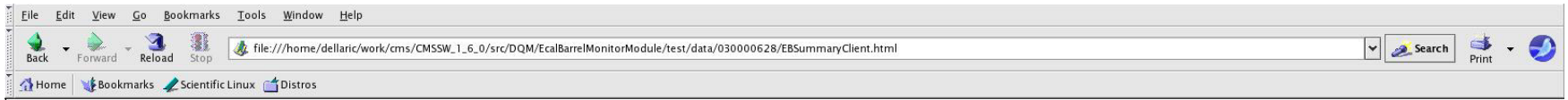
- [Data Integrity](#)
- [Data PedestalOnline](#)
- [Data TriggerTower](#)
- [Data Cluster](#)
- [Data Timing](#)
- [Data Summary](#)

logical "AND" of several lower level summaries

using MC data

provides a synoptic view of EB

ECAL DQM - web static pages – EB



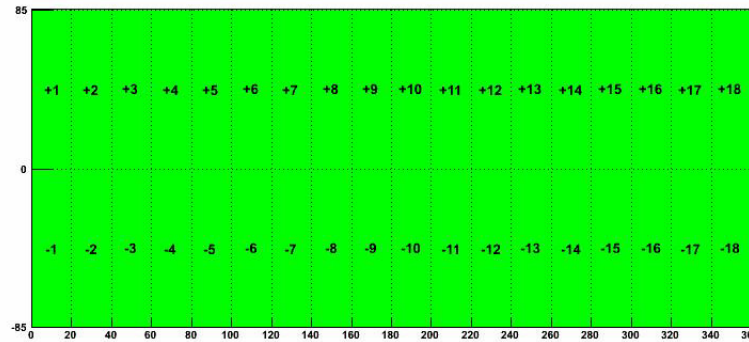
Run: 30000628

Monitoring task: SUMMARY

DETAILED SUMMARIES

channel has problems in this task channel has NO problems channel is missing

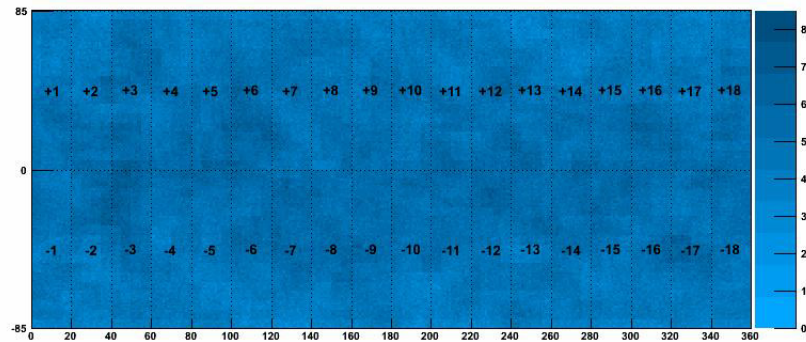
EBIT integrity quality summary



data integrity

obtained merging
DCC-by-DCC
summaries

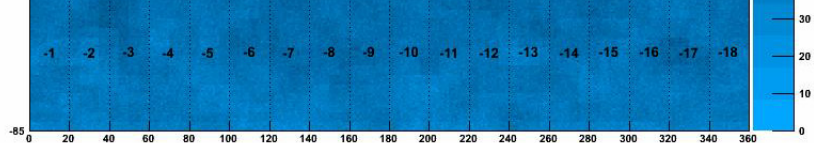
EBOT occupancy summary



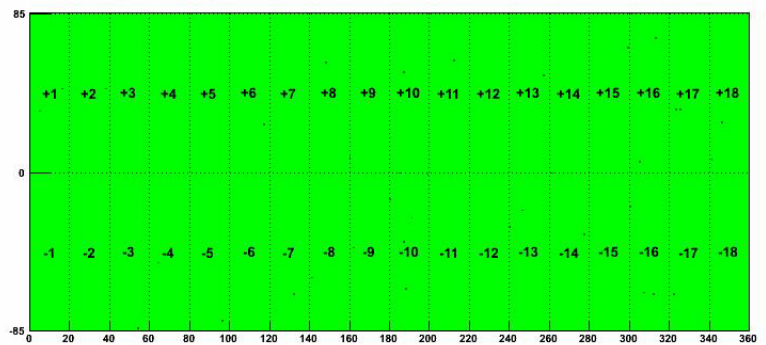
data occupancy

EBPOT pedestal quality summary G12



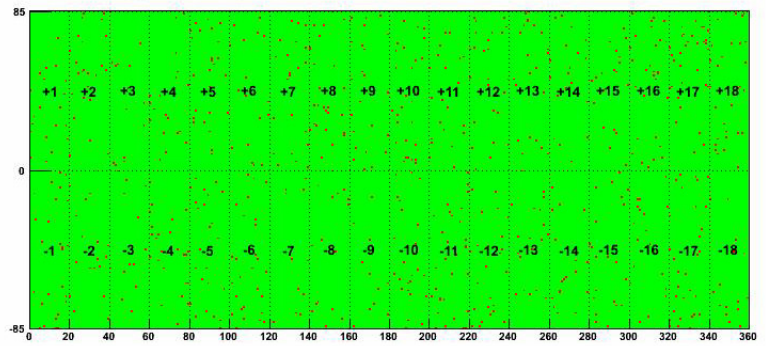


EBPOT pedestal quality summary G12



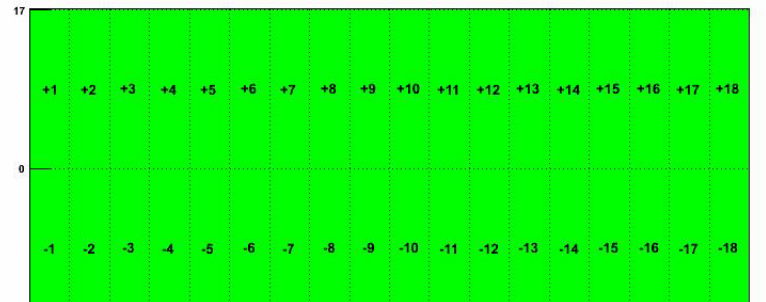
online-pedestals

EBTMT timing quality summary

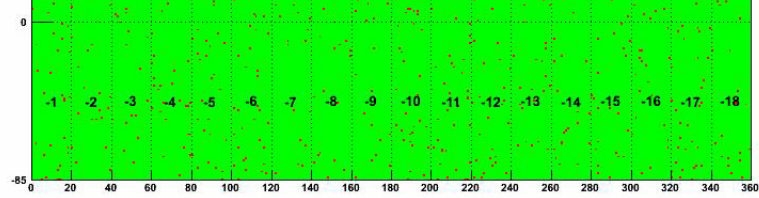


timing

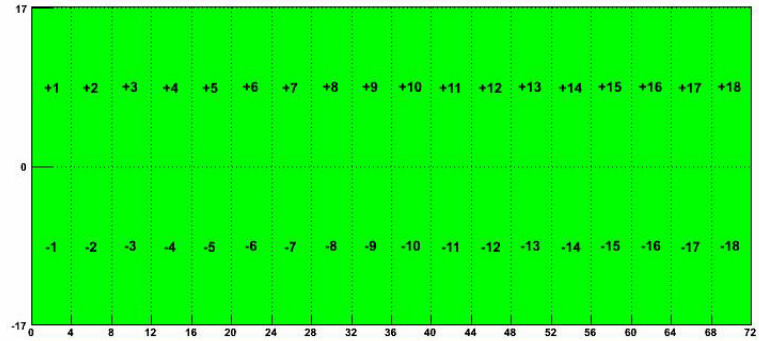
EBTTT emulator error quality summary



trigger primitives
(against emulator)

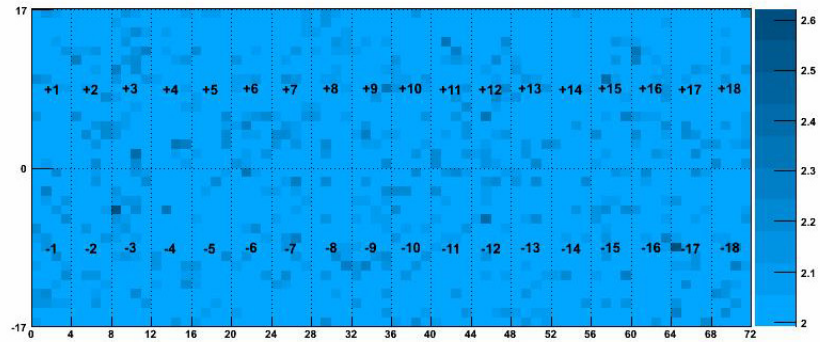


EBTTT emulator error quality summary



trigger primitives
(against emulator)

EBTTT ET trigger tower quality summary



E_t from
trigger primitives

ECAL DQM - web static pages - EB

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Run: **30000628**

Monitoring task: **INTEGRITY**

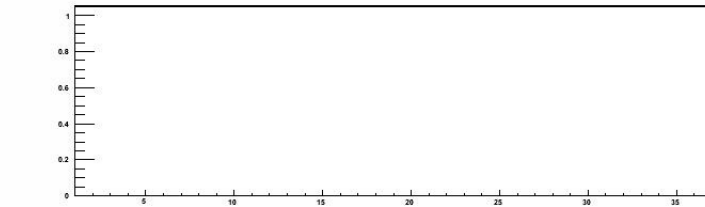
DCC by DCC

channel has problems in this task channel has NO problems channel is missing

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

DCC size error

EBIT DCC size error

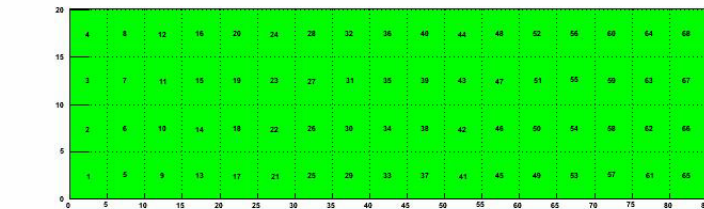


DCC size errors

EB-01

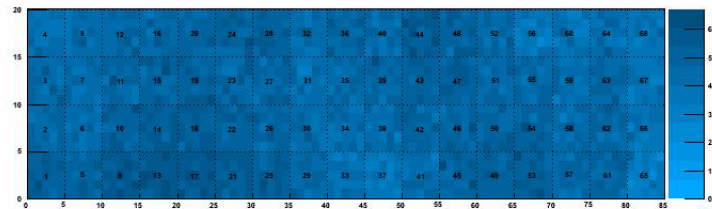
integrity for EB-01

EBIT data integrity quality EB-01

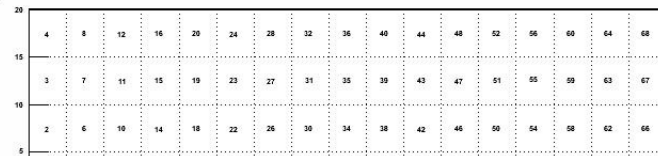


occupancy for EB-01

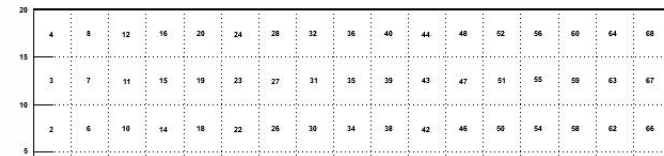
EBOT occupancy EB-01

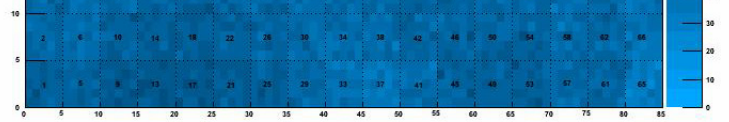


EBIT gain EB-01

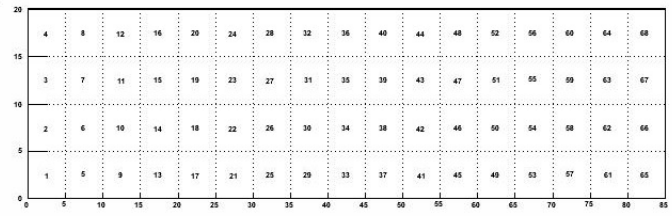


EBIT ChId EB-01

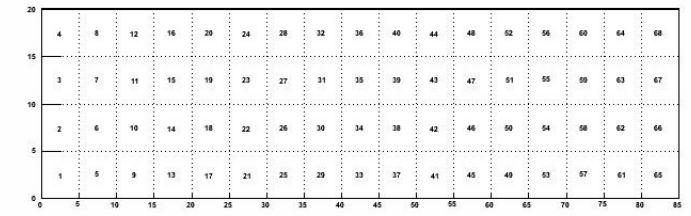




EBIT gain EB-01

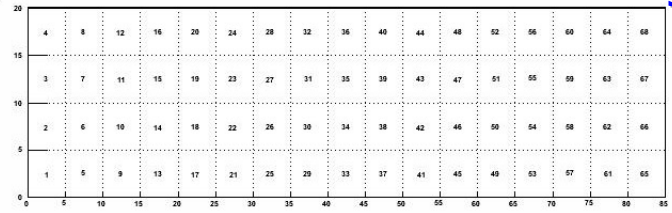


EBIT ChId EB-01

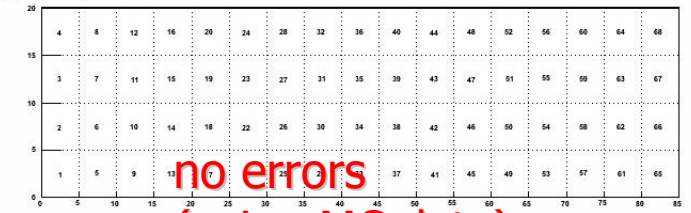


detailed integrity errors for EB-01

EBIT gain switch EB-01

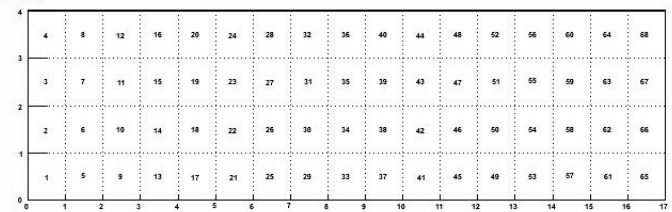


EBIT gain switch EB-01

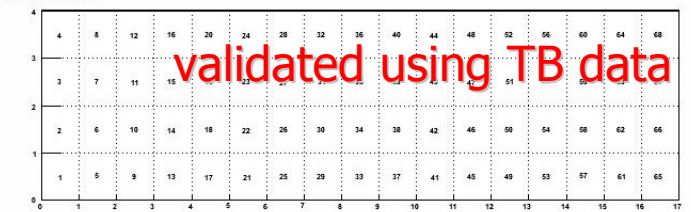


no errors
(using MC data)

