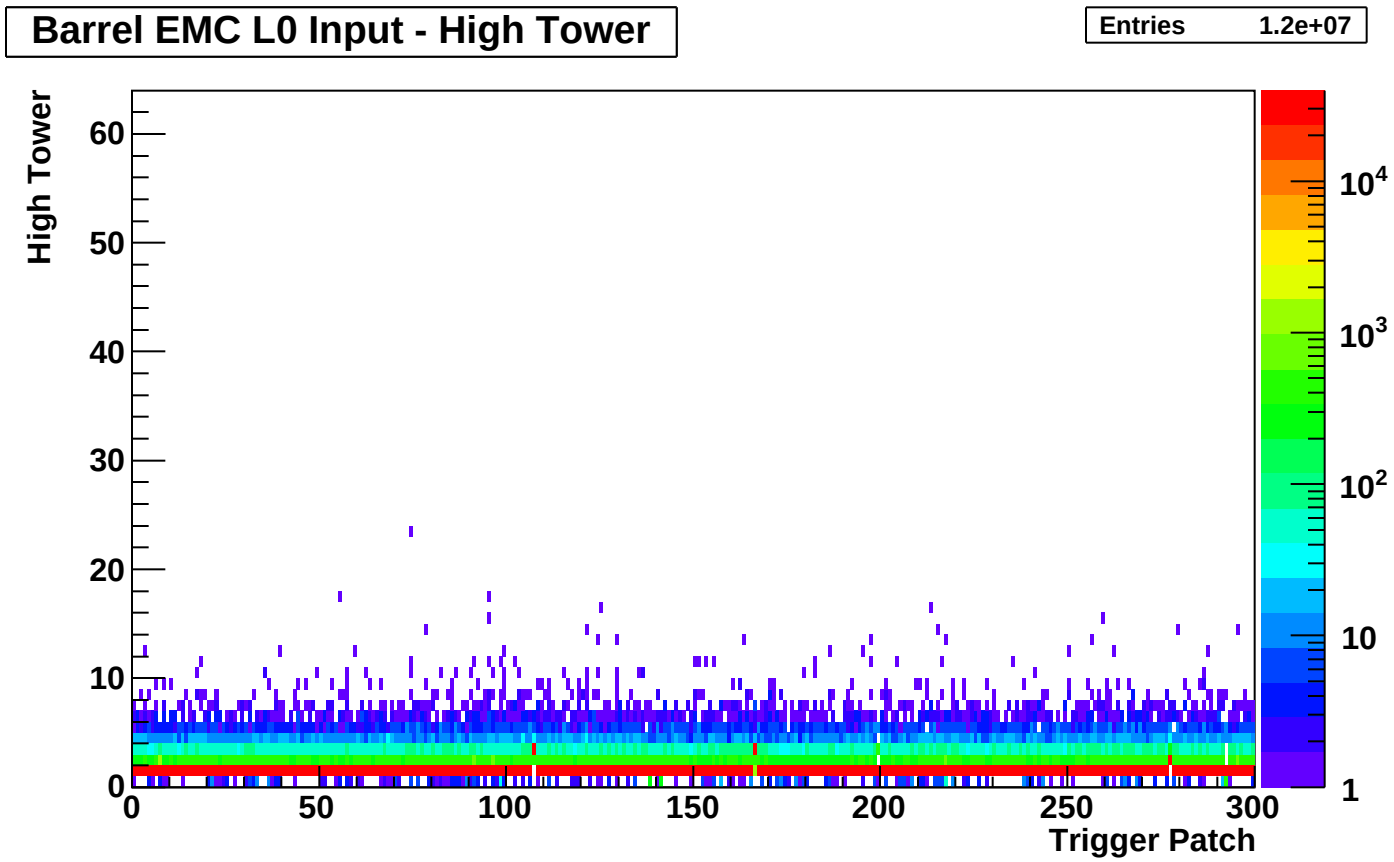
