

# GAP-X-GAP events

## First report

# Run

**RunNumber:** 292319

**Date:** 2010.05.10

**RunTime:** 00:13:17

**LumiBegin:**  $65.3 \times 10^{30} \text{ cm}^{-2}\text{sec}^{-1}$

**LumiEnd:**  $64.2 \times 10^{30} \text{ cm}^{-2}\text{sec}^{-1}$

**L1Accepts:** 3 136 656 (3 935.5 Hz)

**L2/L3Accepts:** 113 226 (142.1 Hz)

BSC Veto, CLC Veto, Forward Plug Veto on 2GeV

# Triggers

## Level 1 Trigger (SL1D) Fred Scaler Information for run [292319](#)

L1BIT	TRIGGER_NAME	UNPRESCALED	PRESCALE	PRESCALED	RATE_HZ	LIVE	NB
1	<a href="#">L1_TEST_TWO_CEM0.5 &amp; CLC_BSC1_VETO_PS1 [2]</a>	<a href="#">997,999</a>	1	<a href="#">997,999</a>	<a href="#">1,258.37</a>	<a href="#">997,617</a>	<a href="#">19,537.36</a>
3	<a href="#">L1_TEST_TRK1.5 &amp; CLC_BSC1_VETO_PS1 [1]</a>	<a href="#">81,961</a>	1	<a href="#">81,961</a>	<a href="#">103.34</a>	<a href="#">81,934</a>	<a href="#">1,604.60</a>
5	<a href="#">L1_TEST_CJET5 &amp; CLC_BSC1_VETO_PS1 [1]</a>	<a href="#">5,456</a>	1	<a href="#">5,456</a>	<a href="#">6.88</a>	<a href="#">5,453</a>	<a href="#">106.79</a>
6	<a href="#">L1_TEN_TRK1.5_PS0 [1]</a>	<a href="#">4,734,645</a>	0	<a href="#">0</a>	<a href="#">0.00</a>	<a href="#">0</a>	<a href="#">0.00</a>
7	<a href="#">L1_TEST_CJET3 &amp; CLC_BSC1_VETO_PS1 [1]</a>	<a href="#">41,232</a>	1	<a href="#">41,232</a>	<a href="#">51.99</a>	<a href="#">41,208</a>	<a href="#">807.02</a>
9	<a href="#">L1_TEST_TWO_CJET0.5 &amp; CLC_BSC1_VETO_PS1 [1]</a>	<a href="#">3,109,137</a>	1	<a href="#">3,109,137</a>	<a href="#">3,920.28</a>	<a href="#">3,107,932</a>	<a href="#">60,865.84</a>
11	<a href="#">L1_TEST_TWO_TRK1..5 &amp; CLC_BSC1_VETO_PS1 [1]</a>	<a href="#">7,247</a>	1	<a href="#">7,247</a>	<a href="#">9.14</a>	<a href="#">7,245</a>	<a href="#">141.89</a>
21	<a href="#">L1_MB_XING_PS200K [1]</a>	<a href="#">1,360,360,054</a>	199999	<a href="#">6,803</a>	<a href="#">8.58</a>	<a href="#">6,799</a>	<a href="#">133.15</a>
23	<a href="#">L1_MB_XING_PS1M [2]</a>	<a href="#">1,360,360,054</a>	1000003	<a href="#">1,362</a>	<a href="#">1.72</a>	<a href="#">1,361</a>	<a href="#">26.65</a>

# Triggers

## Level 2 Triggers for run [292319](#)

L2BIT	TRIGGER_NAME	UNPRESCALED	PRESCALED	RATE_HZ	NB
0	<a href="#">L2_AUTO_L1_MB_XING [2]</a>	<a href="#">1,361</a>	<a href="#">1,361</a>	<a href="#">1.72</a>	<a href="#">26.65</a>
1	<a href="#">L2_AUTO_L1_MB_XING_PS200K [1]</a>	<a href="#">6,799</a>	<a href="#">6,799</a>	<a href="#">8.58</a>	<a href="#">133.15</a>
2	<a href="#">L2_AUTO_L1_TEN_TRK1.5 [1]</a>	<a href="#">0</a>	<a href="#">0</a>	<a href="#">0.00</a>	<a href="#">0.00</a>
3	<a href="#">L2_CJET5 &amp; SUMET2_RL20HZ_L1_CLC_VETO [1]</a>	<a href="#">5,805</a>	<a href="#">5,805</a>	<a href="#">7.32</a>	<a href="#">113.69</a>
4	<a href="#">L2_INCLUSIVE_ALL_2HZ [1]</a>	<a href="#">3,136,398</a>	<a href="#">1,586</a>	<a href="#">2.00</a>	<a href="#">31.06</a>
5	<a href="#">L2_SUMET2_RL20HZ_L1_CJET5 &amp; CLC_VETO [1]</a>	<a href="#">3,297</a>	<a href="#">3,297</a>	<a href="#">4.16</a>	<a href="#">64.57</a>
6	<a href="#">L2_SUMET2_RL25HZ_L1_TRK1.5 &amp; CLC_BSC1_VETO [1]</a>	<a href="#">19,421</a>	<a href="#">19,414</a>	<a href="#">24.49</a>	<a href="#">380.20</a>
7	<a href="#">L2_SUMET2_RL25HZ_L1_TWO_TRK1.5 &amp; CLC_BSC1_VETO [1]</a>	<a href="#">971</a>	<a href="#">971</a>	<a href="#">1.22</a>	<a href="#">19.02</a>
8	<a href="#">L2_SUMET2_RL60HZ_L1_TWO_CEM0.5 &amp; CLC_BSC1_VETO [1]</a>	<a href="#">369,900</a>	<a href="#">47,600</a>	<a href="#">60.04</a>	<a href="#">932.20</a>
9	<a href="#">L2_SUMET2_RL60HZ_L1_TWO_CJET0.5 &amp; CLC_BSC1_VETO [1]</a>	<a href="#">1,264,016</a>	<a href="#">47,600</a>	<a href="#">60.04</a>	<a href="#">932.20</a>

# Checking triggers

## Histograms:

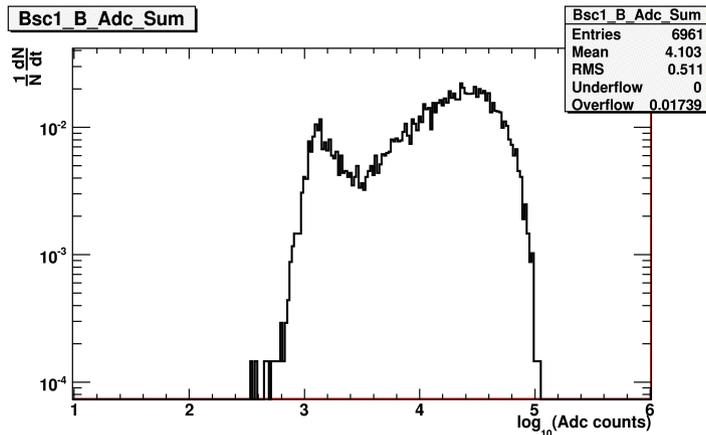
ADC counts for BSC1 (east, west and both sides)

ADC counts for CLC (east, west and both sides)

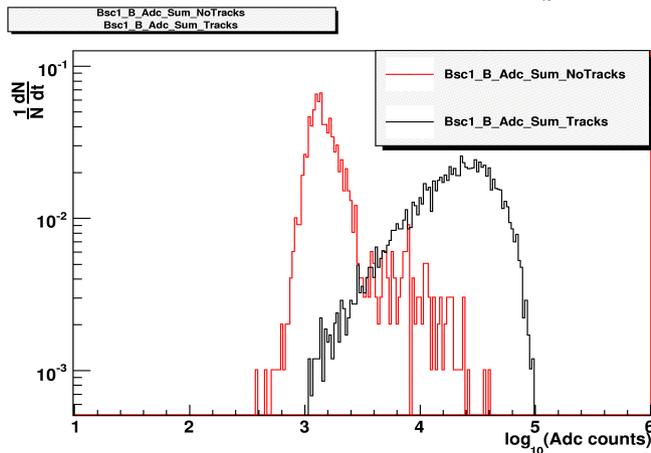
Et for Forward Plug (east, west and both sides)