EBIT TTId EB-01

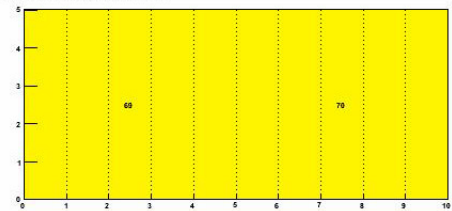


EBIT TTBlockSize EB-01

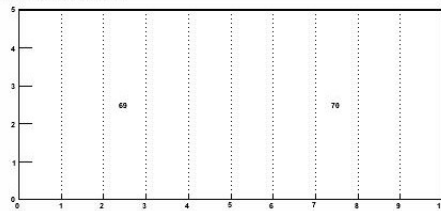


validated using TB data

EBIT data integrity quality MEM EB-01



EBOT MEM occupancy EB-01

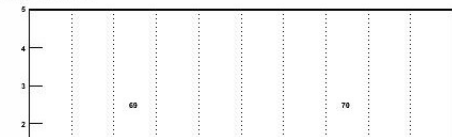


no MEMs in MC

integrity for EB-01's MEMs

occupancy for EB-01's MEMs

EBIT MemChId EB-01

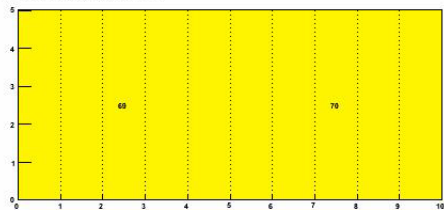


EBIT MemGain EB-01



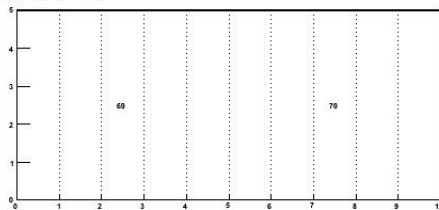
no MEMs in MC

EBIT data integrity quality MEM EB-01



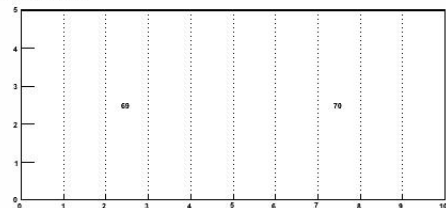
integrity for EB-01's MEMs

EBOT MEM occupancy EB-01

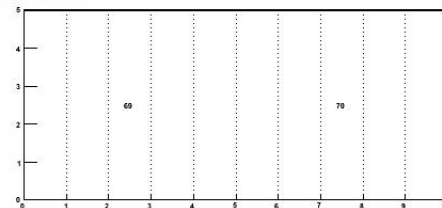


occupancy for EB-01's MEMs

EBIT MemChId EB-01

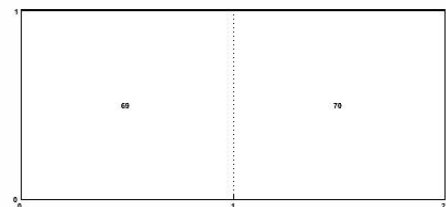


EBIT MemGain EB-01

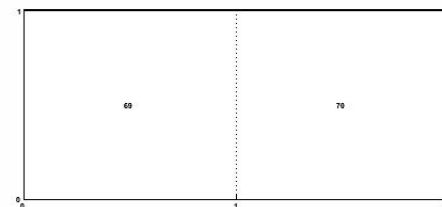


detailed integrity errors for EB-01's MEMs

EBIT MemTId EB-01



EBIT MemSize EB-01

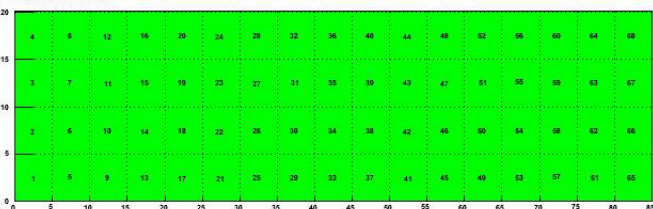


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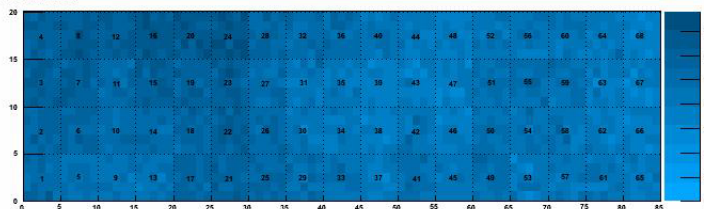
same for EB-02, ... , EB-18, EB+01, ... , EB+18

EB-02

EBIT data integrity quality EB-02



EBOT occupancy EB-02



Done

ECAL DQM - web static pages - EB



Run: 30000628

Monitoring task: PEDESTAL ONLINE

DCC by DCC

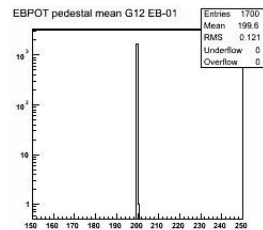
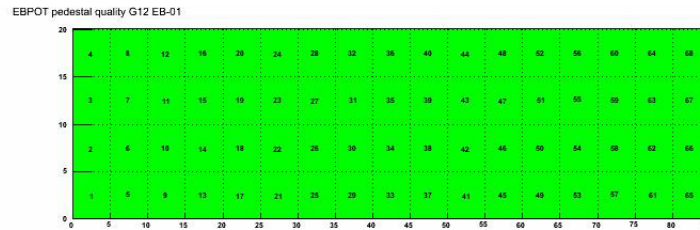
channel has problems in this task channel has NO problems channel is missing

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

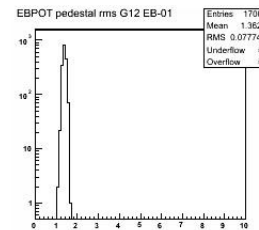
online-pedestals for EB-01

EB-01

using MC data



mean

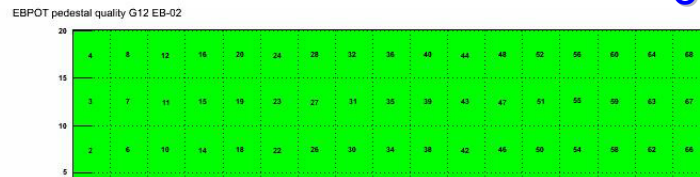


rms

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EB-02

online pedestals for EB-02



ECAL DQM - web static pages - EB

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Run: 30000628

Monitoring task: TIMING

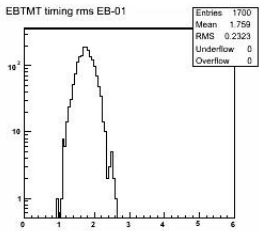
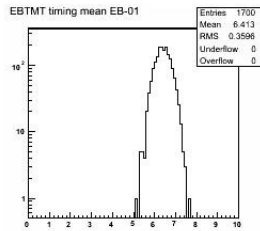
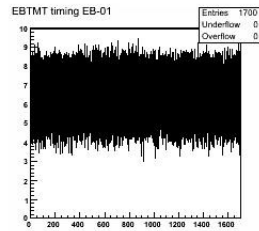
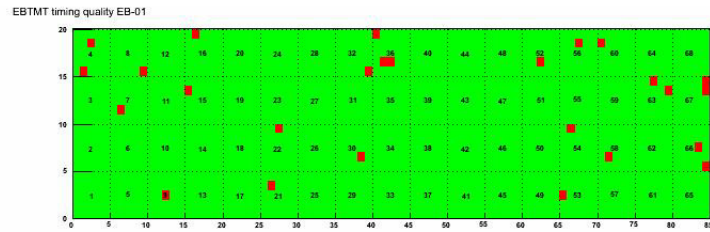
DCC by DCC

channel has problems in this task channel has NO problems channel is missing

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

EB-01 timing for EB-01

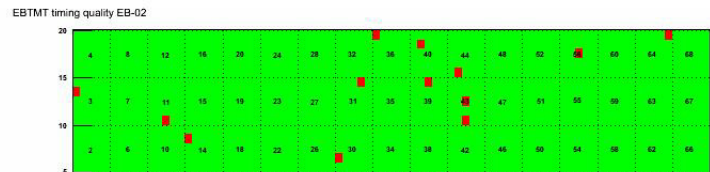
using MC data



mean rms

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EB-02 timing for EB-02



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file:///home/dellaric/work/cms/CMS_SW_1_6_0/src/DQM/EcalBarrelMonitorModule/test/data/03000628/EBTriggerTowerClient.html

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Run: 30000628

Monitoring task: TRIGGER TOWER

DCC by DCC

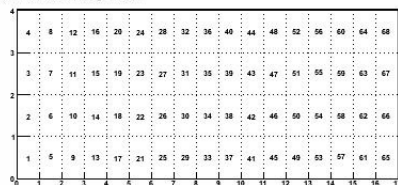
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using MC data

EB-01

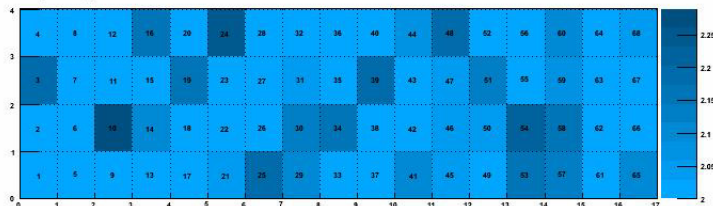
Emulator Error

EBTTT Emul/Error Real Digs EB-01



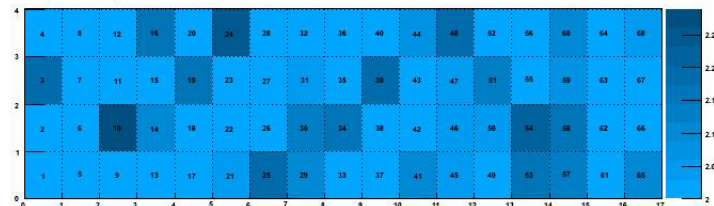
TPG: real vs. emulated summary for EB-01

ME EBTTT Et map Real Digs EB-01



E_t from real TPGs

ME EBTTT Et map Emulated Digs EB-01



E_t from emulated TPGs

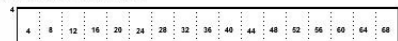
[EB-01 details](#)

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EB-02

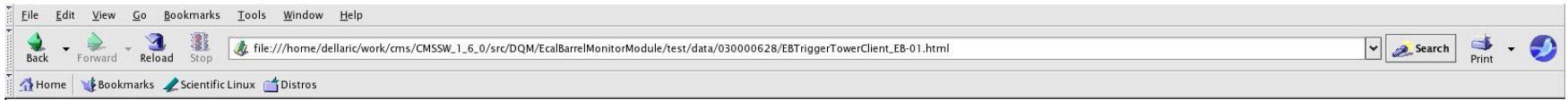
Emulator Error

EBTTT Emul/Error Real Digs EB-02



TPG: real vs. emulated summary for EB-02

ECAL DQM - web static pages - EB



Run: 30000628

using MC data

DCC by DCC

Monitoring task: TRIGGER TOWER

SM: EB-01

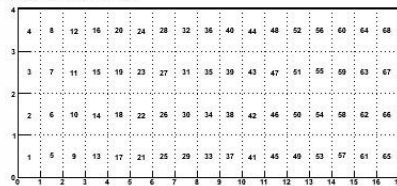
differences for EB-01

bits from real TPGs

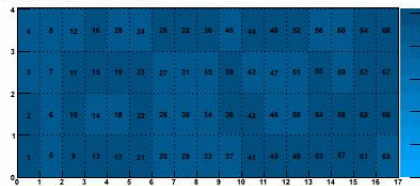
bits from emulated TPGs

Trigger Tower Flags

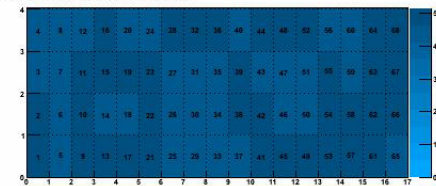
EBTTT Flags Errors EB-01, bit 000



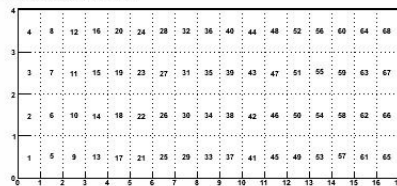
EBTTT Flags Real Digs EB-01, bit 000



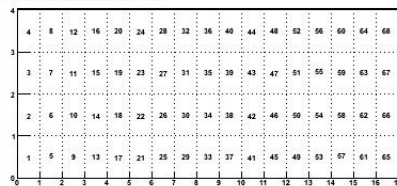
EBTTT Flags Emulated Digs EB-01, bit 000



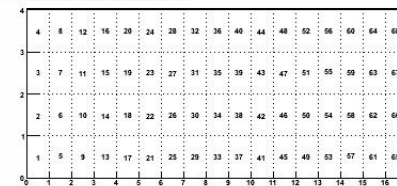
EBTTT Flags Errors EB-01, bit 001



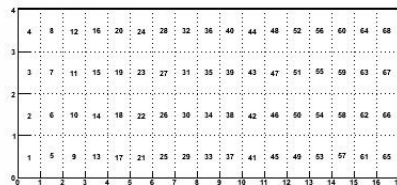
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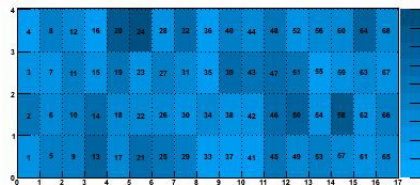
EBTTT Flags Emulated Digs EB-01, bit 001



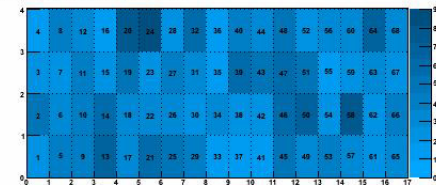
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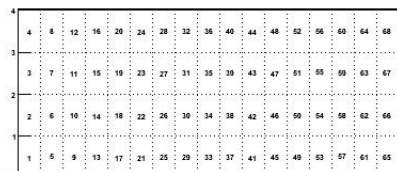
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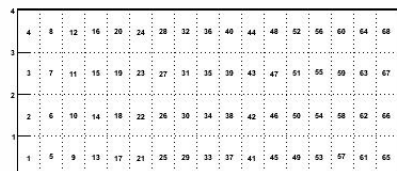
EBTTT Flags Emulated Digs EB-01, bit 011



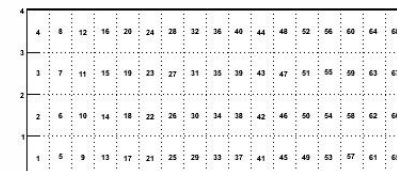
EBTTT Flags Errors EB-01, bit 100

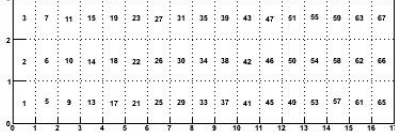


EBTTT Flags Real Digs EB-01, bit 100

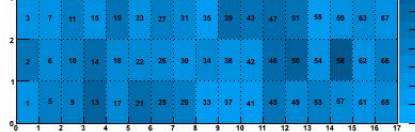
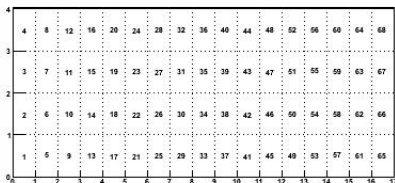