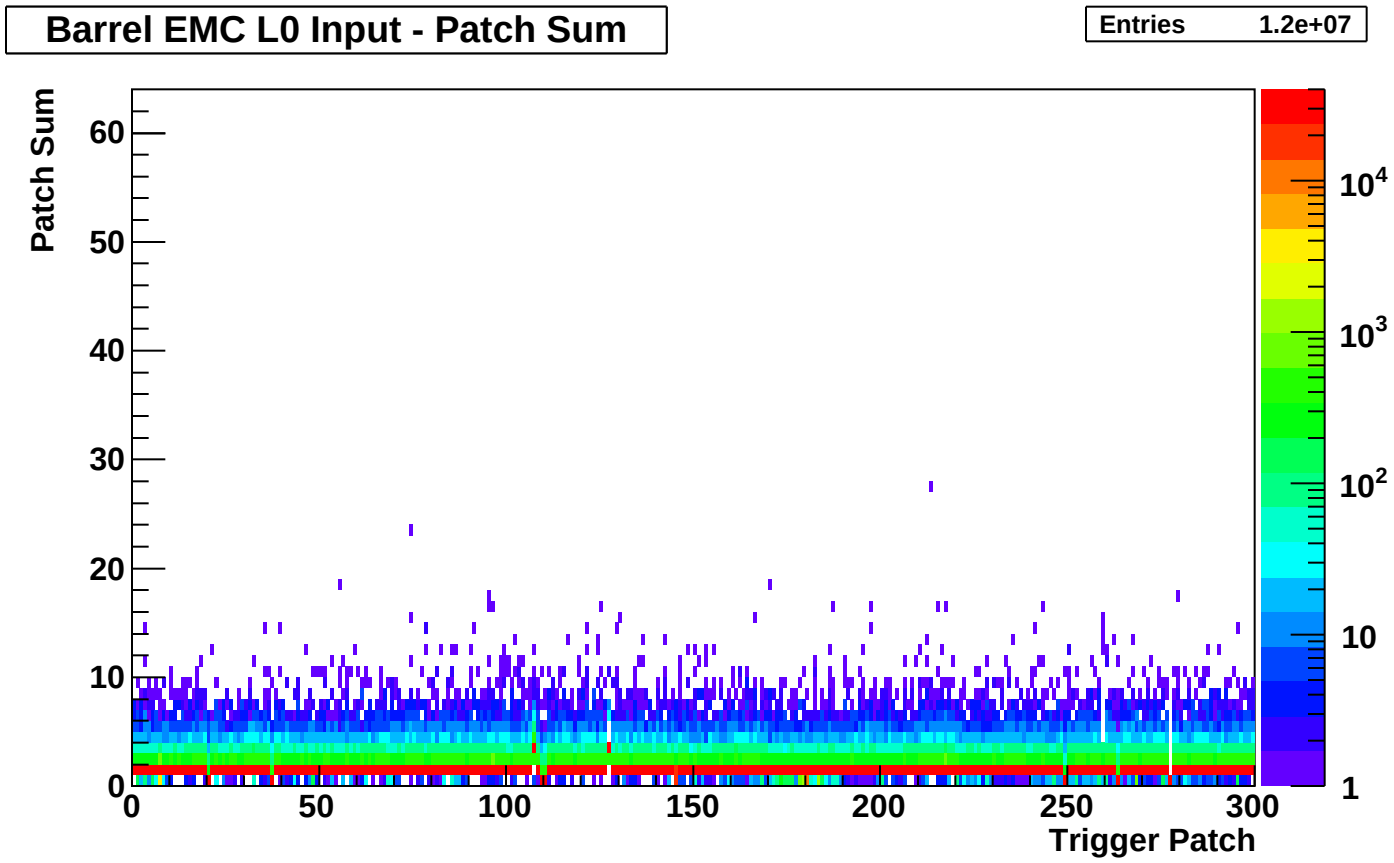