$|\eta| > 2.1$

# ADC counts for BSC1

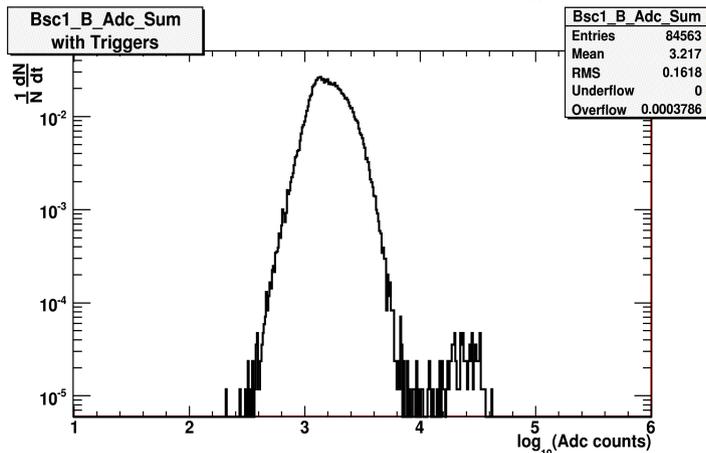


Sum of ADC counts for both sides of BSC1 with triggers 0, 1 – zero bias data



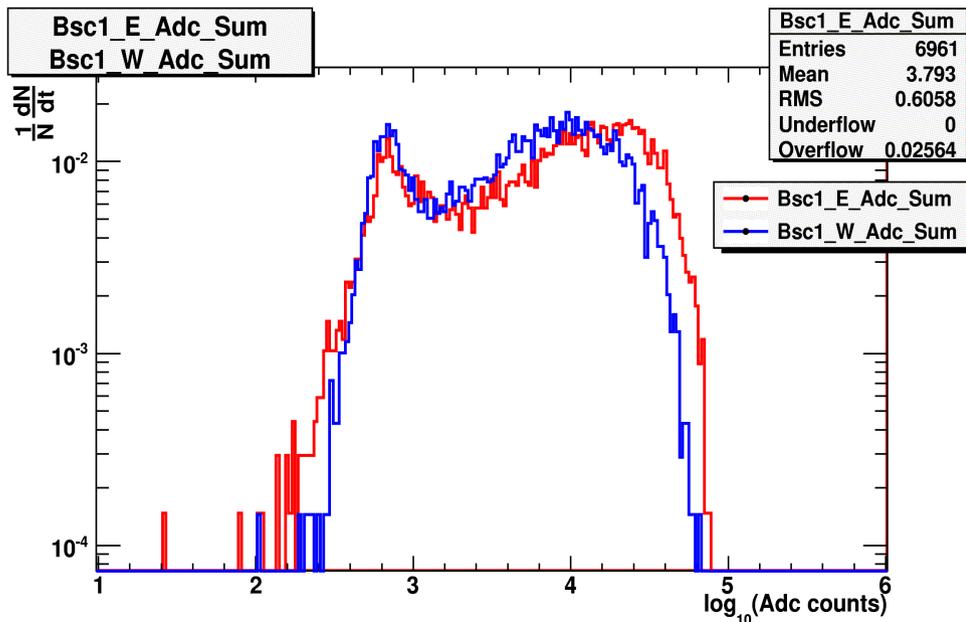
Sum of ADC counts for both sides of BSC1 with triggers 0,1 – zero bias data

0-tracks and tracks events separated

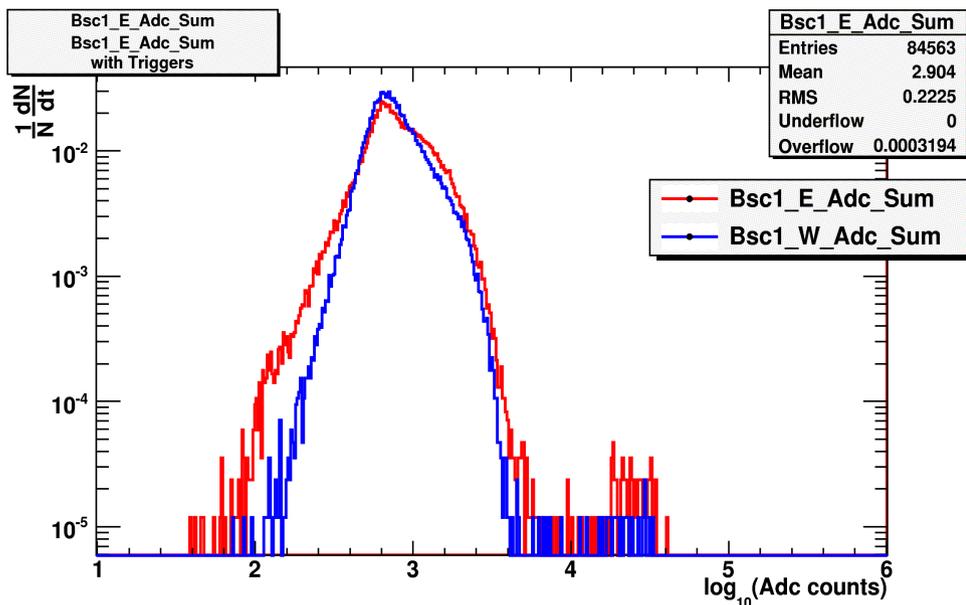


Sum of ADC counts for both sides of BSC1 with triggers 5,6,7,8,9

# ADC counts for BSC1

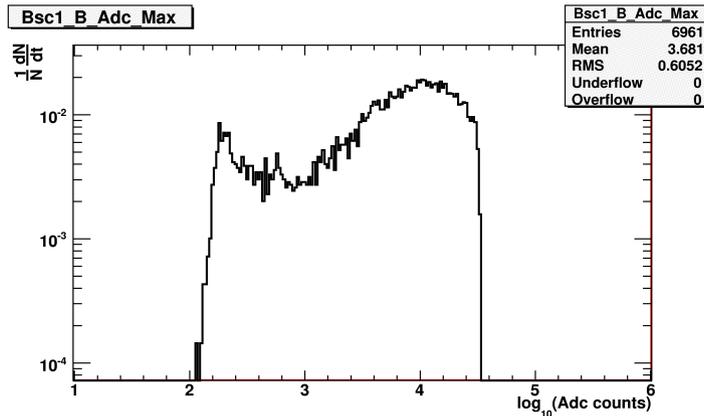


Sum of ADC counts for east and west sides of BSC1 with triggers 0,1 – zero bias data