EBTTT Flags Emulated Digs EB-01, bit 100

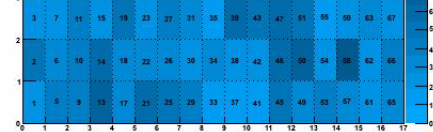
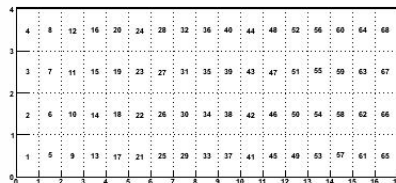




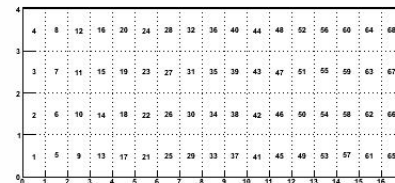
EBTTT Flags Errors EB-01, bit 100



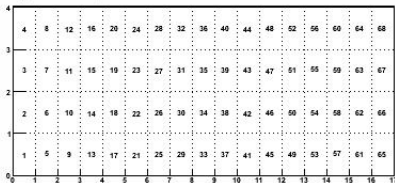
EBTTT Flags Real Digs EB-01, bit 100



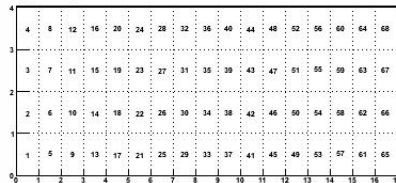
EBTTT Flags Emulated Digs EB-01, bit 100



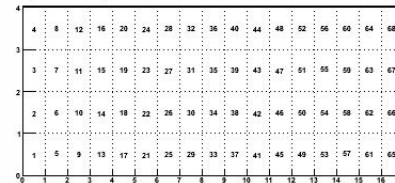
EBTTT Flags Errors EB-01, bit 101



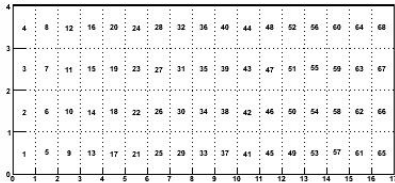
EBTTT Flags Real Digs EB-01, bit 101



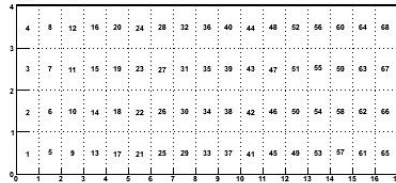
EBTTT Flags Emulated Digs EB-01, bit 101



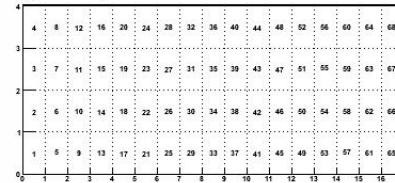
EBTTT Flags Errors EB-01 bits 110+111



EBTTT Flags Real Digs EB-01 bits 110+111



EBTTT Flags Emulated Digs EB-01 bits 110+111



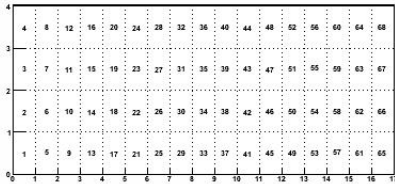
differences for EB-01

bits from real TPGs

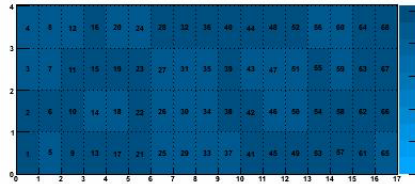
bits from emulated TPGs

Fine Grain Veto

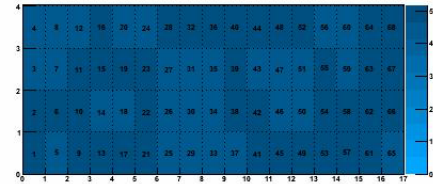
EBTTT FineGrainVeto Errors EB-01, FineGrainVeto = 0



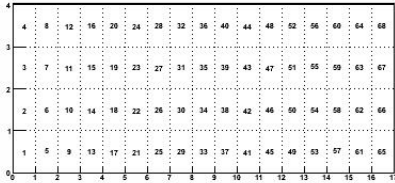
EBTTT FineGrainVeto Real Digs EB-01, FineGrainVeto = 0



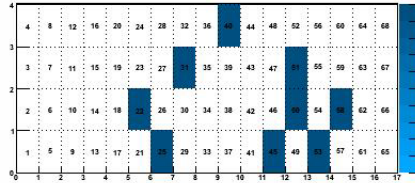
EBTTT FineGrainVeto Emulated Digs EB-01, FineGrainVeto = 0



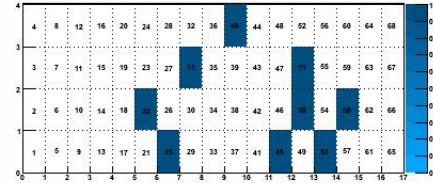
EBTTT FineGrainVeto Errors EB-01, FineGrainVeto = 1



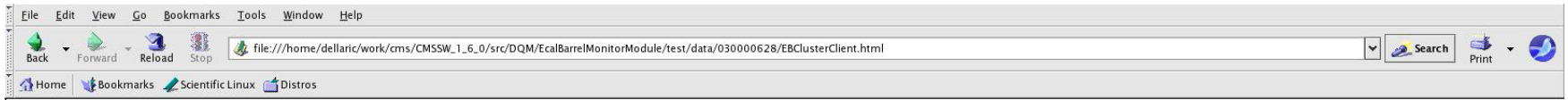
EBTTT FineGrainVeto Real Digs EB-01, FineGrainVeto = 1



EBTTT FineGrainVeto Emulated Digs EB-01, FineGrainVeto = 1



ECAL DQM - web static pages - EB



Run: 30000628

Monitoring task: CLUSTER

PHYSICS

[Basic Clusters plots](#)

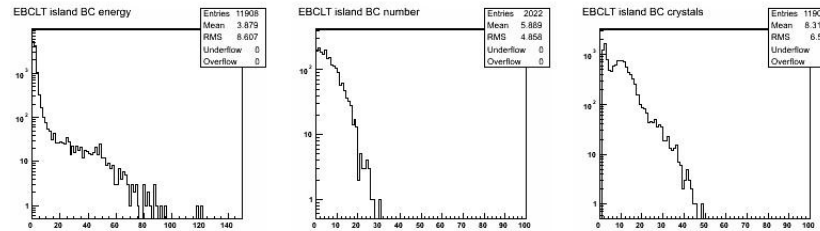
[Super Clusters plots](#)

[Higher Level Quantities plots](#)

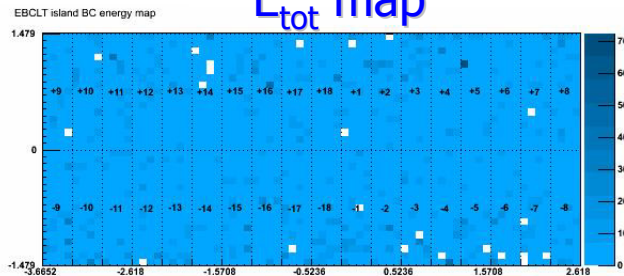
using MC data

island BC: energy, number, size

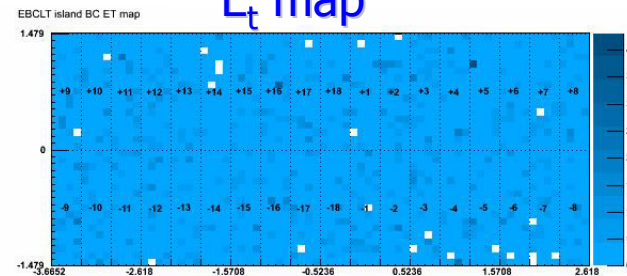
Basic Clusters plots



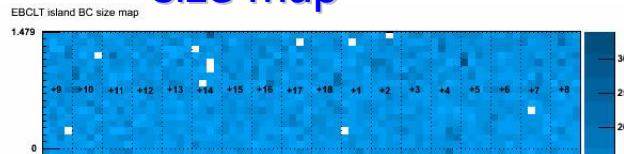
E_{tot} map



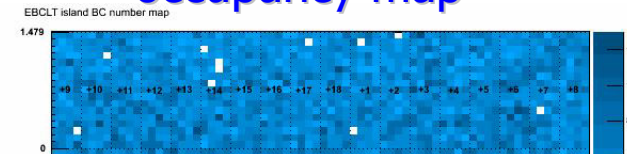
E_t map

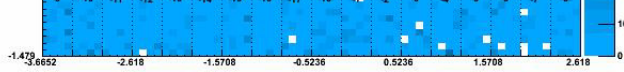


size map



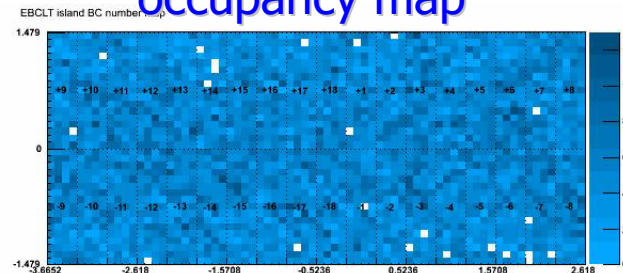
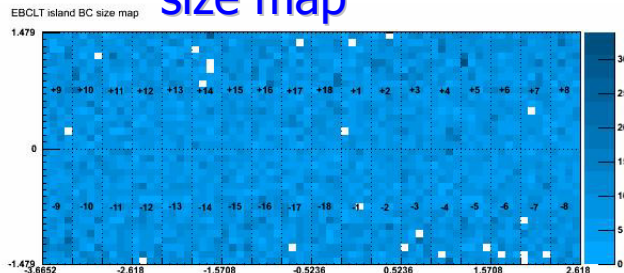
occupancy map



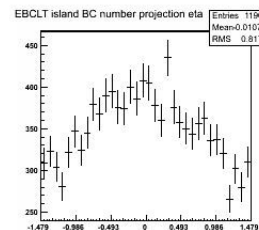
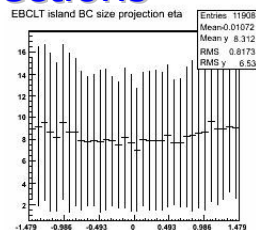
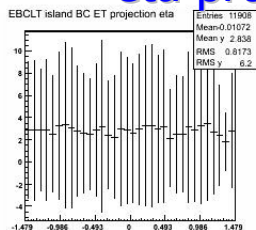
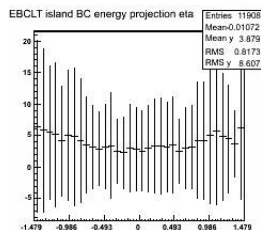


size map

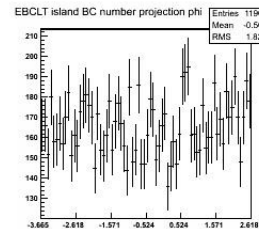
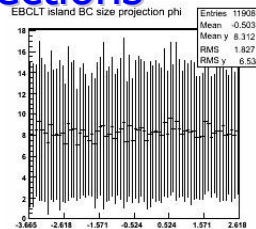
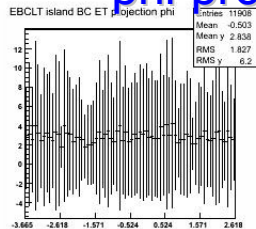
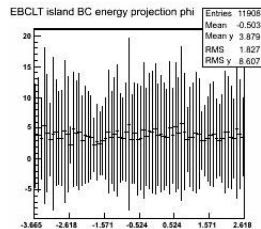
occupancy map



eta projections

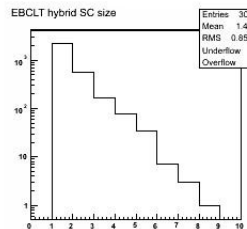
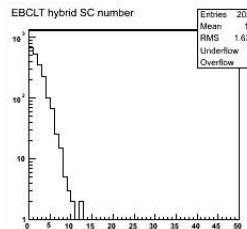
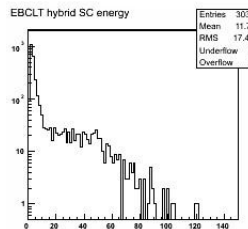


phi projections

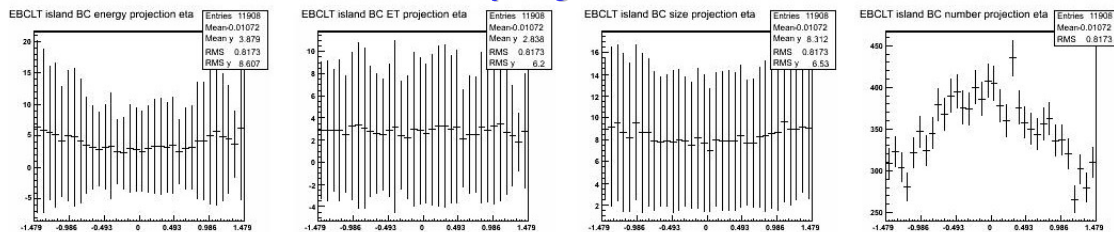


hybrid SC: energy, number, size

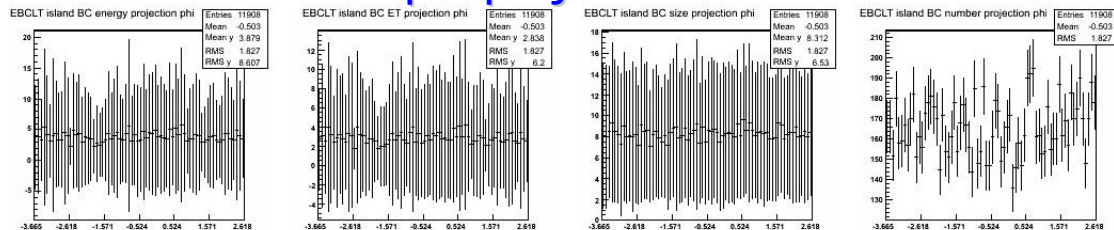
Super Clusters plots



eta projections

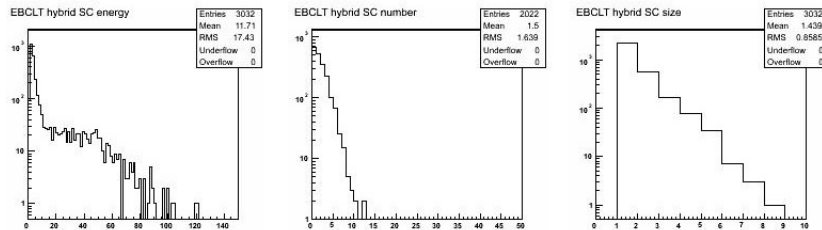


phi projections



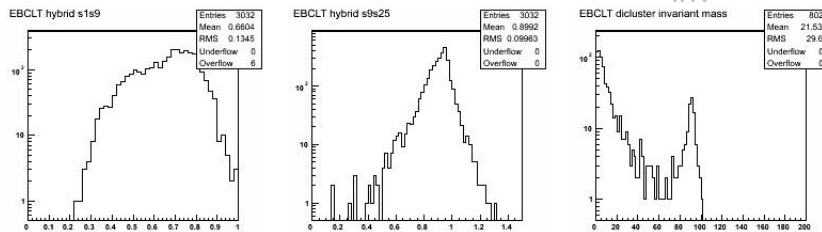
hybrid SC: energy, number, size

Super Clusters plots



s1/s9, s9/s25, di-cluster M_{inv}

Higher Level Quantities plots



ECAL DQM - web static pages - EE

Executed tasks for run: 30000628

Run type: PHYSICS

GLOBAL SUMMARY

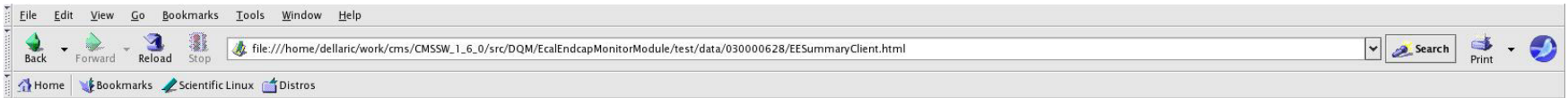
- [Data Integrity](#)
- [Data PedestalOnline](#)
- [Data TriggerTower](#)
- [Data Cluster](#)
- [Data Timing](#)
- [Data Summary](#)