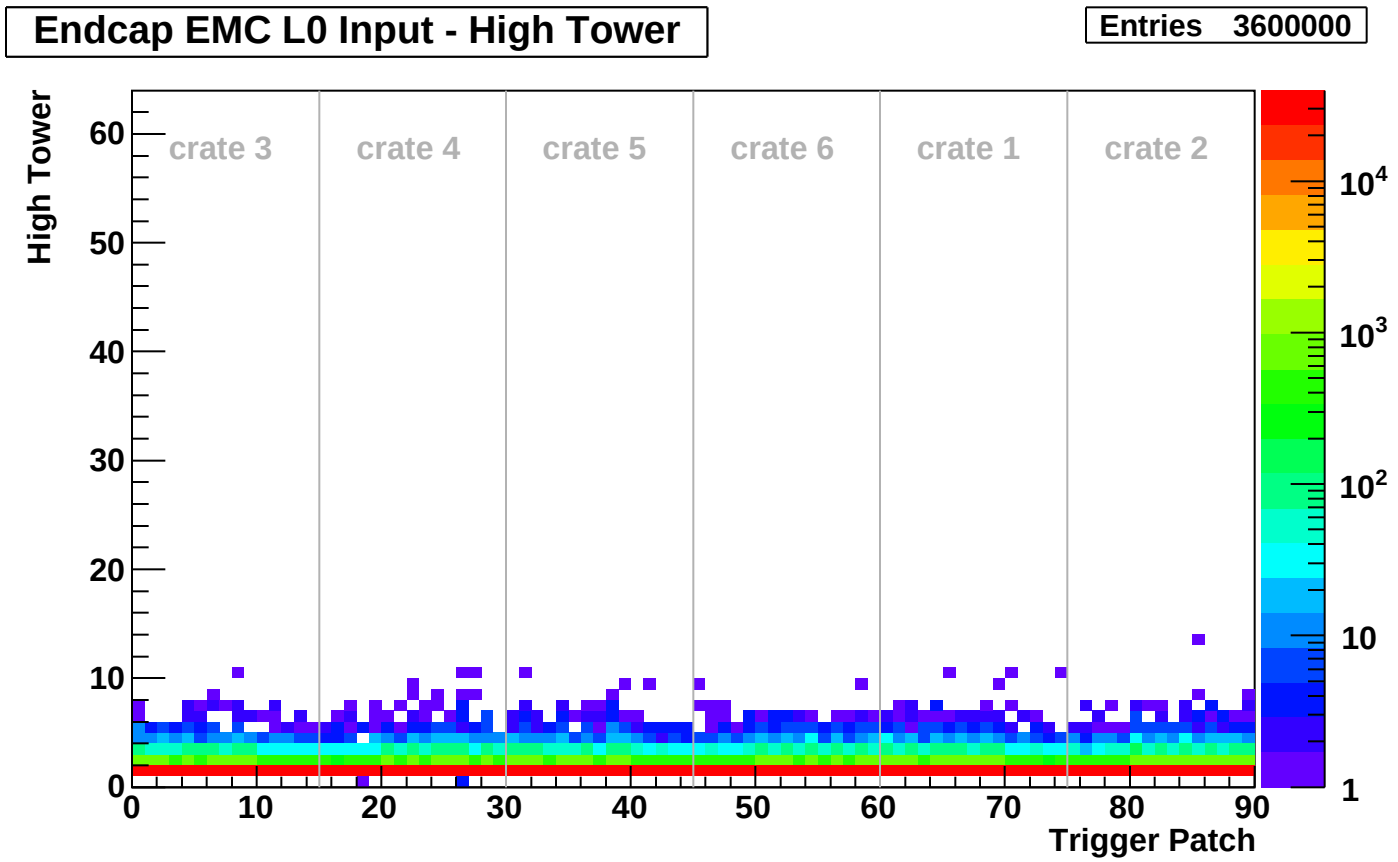