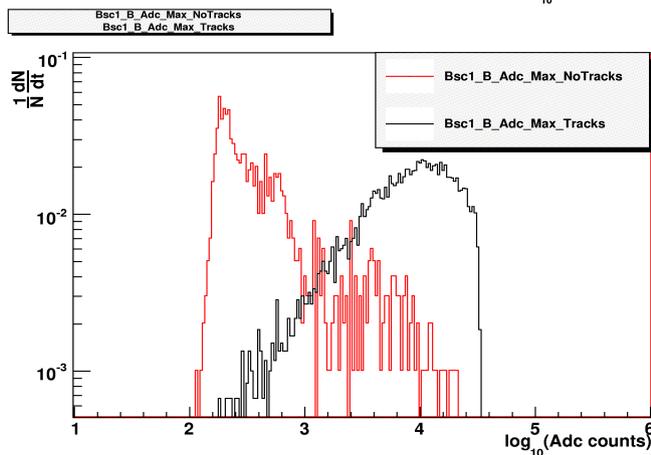


Sum of ADC counts for east and west sides of BSC1 with triggers 5,6,7,8,9

# ADC counts for BSC1

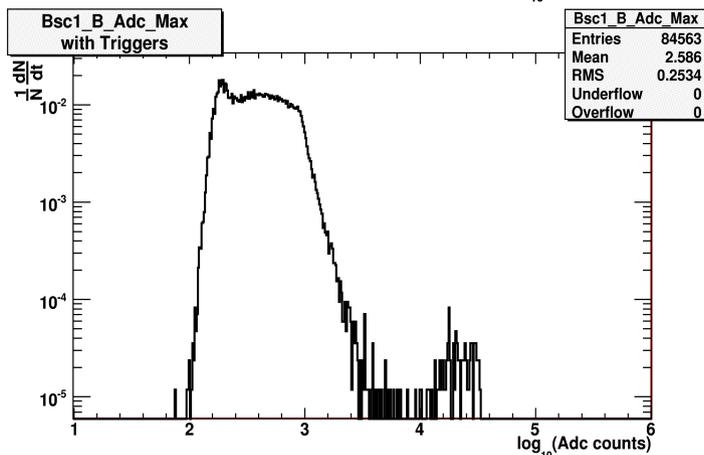


Maximum ADC counts for both sides of BSC1 with triggers 0,1 – zero bias data



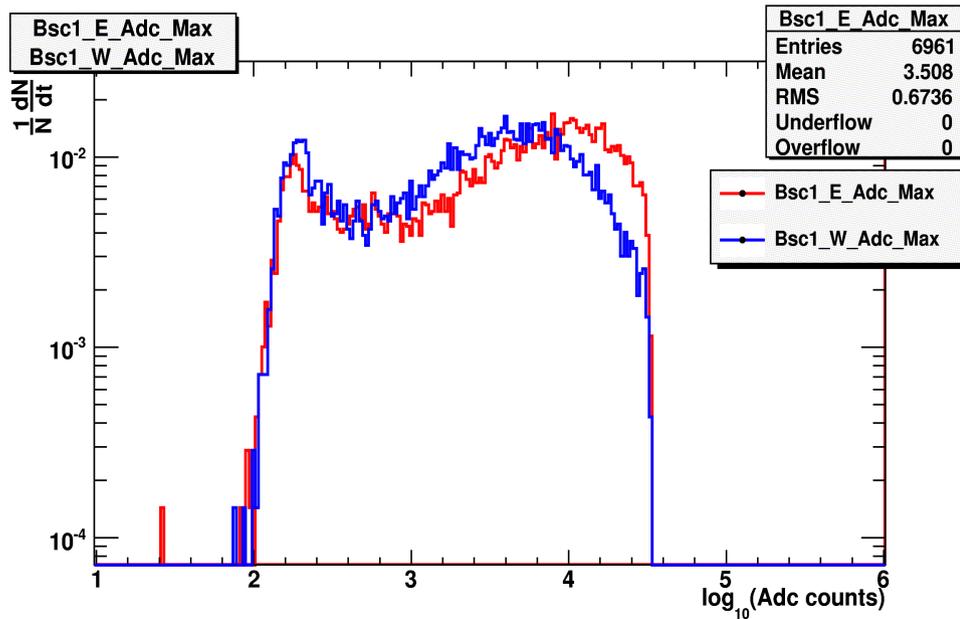
Maximum ADC counts for both sides of BSC1 with triggers 0,1 – zero bias data

0-tracks and tracks events separated

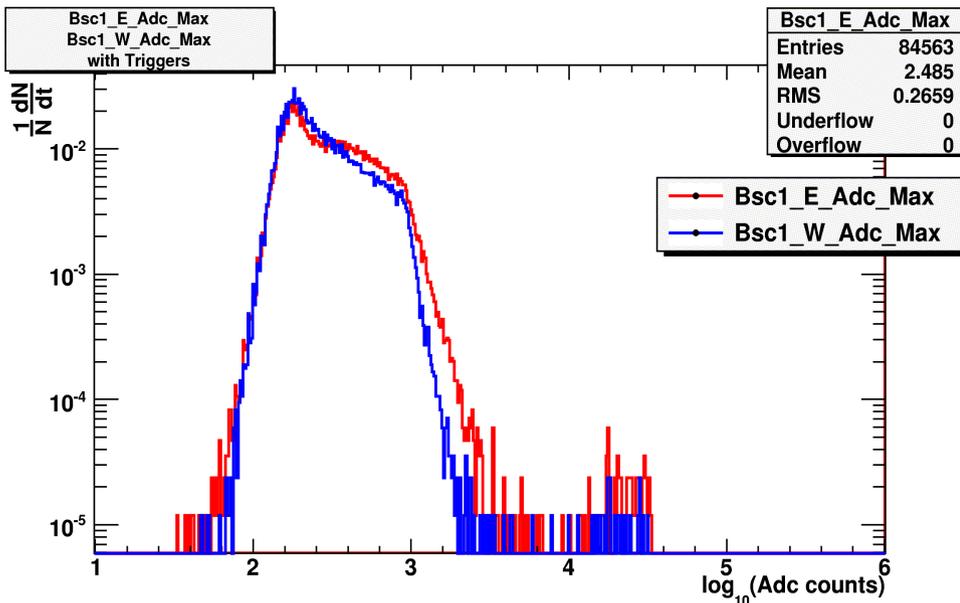


Maximum ADC counts for both sides of BSC1 with triggers 5,6,7,8,9

# ADC counts for BSC1

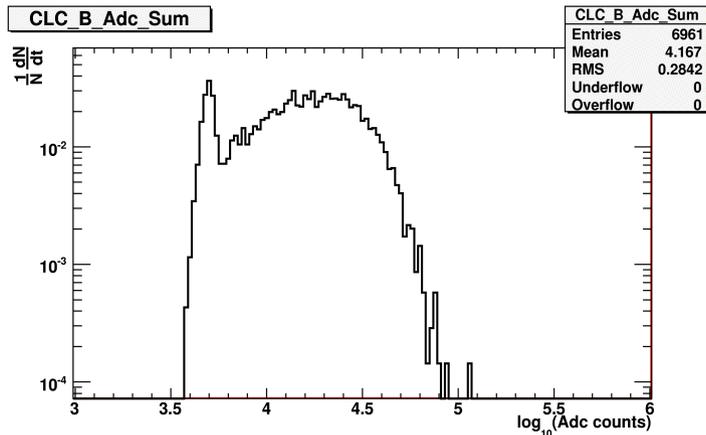


Maximum ADC counts for east and west sides of BSC1 with triggers 0,1 – zero bias data