logical "AND" of several lower level summaries

using MC data

provides a synoptic view of EE

ECAL DQM - web static pages - EE



Run: 30000628

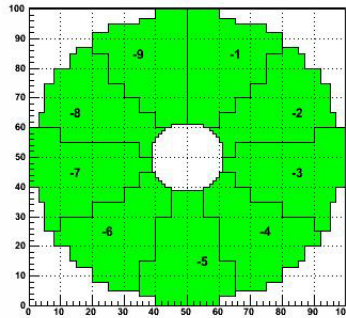
Monitoring task: SUMMARY

DETAILED SUMMARIES

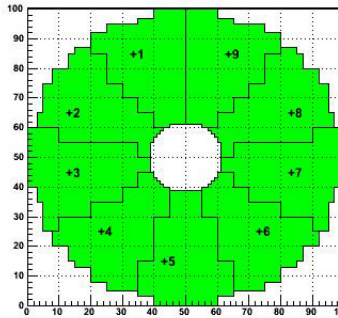
channel has problems in this task channel has NO problems channel is missing

obtained merging
DCC-by-DCC
summaries

EEIT EE - integrity quality summary

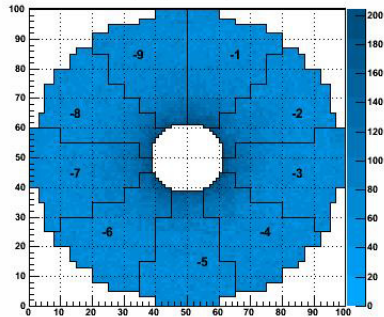


EEIT EE + integrity quality summary

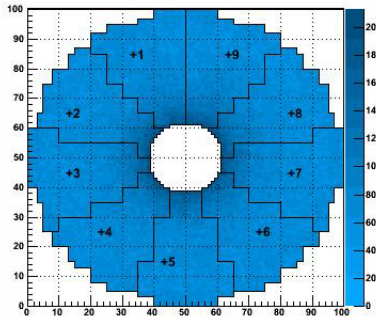


data integrity

EEOT EE - occupancy summary



EEOT EE + occupancy summary

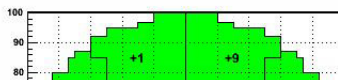


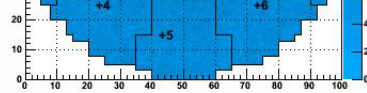
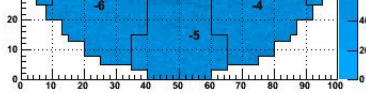
data occupancy

EEPOT EE - pedestal quality summary G12

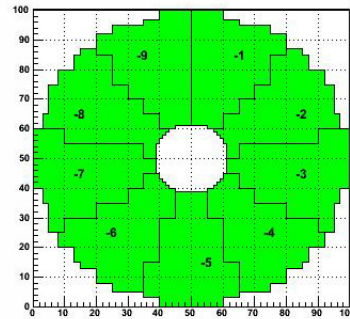


EEPOT EE + pedestal quality summary G12

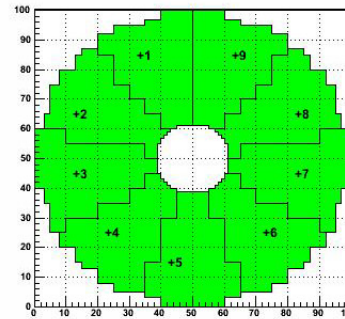




EEPOT EE - pedestal quality summary G12

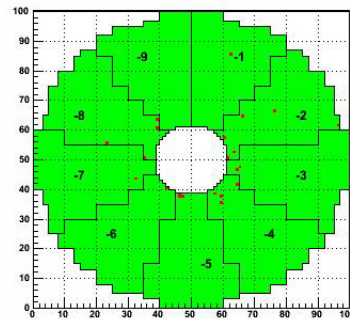


EEPOT EE + pedestal quality summary G12

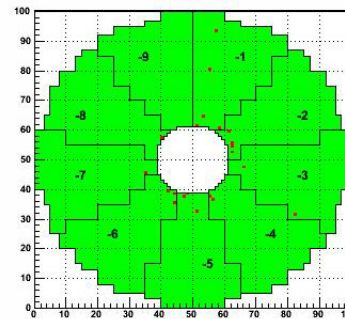


online-pedestals

EETPT EE - timing quality summary

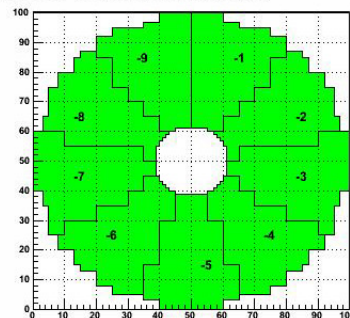


EETPT EE + timing quality summary

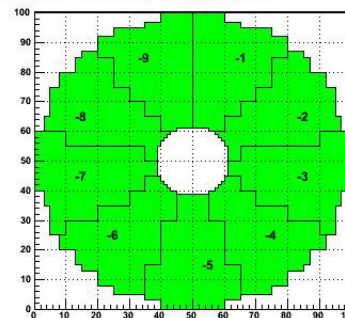


timing

EETTT EE - emulator error quality summary



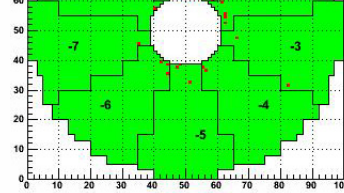
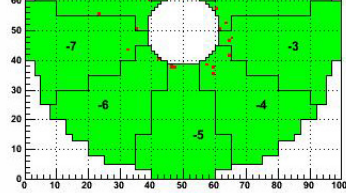
EETTT EE + emulator error quality summary



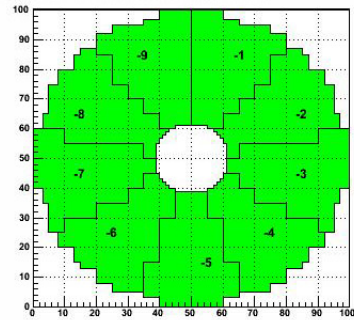
trigger primitives
(against emulator)

EETTT EE - Et trigger tower quality summary

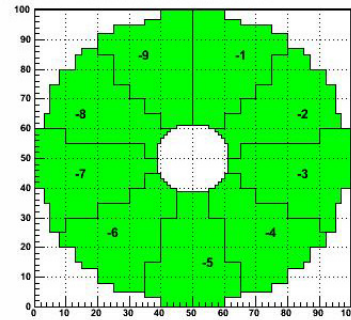
EETTT EE + Et trigger tower quality summary



EETTT EE - emulator error quality summary

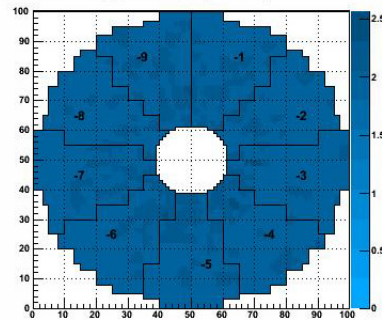


EETTT EE + emulator error quality summary

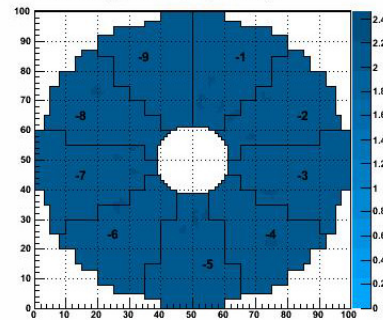


trigger primitives
(against emulator)

EETTT EE - Et trigger tower quality summary



EETTT EE + Et trigger tower quality summary



E_t from
trigger primitives

ECAL DQM - web static pages - EE

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop file:///home/dellaric/work/cms/CMSSW_1_6_0/src/DQM/EcalEndcapMonitorModule/test/data/030000628/EEIntegrityClient.html Search Print

Home Bookmarks Scientific Linux Distros

Run: 30000628

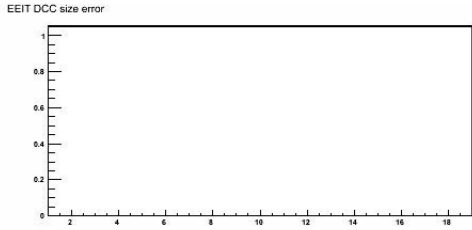
Monitoring task: INTEGRITY

DCC by DCC

channel has problems in this task channel has NO problems channel is missing

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18

DCC size error

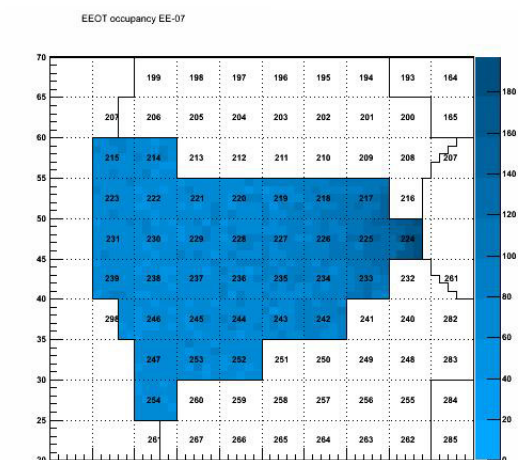
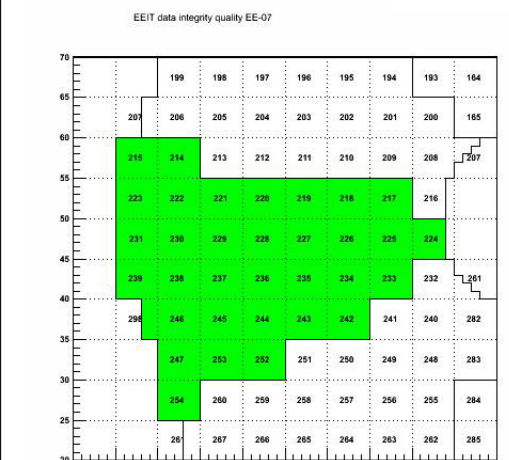


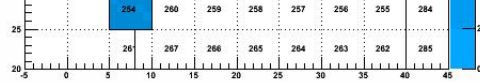
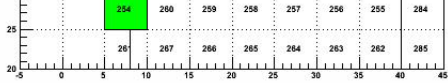
EET DCC size error

DCC size errors

EE-07 integrity for EE-01

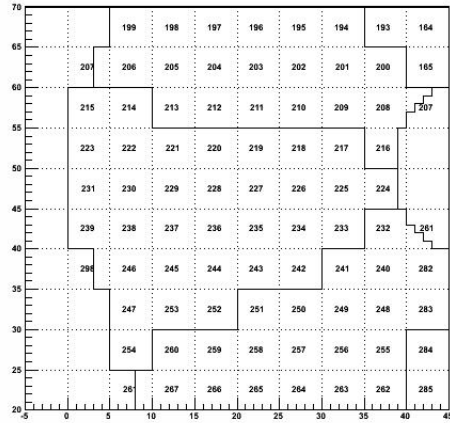
occupancy for EE-01



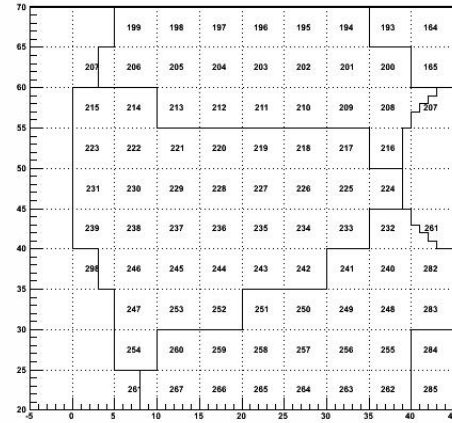


detailed integrity errors for EE-01

EEIT gain EE-07

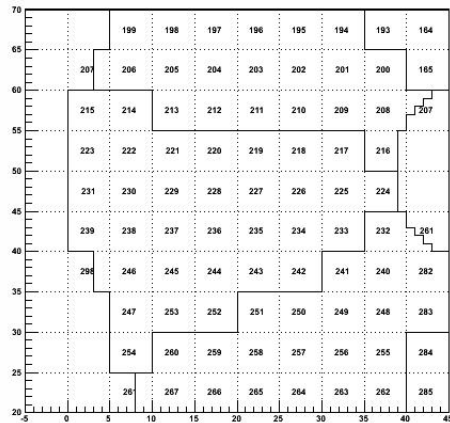


EEIT Chid EE-07

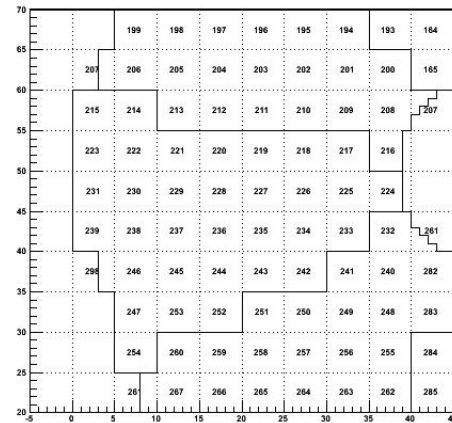


no errors
(using MC data)

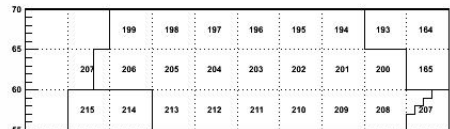
EEIT gain switch EE-07



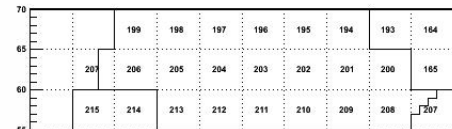
EEIT gain switch stay EE-07

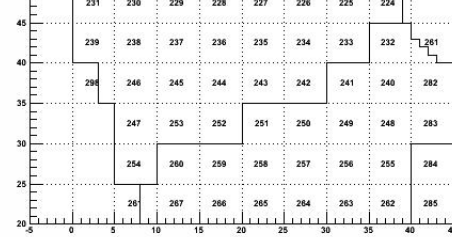
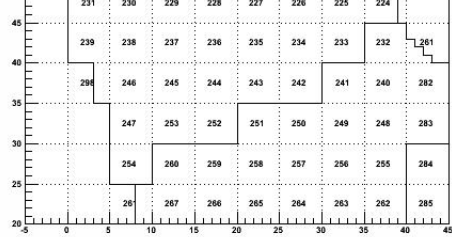


EEIT TTM EE-07



EEIT TTBlockSize EE-07



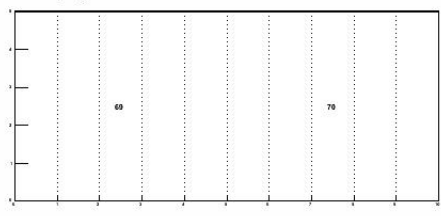
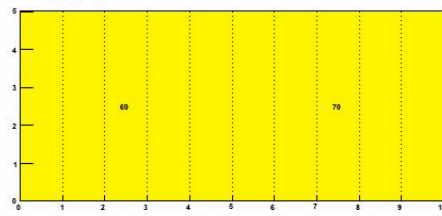


integrity for EE-01's MEMs

occupancy for EE-01's MEMs

EEIT data integrity quality MEM EE-07

EEOT MEM occupancy EE-07

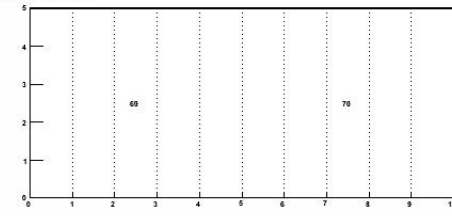
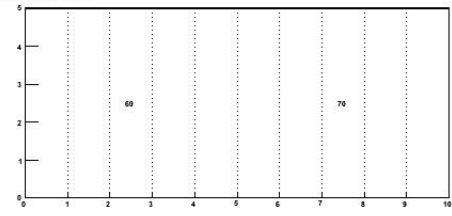


no MEMs in MC

detailed integrity errors for EE-01's MEMs

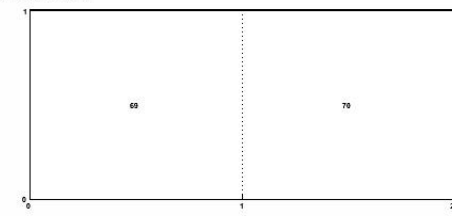
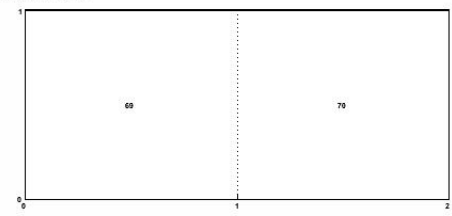
EEIT MemChId EE-07

EEIT MemGain EE-07



EEIT MemTId EE-07

EEIT MemSize EE-07



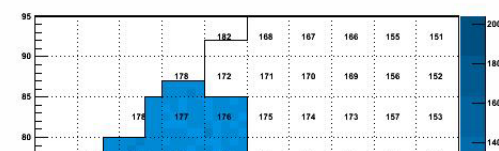
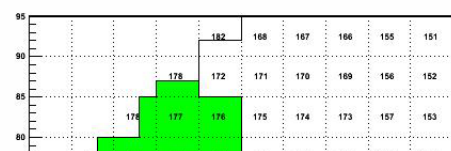
Top

EE-08

same for EE-02, ... , EE-09, EE+01, ... , EE+09

EEIT data integrity quality EE-08

EEOT occupancy EE-08



ECAL DQM - web static pages - EE



Run: 30000628

Monitoring task: PEDESTAL ONLINE

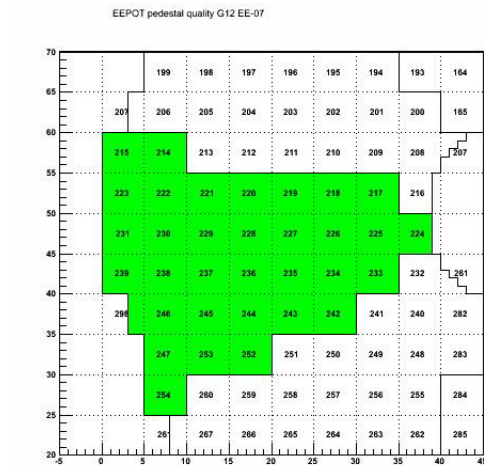
DCC by DCC

channel has problems in this task channel has NO problems channel is missing

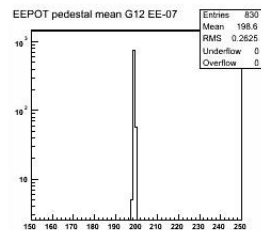
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18

EE-07

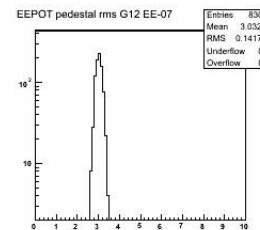
using MC data



online-pedestals for EE-01



mean



rms

ECAL DQM - web static pages - EE

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop file:///home/dellaric/work/cms/CMSSW_1_6_0/src/DQM/EcalEndcapMonitorModule/test/data/03000628/EETimingClient.html

Home Bookmarks Scientific Linux Distros

Run: 30000628

Monitoring task: TIMING

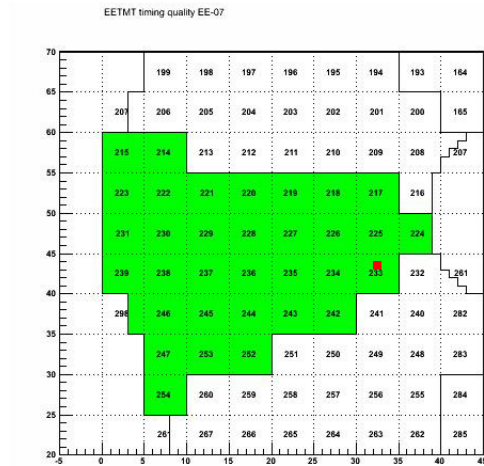
DCC by DCC

channel has problems in this task channel has NO problems channel is missing

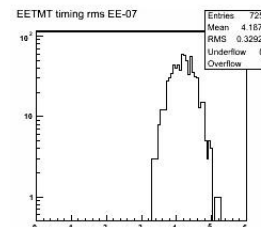
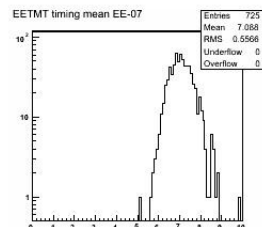
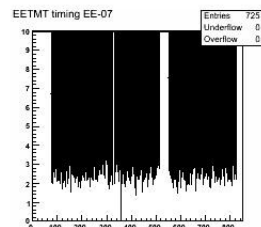
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18

EE-07

using MC data



timing for EE-01



mean

rms

ECAL DQM - web static pages - EE

File Edit View Go Bookmarks Tools Window Help
 Back Forward Reload Stop file:///home/dellaric/work/cms/CMSSW_1_6_0/src/DQM/EcalEndcapMonitorModule/test/data/03000628/EETriggerTowerClient.html Search Print

Run: **30000628**
 Monitoring task: **TRIGGER TOWER**

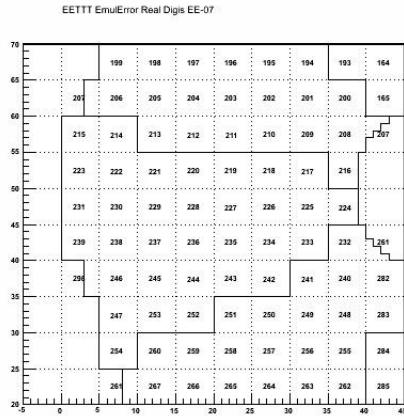
DCC by DCC

- 01
- 02
- 03
- 04
- 05
- 06
- 07
- 08
- 09
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

EE-07

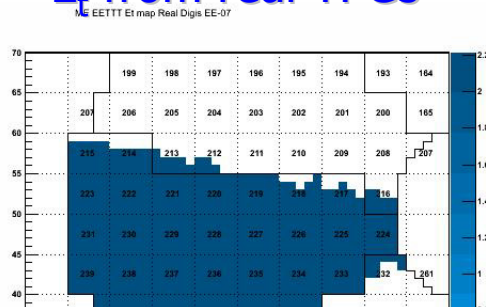
using MC data

Emulator Error

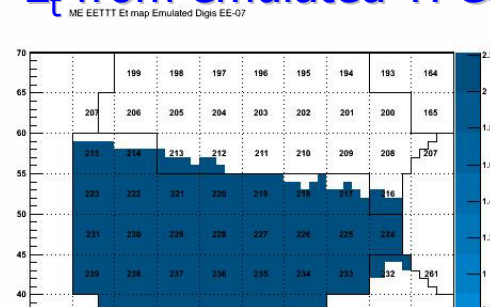


TPG: real vs. emulated summary for EE-01

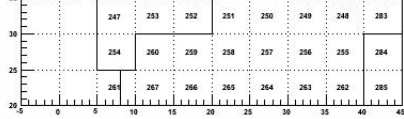
E_t from real TPGs



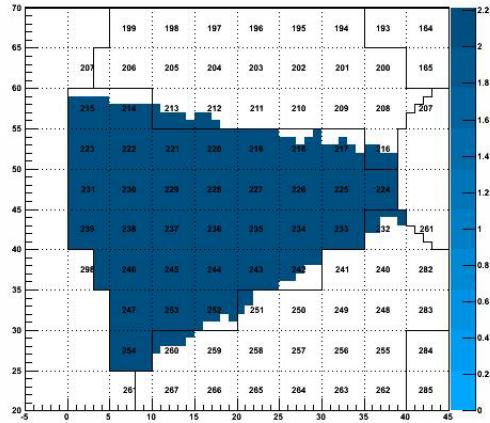
E_t from emulated TPGs



TPG: real vs. emulated summary for EE-01

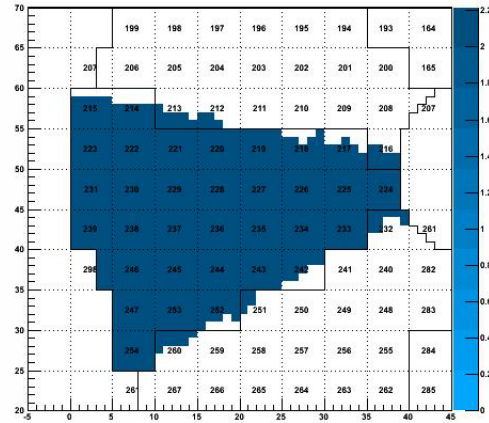


ME EETTT Et map Real Digs EE-07



E_t from real TPGs

ME EETTT Et map Emulated Digs EE-07



E_t from emulated TPGs

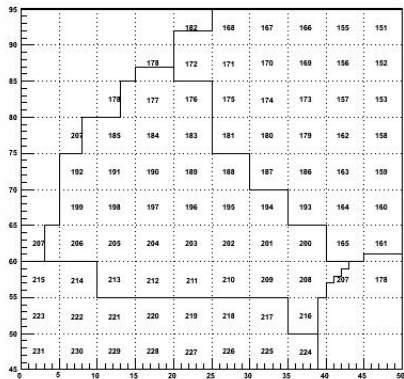
[EE-07 details](#)

[Top](#)

EE-08

Emulator Error

EETTT EmuError Real Digs EE-08



TPG: real vs. emulated summary for EE-02

ECAL DQM - web static pages - EE



Run: 30000628
 Monitoring task: TRIGGER TOWER
 SM: EE-07

using MC data

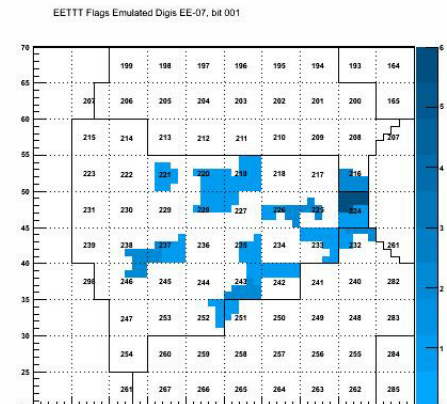
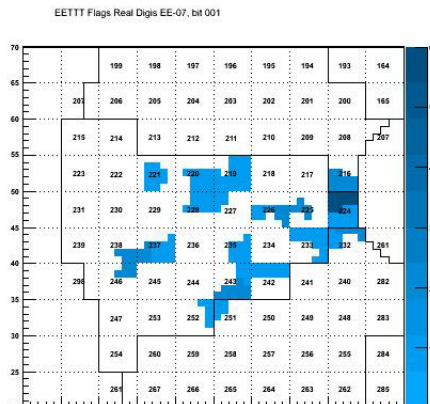
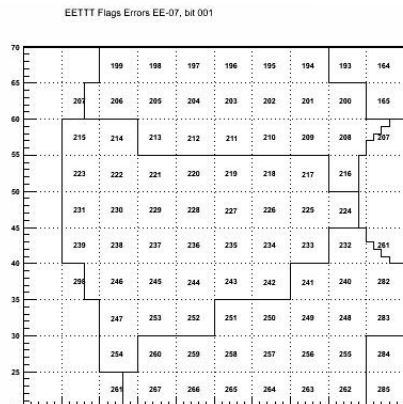
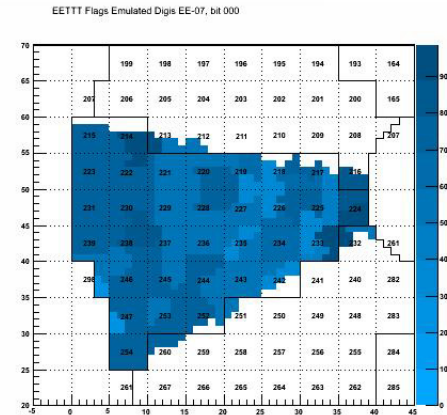
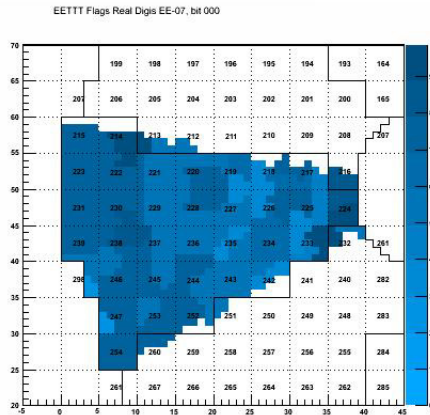
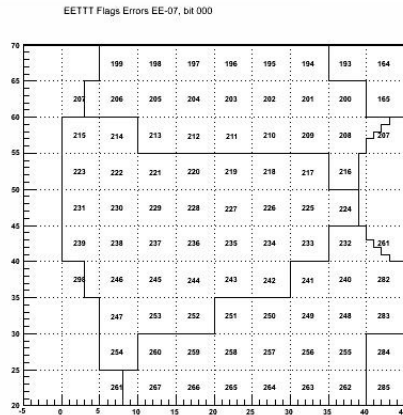
DCC by DCC