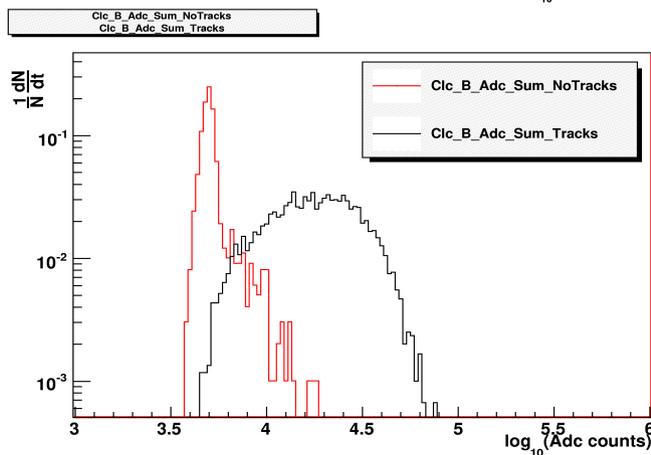


Maximum ADC counts for for east and west sides of BSC1 with triggers 5,6,7,8,9

# ADC counts for CLC

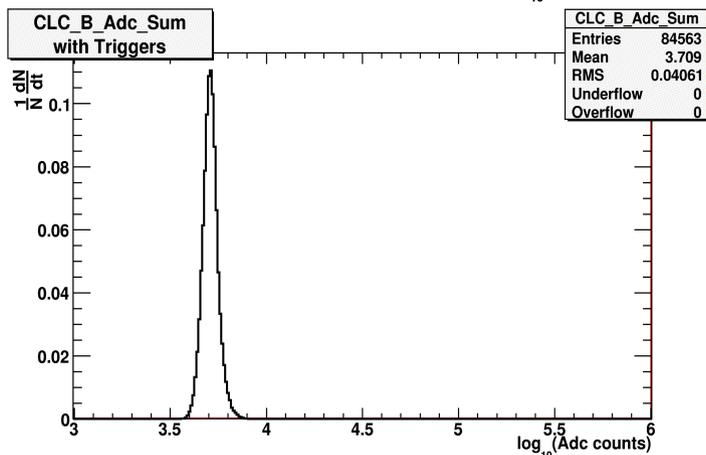


Sum of ADC counts for both sides of CLC with triggers 0,1 – zero bias data



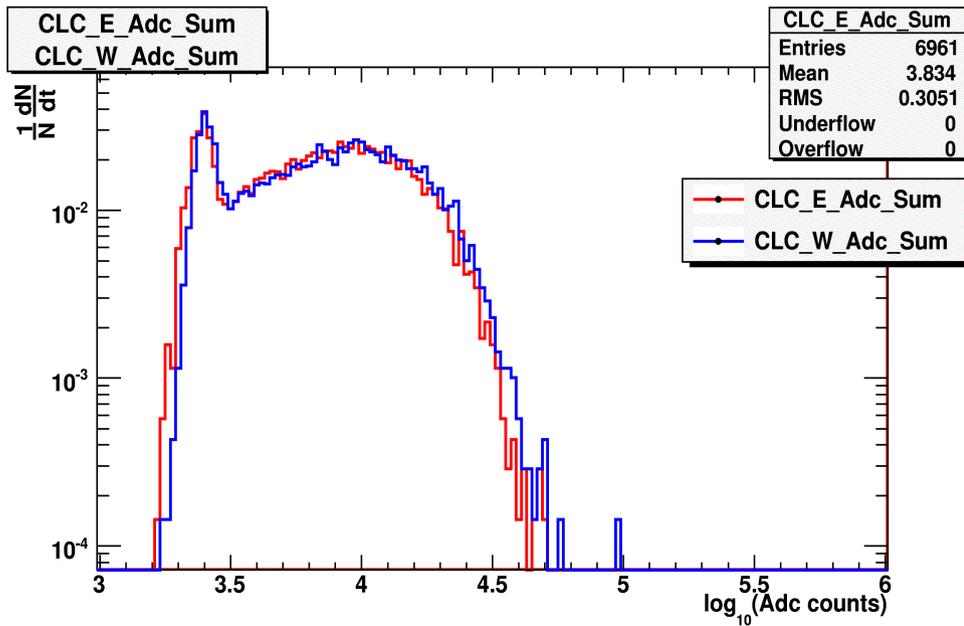
Sum of ADC counts for both sides of CLC with triggers 0,1 – zero bias data

0-tracks and tracks events separated

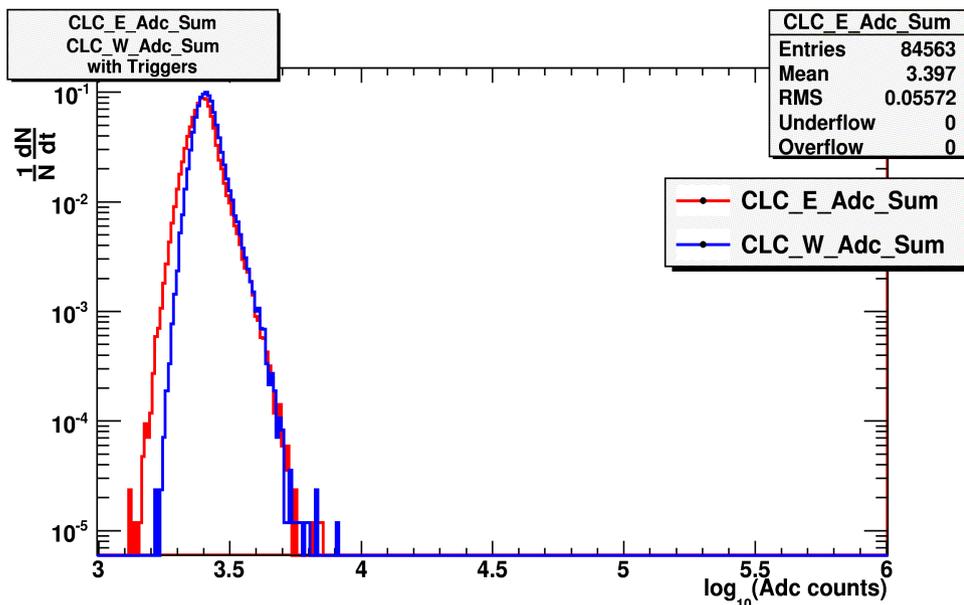


Sum of ADC counts for both sides of CLC with triggers 5,6,7,8,9

# ADC counts for CLC

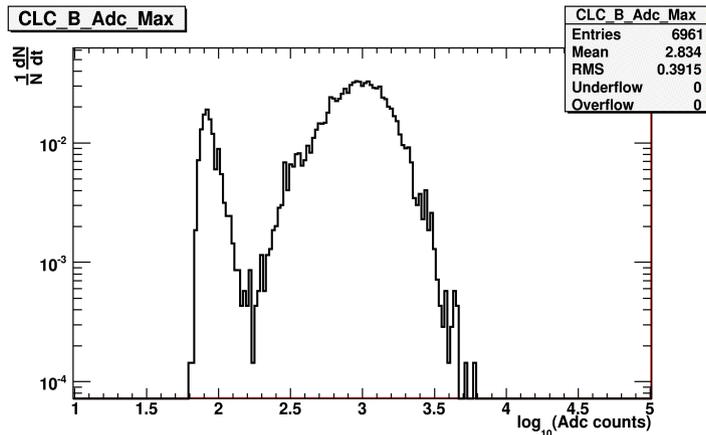


Sum of ADC counts for east and west sides of CLC with triggers 0,1 – zero bias data

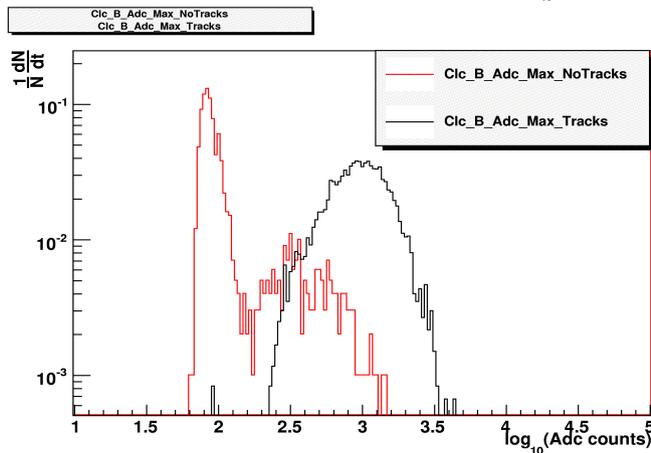


Sum of ADC counts for east and west sides of CLC with triggers 5,6,7,8,9

# ADC counts for CLC

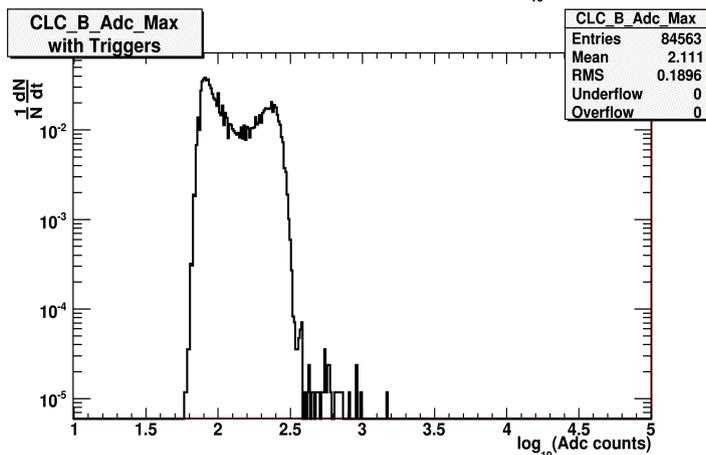


Maximum ADC counts for both sides of CLC with triggers 0,1 – zero bias data



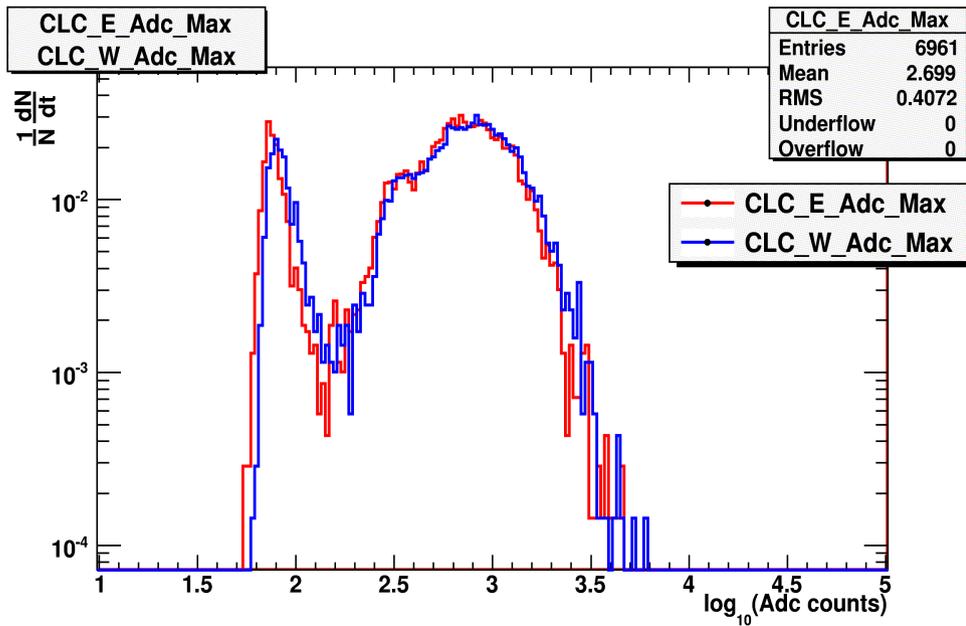
Maximum ADC counts for both sides of CLC with triggers 0,1 – zero bias data