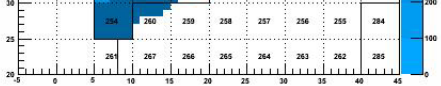
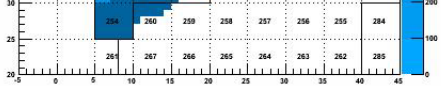
differences for EE-01

bits from real TPGs

bits from emulated TPGs

Trigger Tower Flags

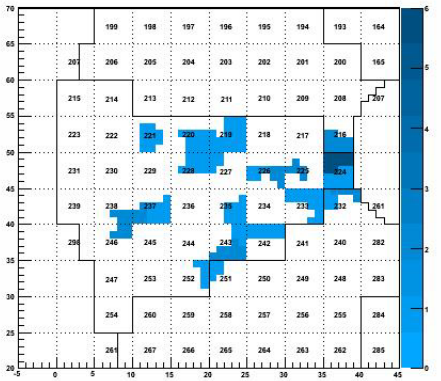
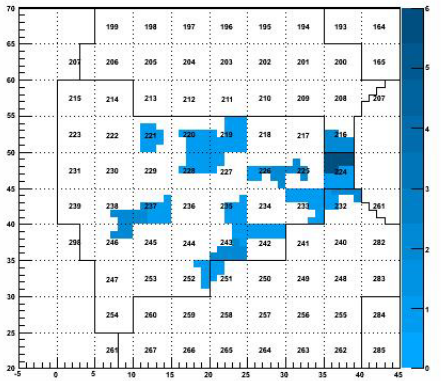
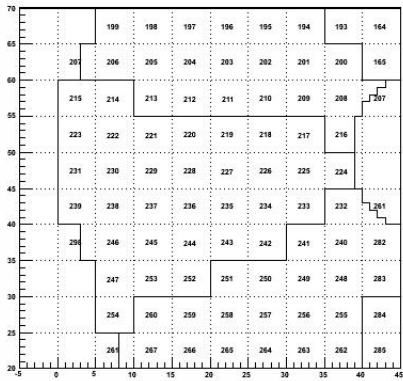




EETTT Flags Errors EE-07, bit 001

EETTT Flags Real Digits EE-07, bit 001

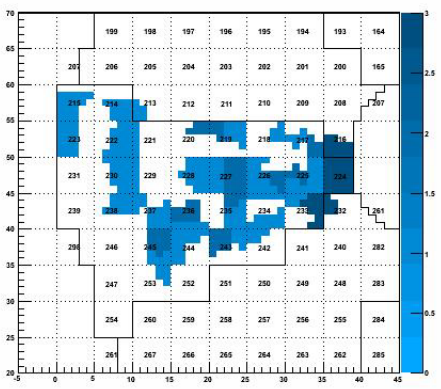
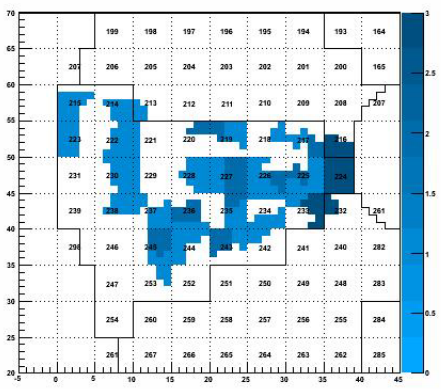
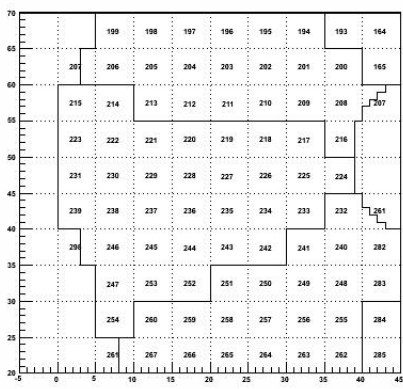
EETTT Flags Emulated Digits EE-07, bit 001



differences for EE-01

bits from real TPGs

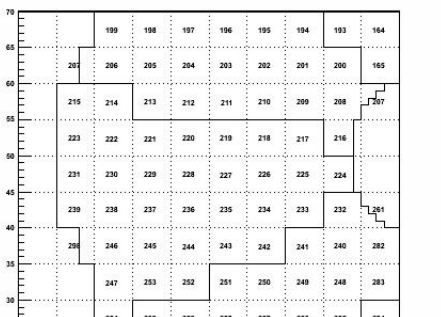
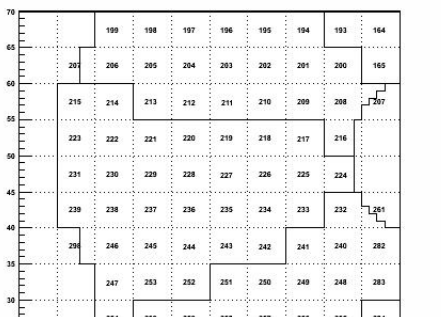
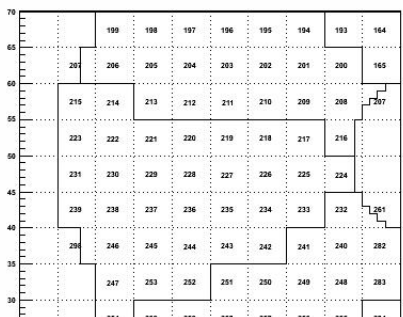
bits from emulated TPGs

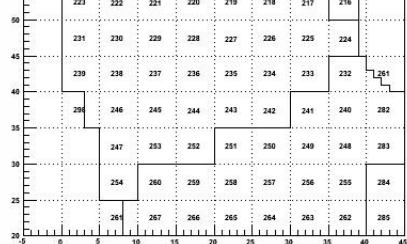


EETTT Flags Errors EE-07, bit 100

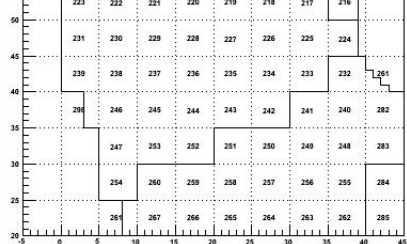
EETTT Flags Real Digits EE-07, bit 100

EETTT Flags Emulated Digits EE-07, bit 100

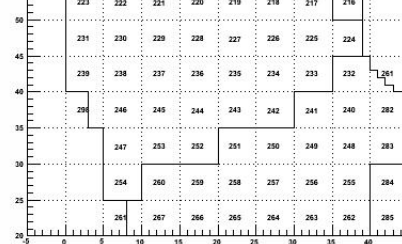




differences for EE-01



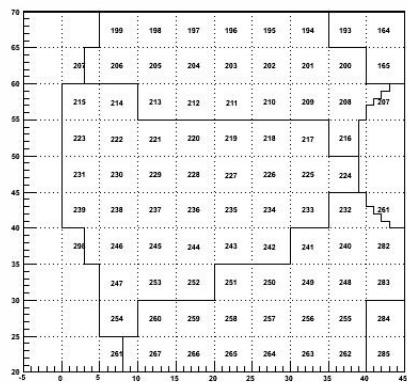
bits from real TPGs



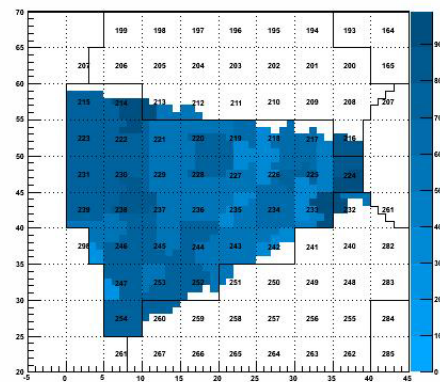
bits from emulated TPGs

Fine Grain Veto

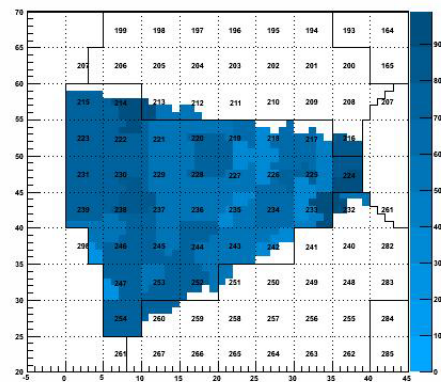
EETTT FineGrainVeto Errors EE-07, FineGrainVeto = 0



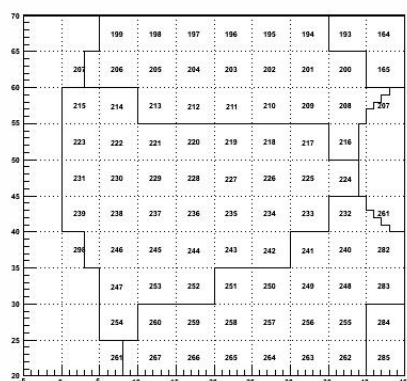
EETTT FineGrainVeto Real Digs EE-07, FineGrainVeto = 0



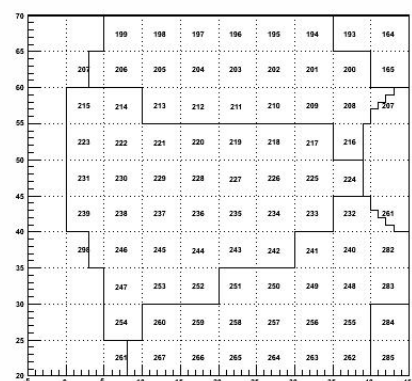
EETTT FineGrainVeto Emulated Digs EE-07, FineGrainVeto = 0



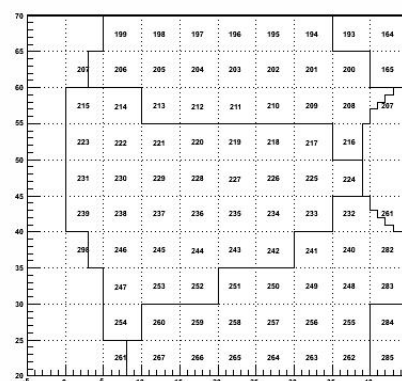
EETTT FineGrainVeto Errors EE-07, FineGrainVeto = 1



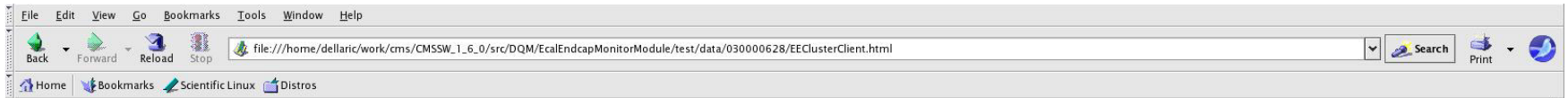
EETTT FineGrainVeto Real Digs EE-07, FineGrainVeto = 1



EETTT FineGrainVeto Emulated Digs EE-07, FineGrainVeto = 1



ECAL DQM - web static pages - EE



Run: 30000628

Monitoring task: CLUSTER

PHYSICS

[Basic Clusters plots](#)

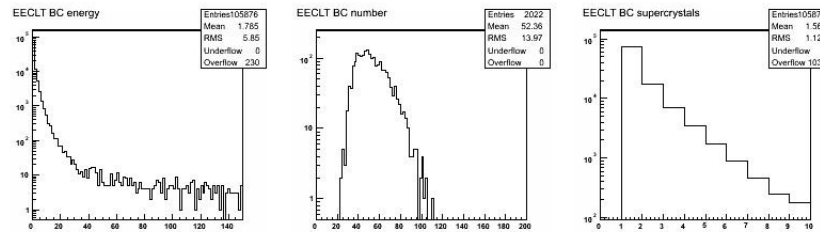
[Super Clusters plots](#)

[Higher Level Quantities plots](#)

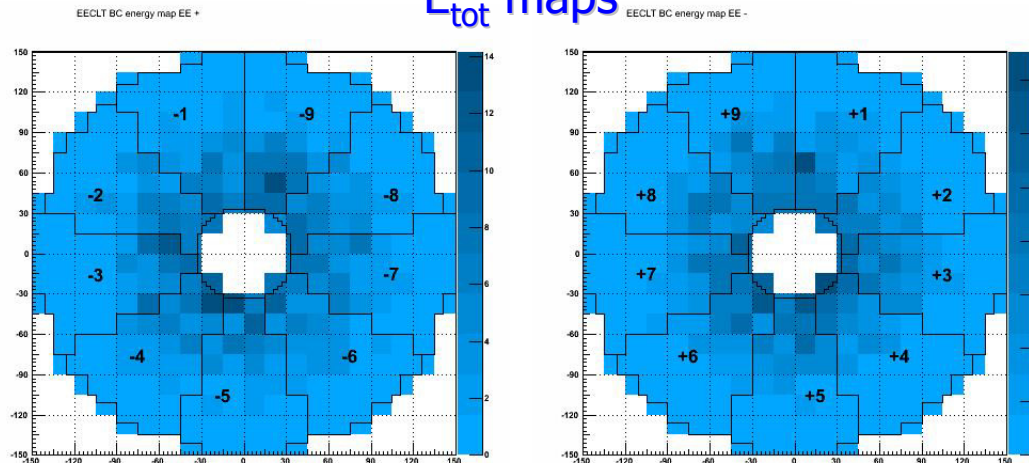
using MC data

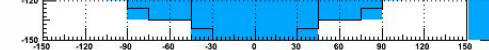
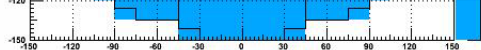
BC: energy, number, size

Basic Clusters plots



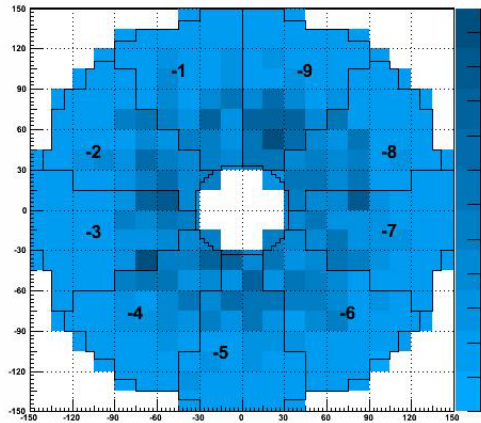
E_{tot} maps



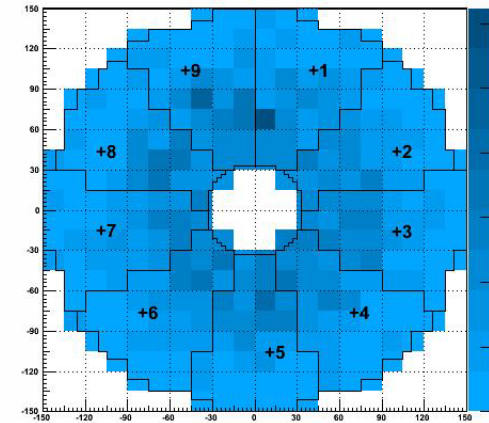


E_t maps

EECLT BC ET map EE +

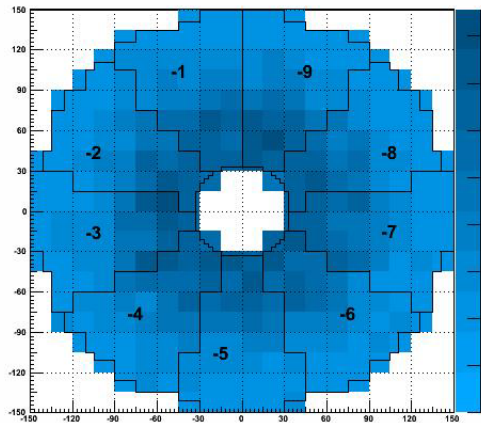


EECLT BC ET map EE -

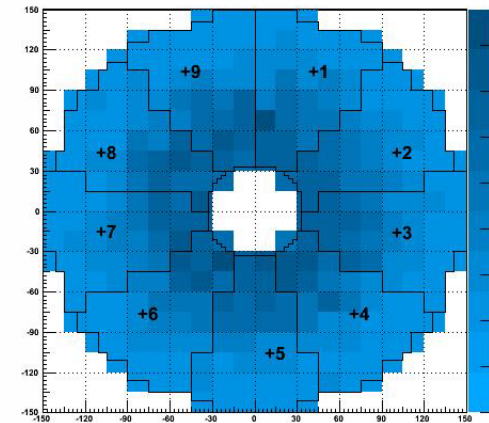


size maps

EECLT BC size map EE +

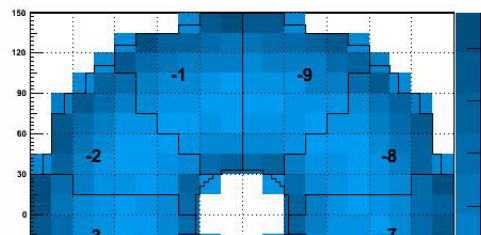


EECLT BC size map EE -

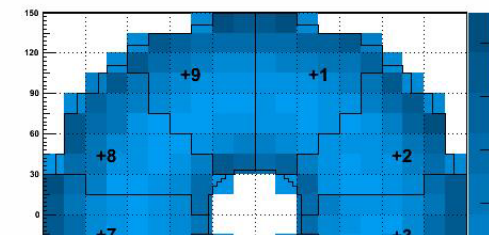


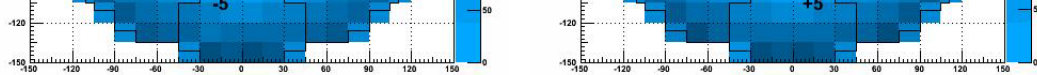
occupancy maps

EECLT BC number map EE +

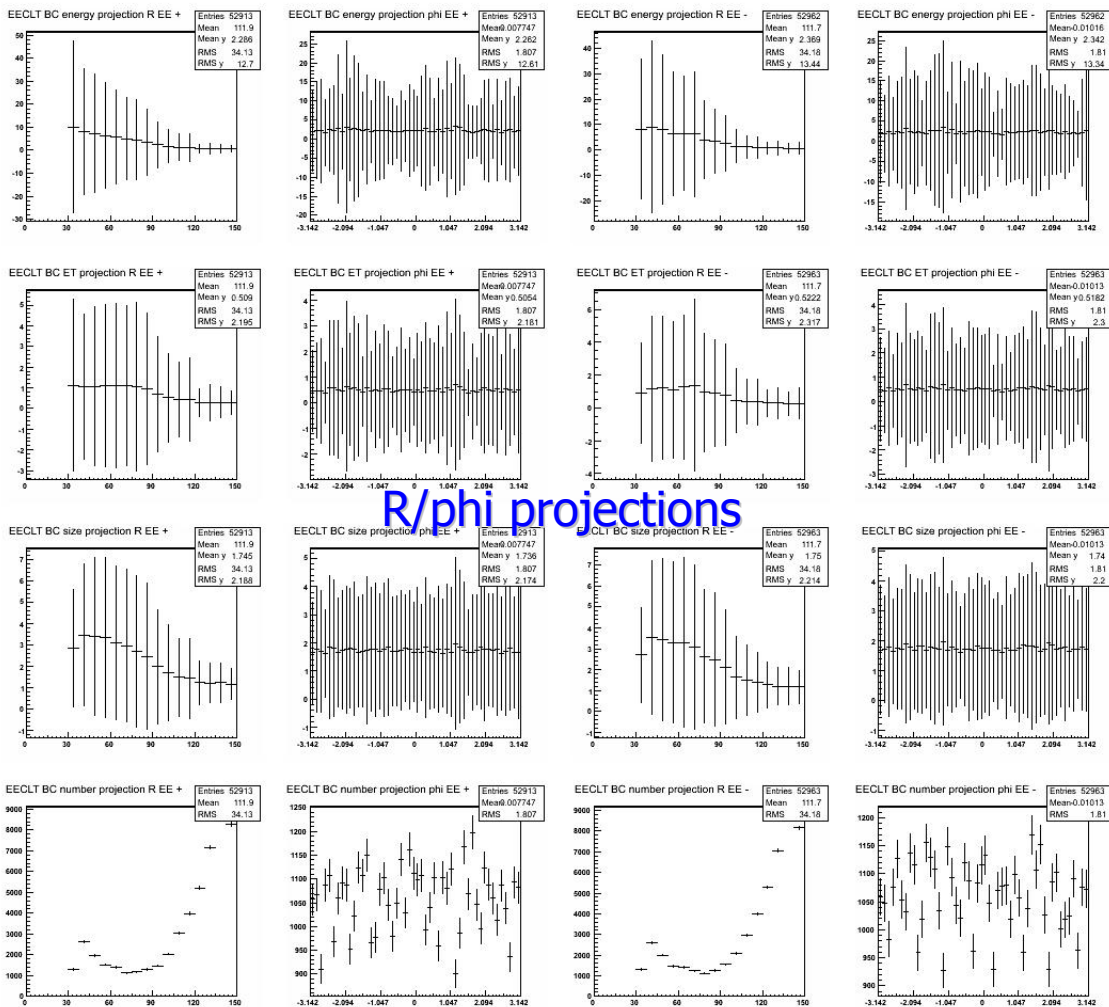


EECLT BC number map EE -





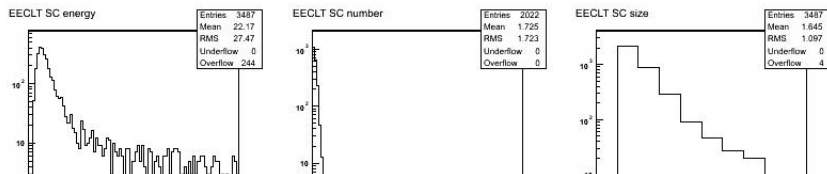
R/phi projections

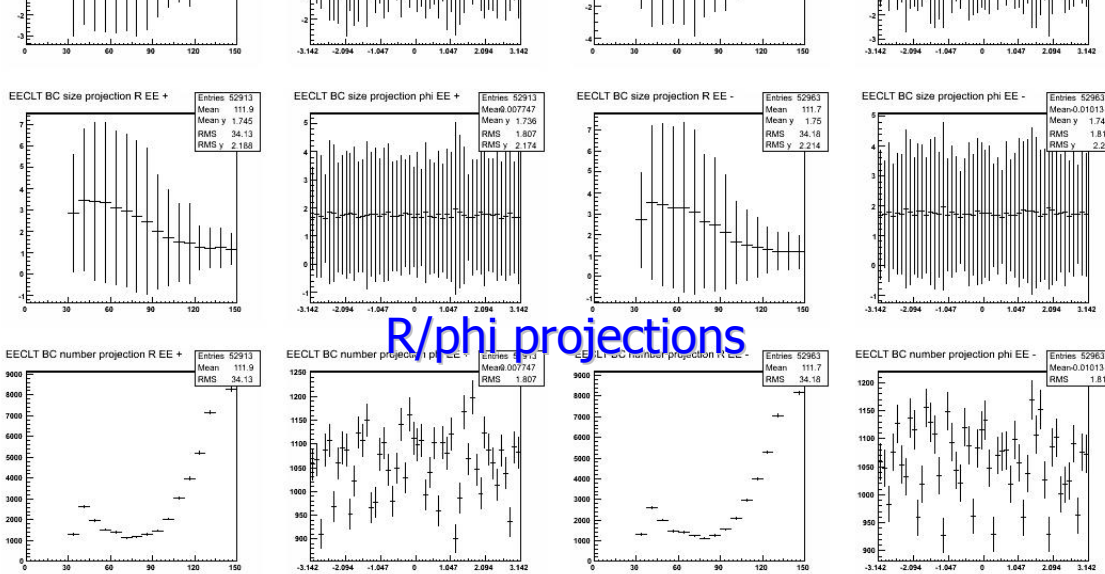


R/phi projections

SC: energy, number, size

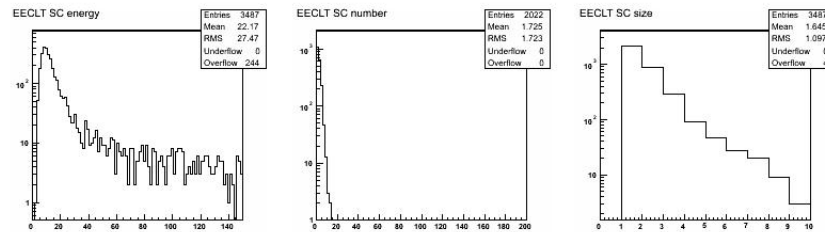
Super Clusters plots





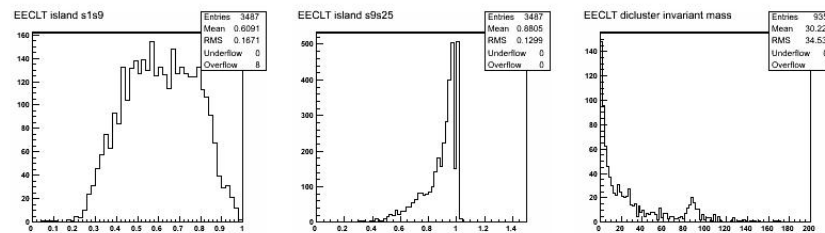
SC: energy, number, size

Super Clusters plots



s1/s9, s9/s25, di-cluster M_{inv}

Higher Level Quantities plots



What we are working on

- standardizing, extending & putting in production manual investigation/debugging tools used at 867/H2/H4/TB/P5
- dynamic DQM web pages
 - designing 'layouts' and 'customizations' for the new DQM GUI
 - reproducing online the static DQM web pages
 - making static DQM web pages OBSOLETE, and use new DQM GUI
 - once the new GUI will be able to read ROOT files

New CMS DQM GUI - 1

pre-defined layouts

menu navigation/selection

all DQM histograms are reachable in the tree

“search” is available, too

problematic histograms/layouts are highlighted in red

possibility to zoom on histograms

New CMS DQM GUI - 2

The screenshot displays the CMS DQM GUI interface. At the top, there is a browser window with the URL `http://epsilon.cern.ch:8030/dqm/online/session/pGgVnc`. Below the browser, the page title is "CMS data quality Online EB". The interface includes navigation options like "Objects: Choose..., Remove, Reset view" and "Select: All, None, Alarms, Non-alarms".

The main content area is divided into several sections:

- 0-Global-Summary:** Contains a large heatmap titled "EB global summary" with axes ranging from -85 to 85. It shows a dense grid of green data points with some yellow and red spots.
- 1-Integrity-Summary:** Contains a heatmap titled "EBIT integrity quality summary" with axes from -85 to 85.
- 2-Occupancy-Summary:** Contains a heatmap titled "EBOT occupancy summary" with axes from -85 to 85.
- 4-PedestalOnline-Summary:** Contains a heatmap titled "EBPOT pedestal quality summary G12" with axes from -85 to 85. This plot is highlighted with a red border.
- 0-Cluster, 1-Cluster, 2-Cluster:** Each cluster level includes a histogram showing the distribution of values and a corresponding heatmap below it.
- 3-Cluster, 4-Cluster:** Each cluster level includes multiple histograms showing different distributions.

At the bottom left, there is a note: "Please file any feature requests and any bugs you find in [Savannah](#). IGUANA DQM GUI @ epsilon.cern.ch — session is modifiable".

some online-pedestals are out of range

global summary
integrity/occupancy/online-pedestals summaries
cluster summaries
physics summaries

LIVE DISPLAY

What we are planning

- implement reference plots of useful quantities
 - requires support in the DQM GUI
- implement quality tests against reference plots
 - requires support for archiving/browsing/retrieving of references
- review the DB-monitorables-to-DQM EB setup, extend to the EB/EE scenario

Conclusions

the ECAL DQM looks in excellent shape !