0-tracks and tracks events separated

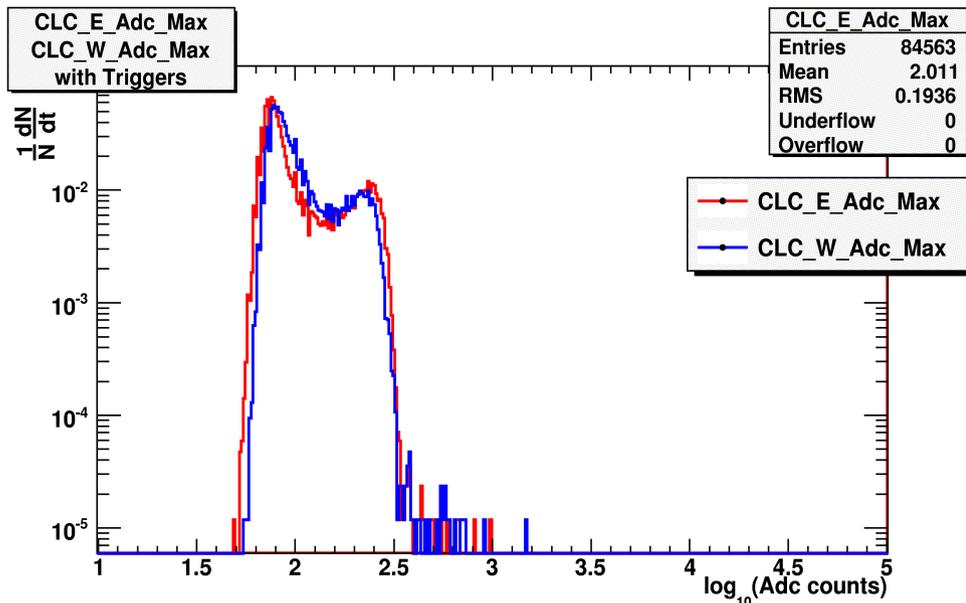


Maximum ADC counts for both sides of CLC with triggers 5,6,7,8,9

# ADC counts for CLC

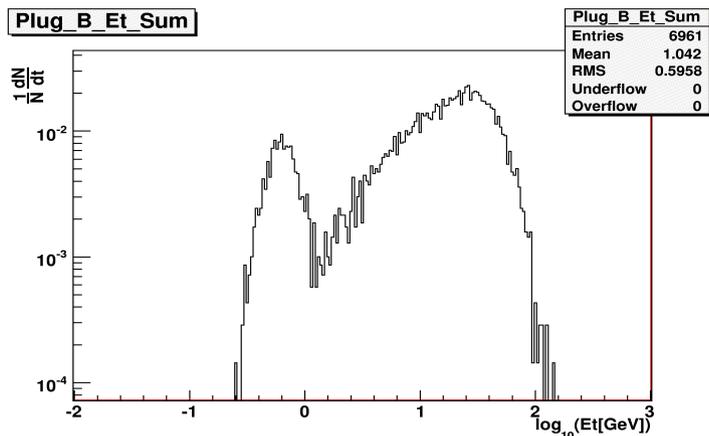


Maximum ADC counts for east and west sides of CLC with triggers 0,1 – zero bias data

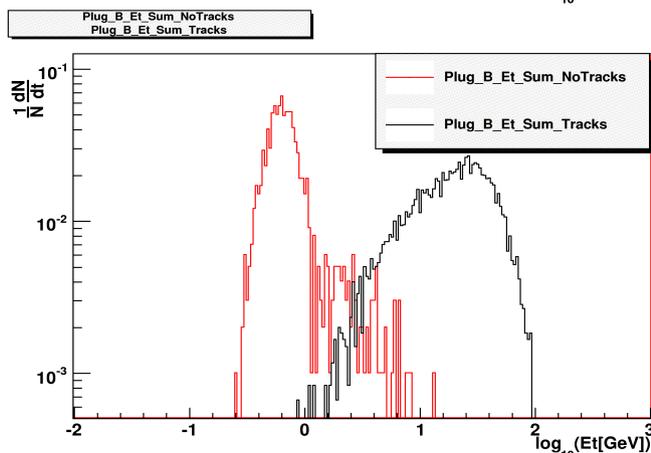


Maximum ADC counts for east and west sides of CLC with triggers 5,6,7,8,9

# Et for Forward Plug ( $|\eta| > 2.1$ )

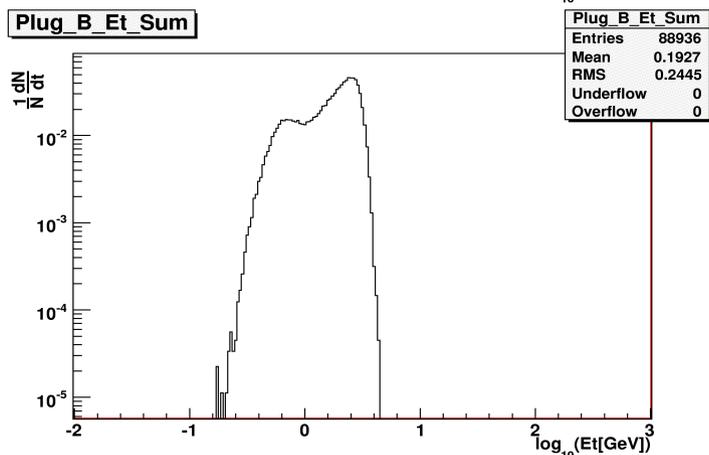


Sum of Et for both sides of Forward Plug ( $|\eta| > 2.1$ ) with triggers 0,1 – zero bias data



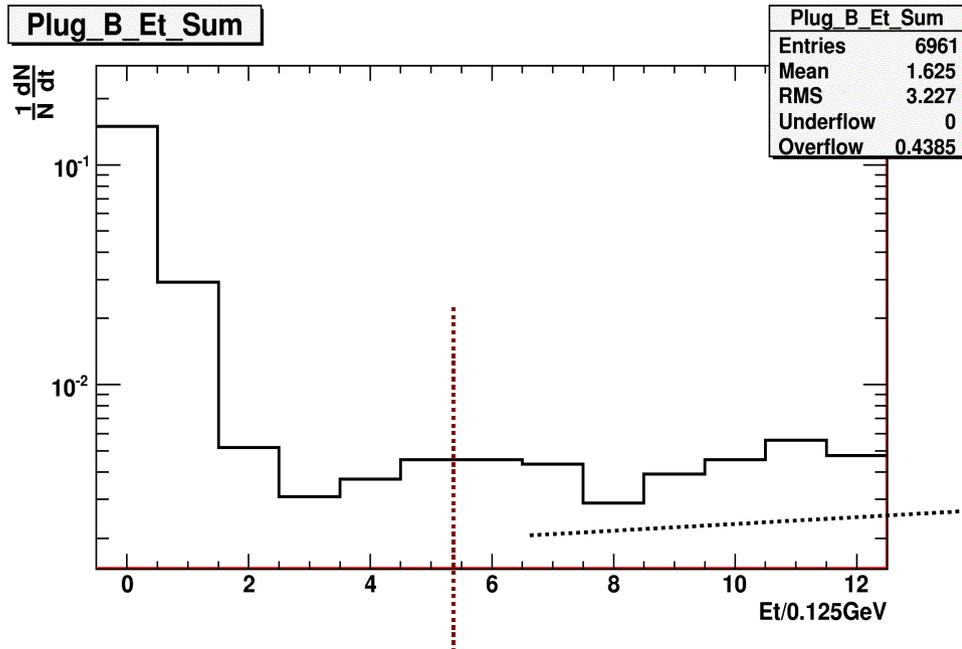
Sum of Et for both sides of Forward Plug ( $|\eta| > 2.1$ ) with triggers 0,1 – zero bias data

0-tracks and tracks events separated



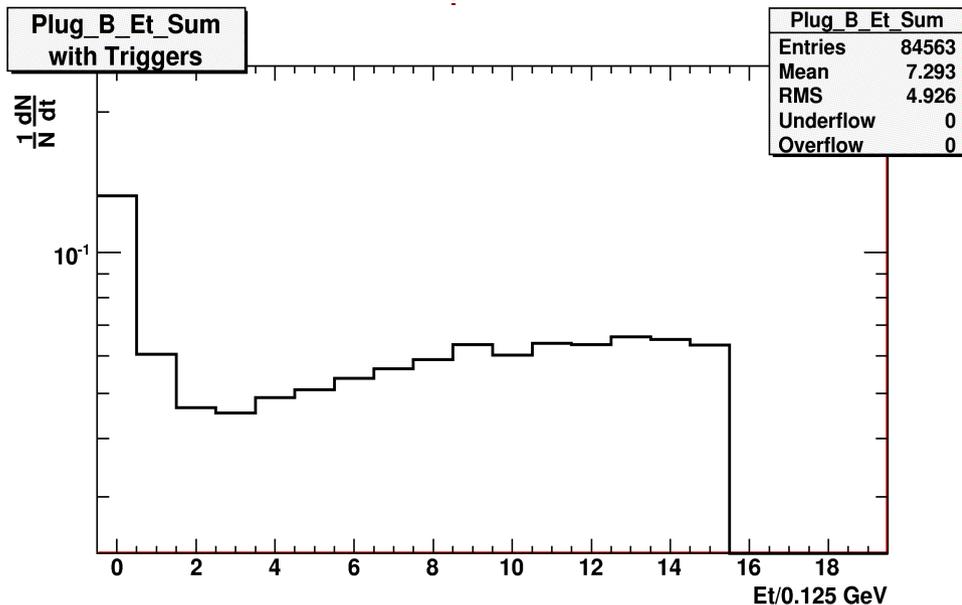
Sum of Et for both sides of Forward Plug ( $|\eta| > 2.1$ ) with triggers 5,6,7,8,9

# Trigger Et for Forward Plug



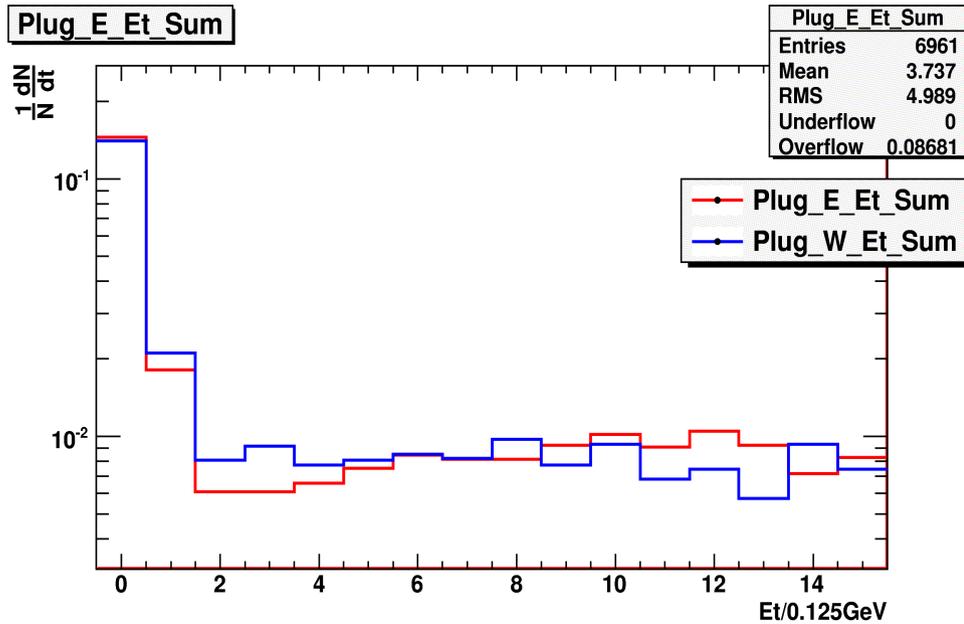
Sum of trigger Et for both sides of forward plug with triggers 0,1 – zero bias data

In recent run veto for 0.75 GeV and more

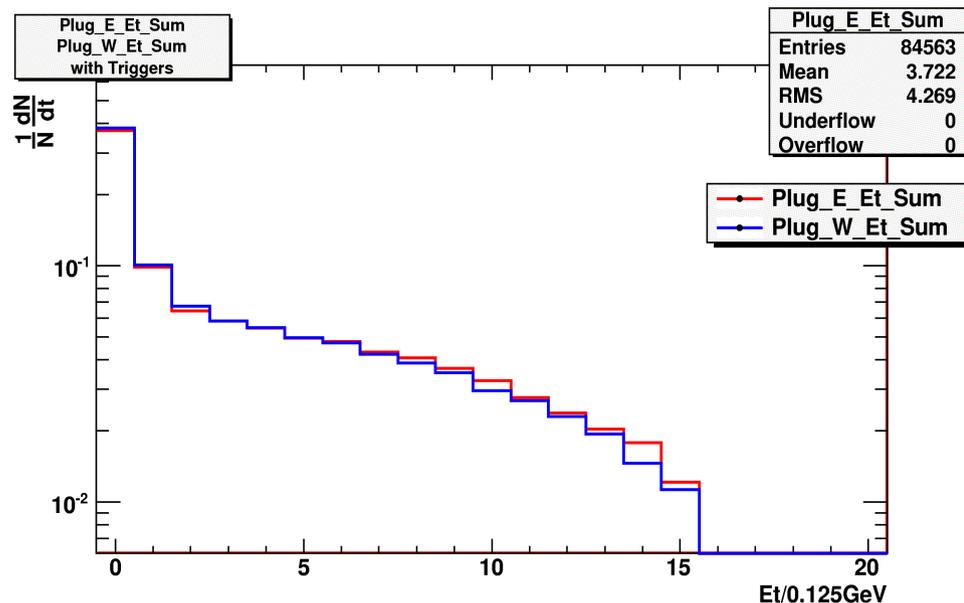


Sum of trigger Et for both sides of forward plug with triggers 5,6,7,8,9

# Trigger Et for Forward Plug



Sum of the trigger Et for east and west sides of forward plug with triggers 0,1 – zero bias data



Sum of the trigger Et for east and west sides of forward plug with triggers 5,6,7,8,9

We selected events with exactly **one vertex**,  
in trigger and 0-bias data.

Histograms:

Sum Et in calorimeter.

EM and EM+HAD.

The ratio  $EM/(EM+HAD)$ .

Number of charged tracks per event.

Used notation:

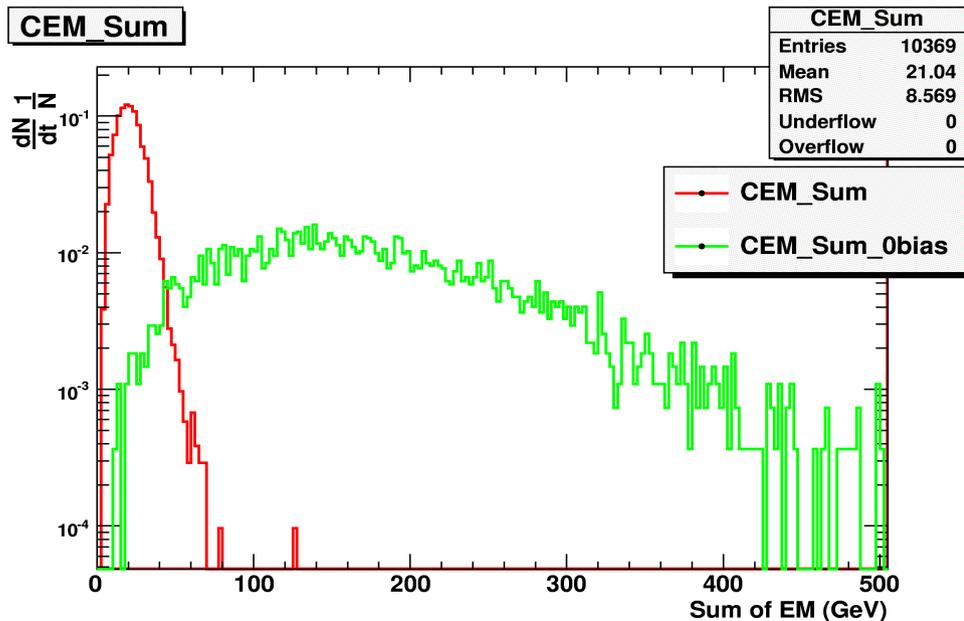
0 bias data:

L2 Triggers: 0,1

Trigger data:

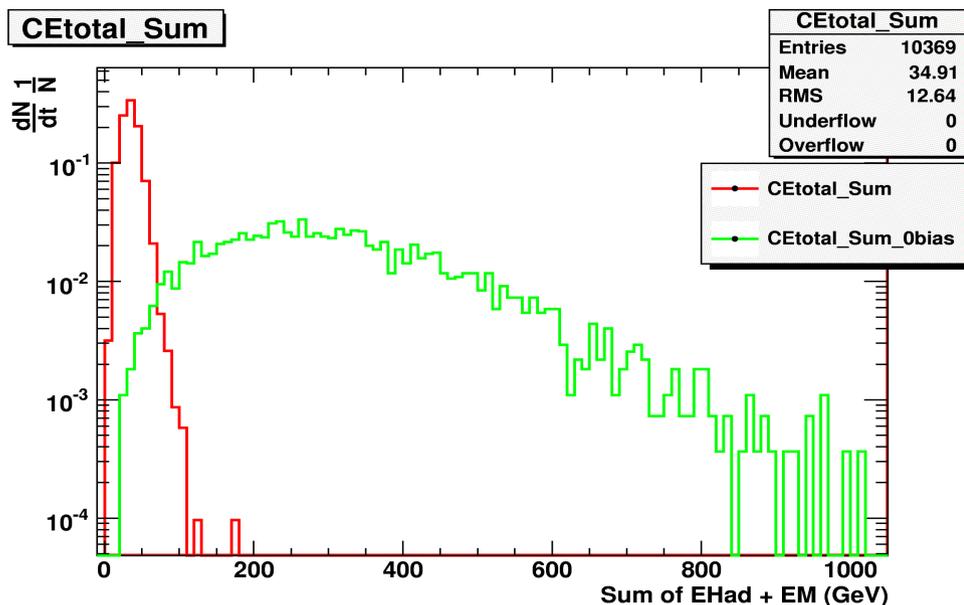
L2 Triggers: 3,5,6,7,8,9

# Sum of EM and sum of EM+EHad



Sum of all EM accumulated in calorimeters for one-vertex events:

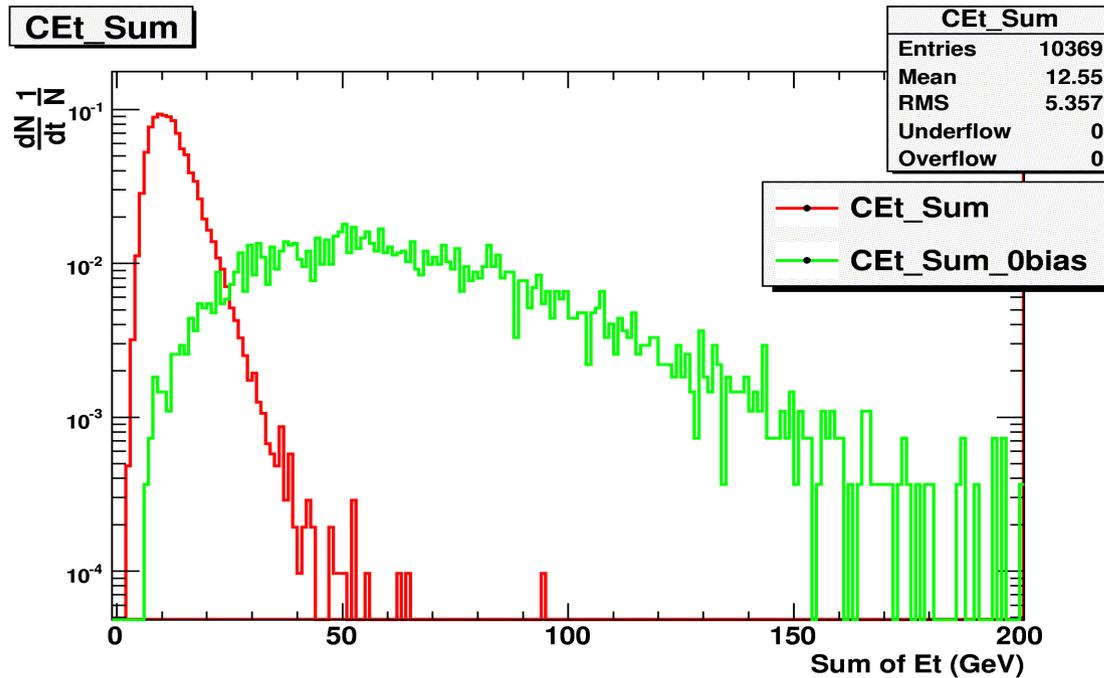
- with triggers (red line)
- 0-bias data (green line)



Sum of all EM + EHad accumulated in calorimeters for one-vertex events:

- with triggers (red line)
- 0-bias data (green line)

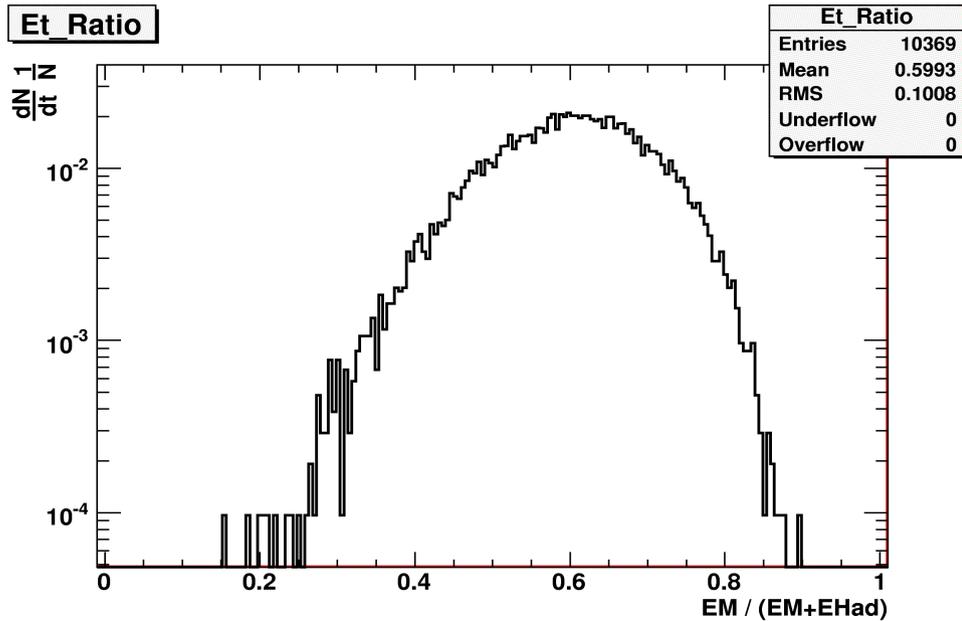
# Sum of Et energy



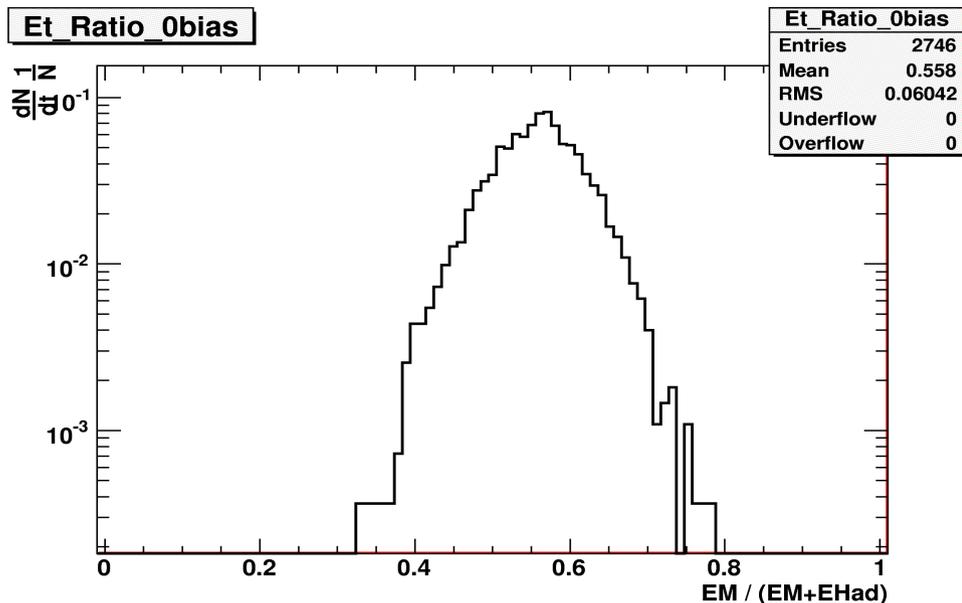
Sum of Et accumulated in calorimeters for one-vertex events:

- with triggers (red line)
- 0-bias data (green line)

# EM fractions



EM fraction of total energy for one-vertex events from trigger data.