- enlarging the ECAL DQM community -

H2/H4 Test Beams 2007 Experts List

Oleksiy Atramentov

Seth Cooper

Jean Fay

Yuri Gershtein

Ketino Kaadze

Yuri Maravin

We also have some documentation:

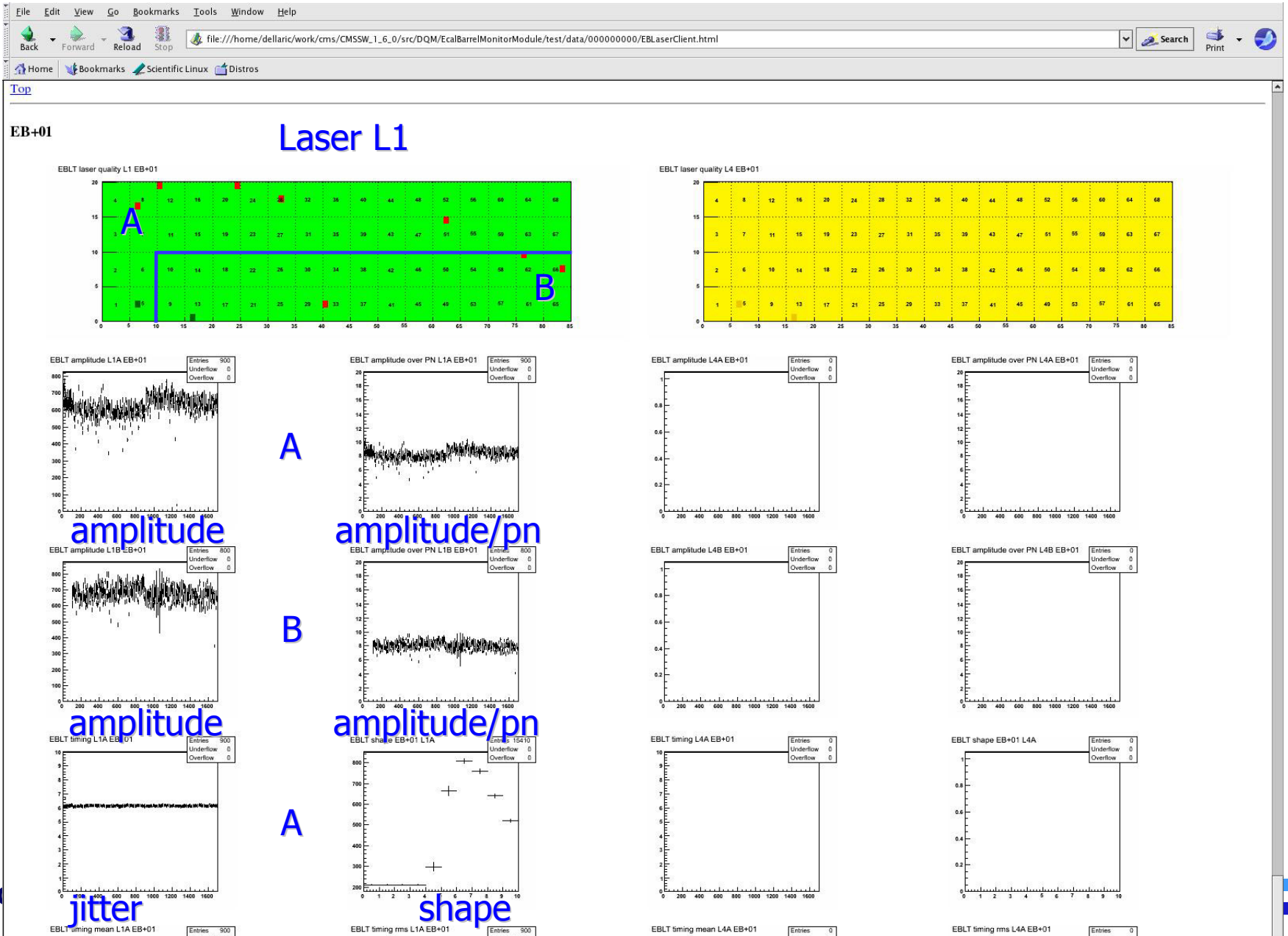
<https://twiki.cern.ch/twiki/bin/view/CMS/EcalDQM>

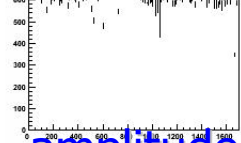
Near future

- ECAL DQM commissioning at P5
 - latest DQM version already in production, waiting for >1 EB for validation on-site
- ECAL DQM integration with Global DQM at P5
 - GREN, CCR-0T?, GREJ", GREF, GREM, CCR-4T !
 - shifters ?
- EE integration work at 867
 - need to update to latest DQM version (move/upgrade PC from H4 to 867)
 - expert support on-site ?

backup slides - begin

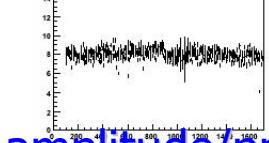
ECAL DQM - web static pages - EB



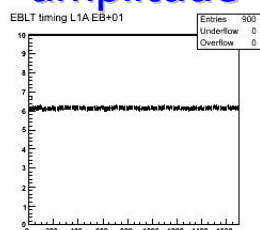
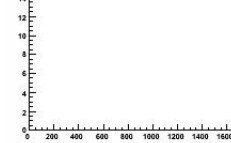
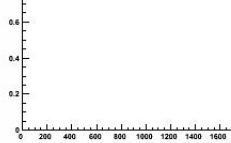


amplitude

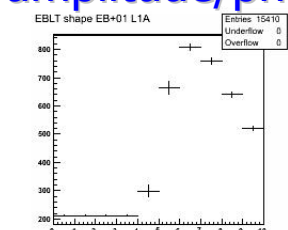
B



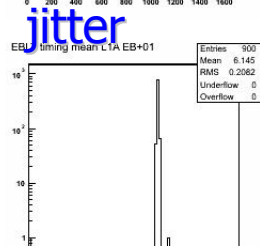
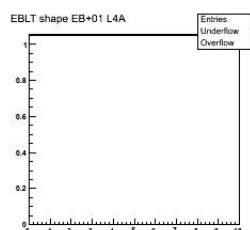
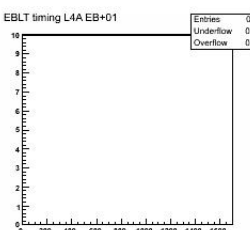
amplitude/pn



A

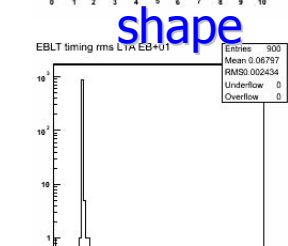


shape

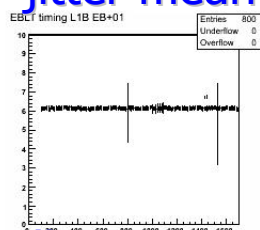
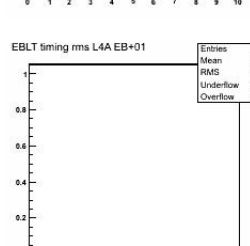
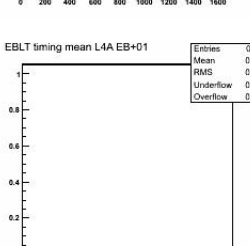


jitter mean

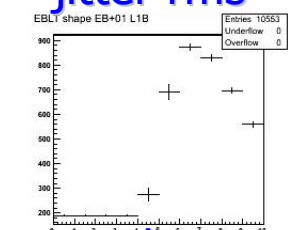
A



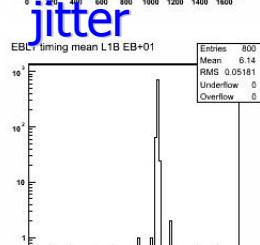
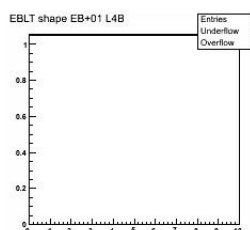
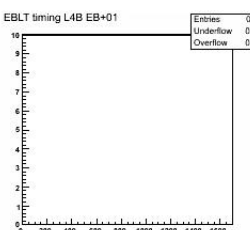
jitter rms



B

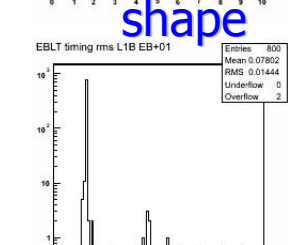


shape

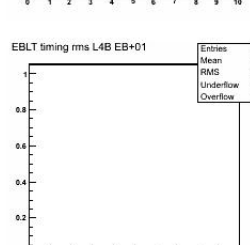
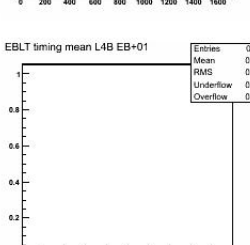


jitter mean

B



jitter rms

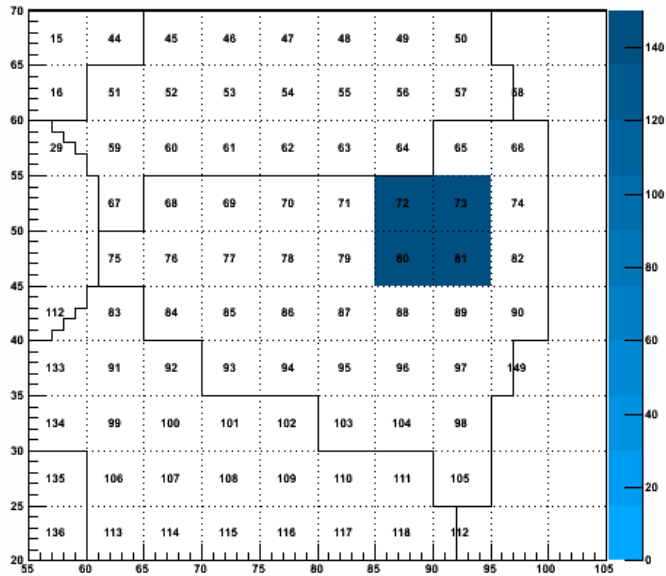


Laser 1

Laser 4

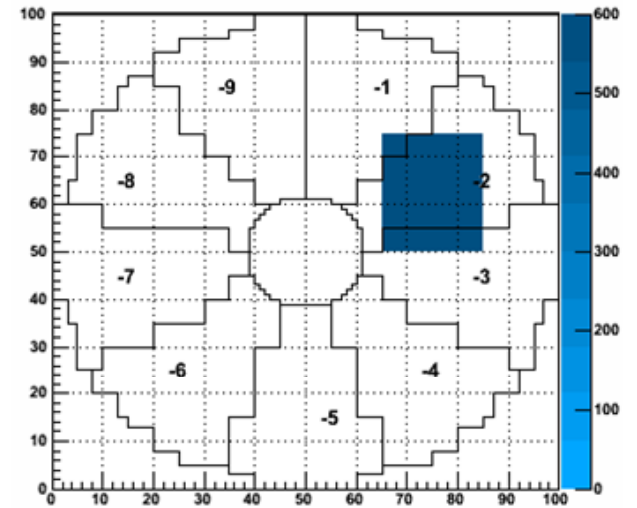
H2/H4 Test Beams 2007

EEOT occupancy EE+07



ME EETTT Et map Emulated Digis EE+07

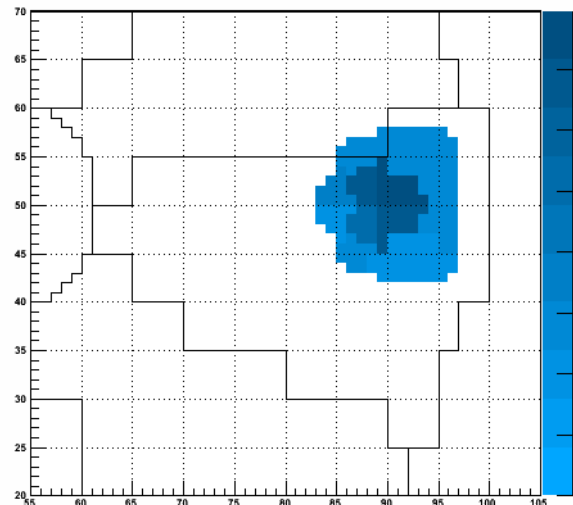
EEOT EE - occupancy summary

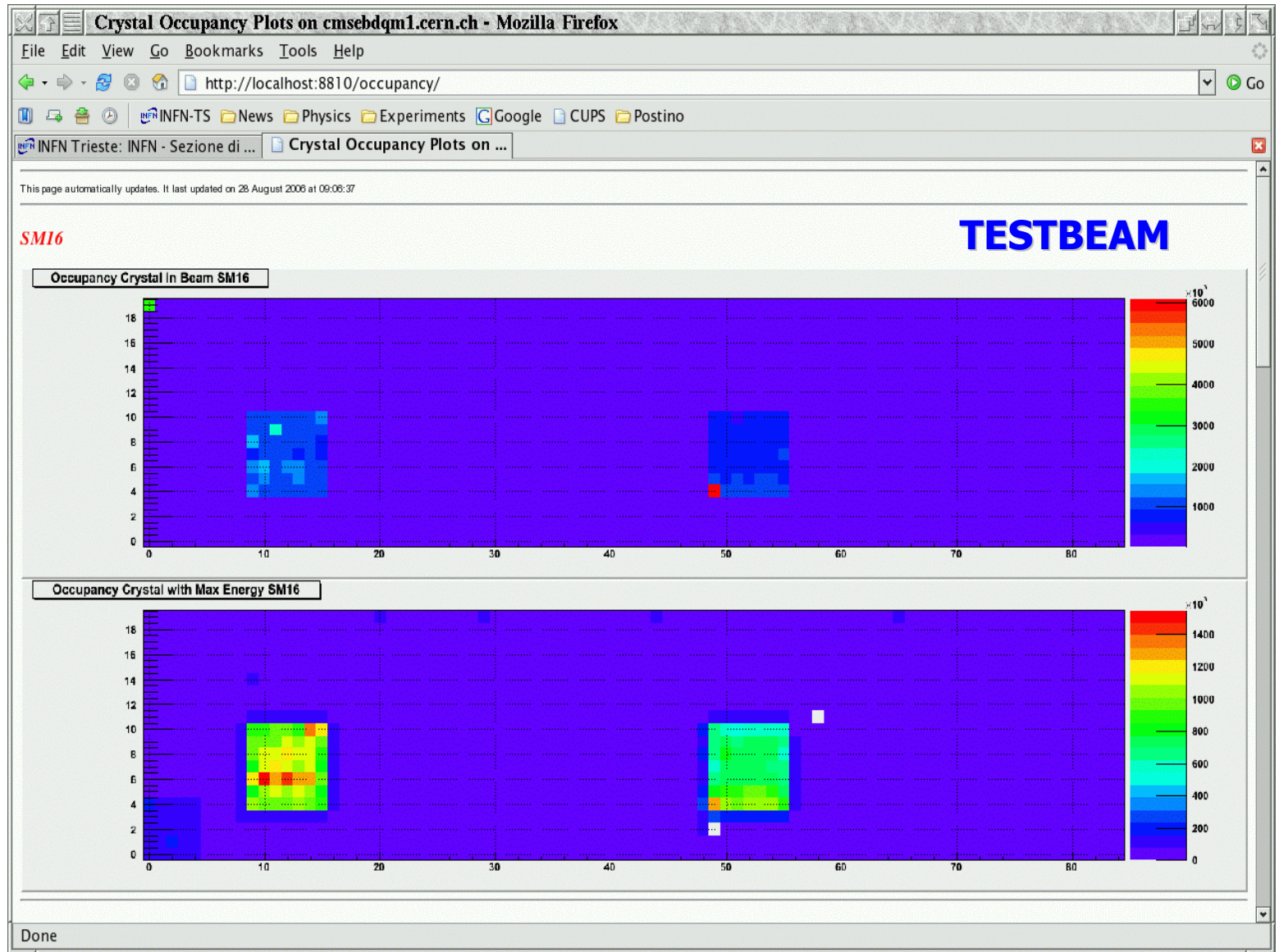


20 EE SuperCrystals at H4

one EE SuperCrystal at H2

TPG emulation at H2





events per crystal distributions, extracted from ECAL CondDB

backup slides - end