EM fraction of total energy for one-vertex events from 0-bias data.

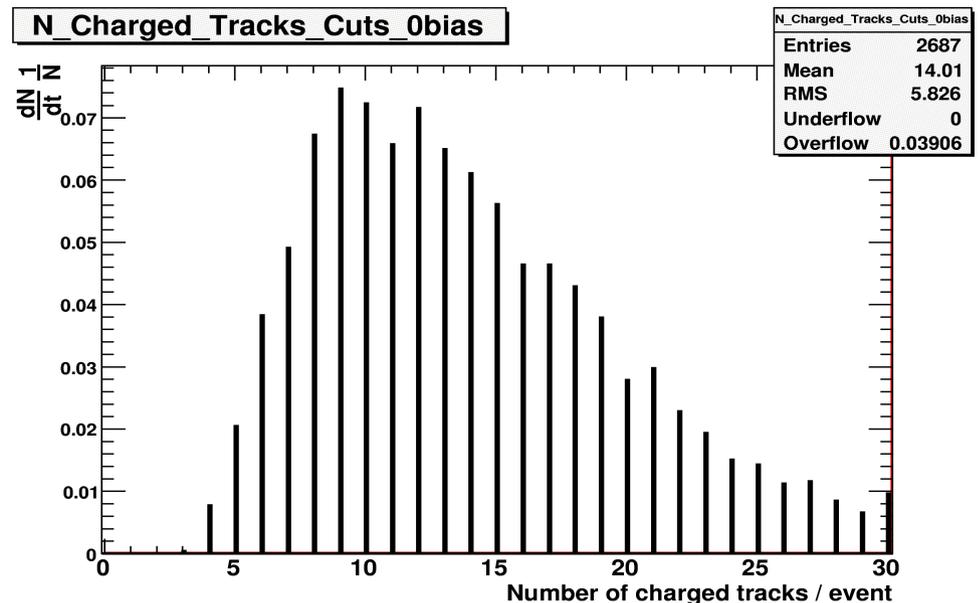
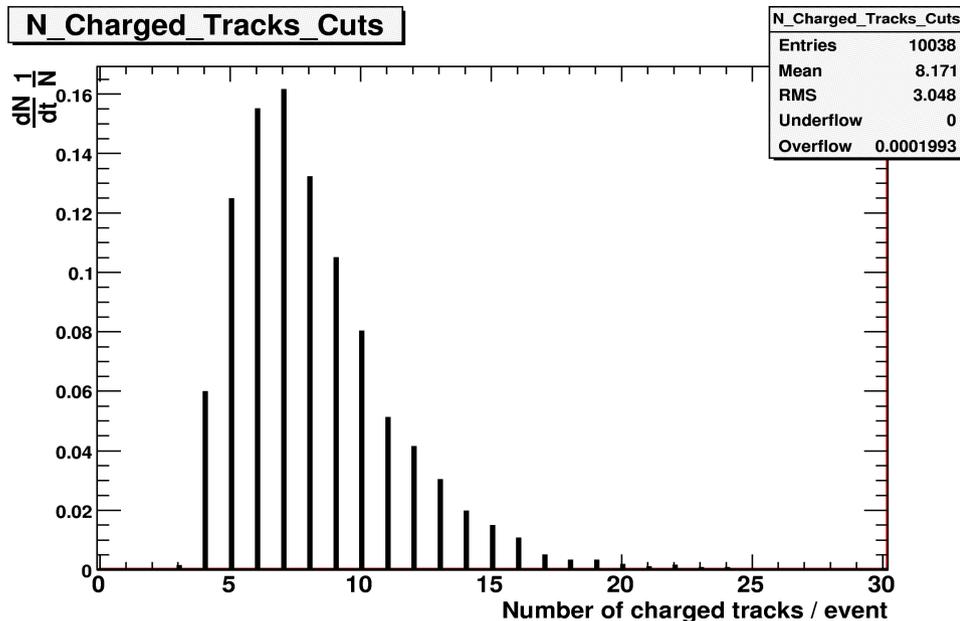
# Number of charged tracks per event

Conditions:

- one vertex data,
- tracks only from this vertex,
- $P_t > 0.3$  GeV
- $-1.5 < \eta < 1.5$

Trigger data

O-bias data



# The most recent run

**Number:** 294630

**Date:** 2010.07.13

**RunTime:** 04:03:04.5

**LumiBegin:**  $60.3 \times 10^{30} \text{ cm}^{-2}\text{sec}^{-1}$

**LumiEnd:**  $48.2 \times 10^{30} \text{ cm}^{-2}\text{sec}^{-1}$

**L1Accepts:** 79 631 370 (5 460 Hz)

**L2/L3Accepts:** 2 662 887 (182.6 Hz)

BSC Veto, CLC Veto, Forward Plug Veto on 0.75 GeV

# Triggers

## Level 2 Triggers for run [294630](#)

L2BIT	TRIGGER_NAME	UNPRESCALED	PRESCALED	RATE_HZ	NB
0	<a href="#">L2_AUTO_L1_MB_XING [2]</a>	<a href="#">24,966</a>	<a href="#">24,966</a>	<a href="#">1.72</a>	<a href="#">31.88</a>
1	<a href="#">L2_AUTO_L1_MB_XING_PS200K [1]</a>	<a href="#">124,815</a>	<a href="#">124,815</a>	<a href="#">8.58</a>	<a href="#">159.40</a>
2	<a href="#">L2_AUTO_L1_TEN_TRK1.5 [1]</a>	<a href="#">0</a>	<a href="#">0</a>	<a href="#">0.00</a>	<a href="#">0.00</a>
3	<a href="#">L2_CJET5 &amp; SUMET2_RL20HZ_L1_CLC_VETO [2]</a>	<a href="#">122,137</a>	<a href="#">119,916</a>	<a href="#">8.24</a>	<a href="#">153.14</a>
4	<a href="#">L2_INCLUSIVE_ALL_2HZ [1]</a>	<a href="#">79,630,256</a>	<a href="#">29,061</a>	<a href="#">2.00</a>	<a href="#">37.11</a>
5	<a href="#">L2_SUMET2_RL20HZ_L1_CJET5 &amp; CLC_VETO [2]</a>	<a href="#">72,046</a>	<a href="#">71,771</a>	<a href="#">4.93</a>	<a href="#">91.66</a>
6	<a href="#">L2_SUMET2_RL25HZ_L1_TRK1.5 &amp; CLC_BSC1_VETO [2]</a>	<a href="#">179,590</a>	<a href="#">174,935</a>	<a href="#">12.02</a>	<a href="#">223.40</a>
7	<a href="#">L2_SUMET2_RL25HZ_L1_TWO_TRK1.5 &amp; CLC_BSC1_VETO [2]</a>	<a href="#">8,506</a>	<a href="#">8,506</a>	<a href="#">0.58</a>	<a href="#">10.86</a>
8	<a href="#">L2_SUMET2_RL60HZ_L1_TWO_CEM0.5 &amp; CLC_BSC1_VETO [2]</a>	<a href="#">3,700,182</a>	<a href="#">1,192,814</a>	<a href="#">81.96</a>	<a href="#">1,523.30</a>
9	<a href="#">L2_SUMET2_RL60HZ_L1_TWO_CJET0.5 &amp; CLC_BSC1_VETO [2]</a>	<a href="#">12,468,181</a>	<a href="#">1,193,221</a>	<a href="#">81.99</a>	<a href="#">1,523.82</a>