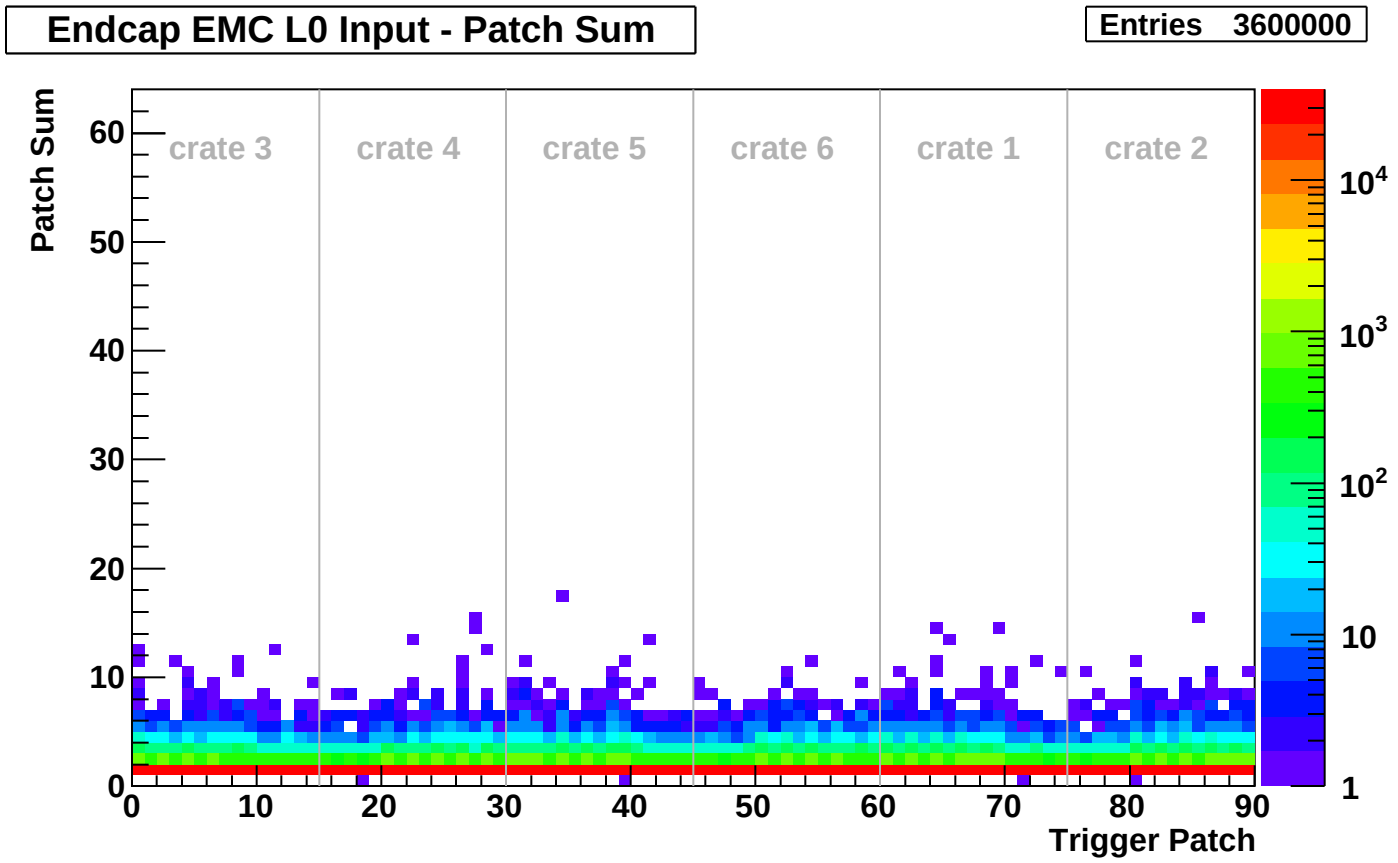
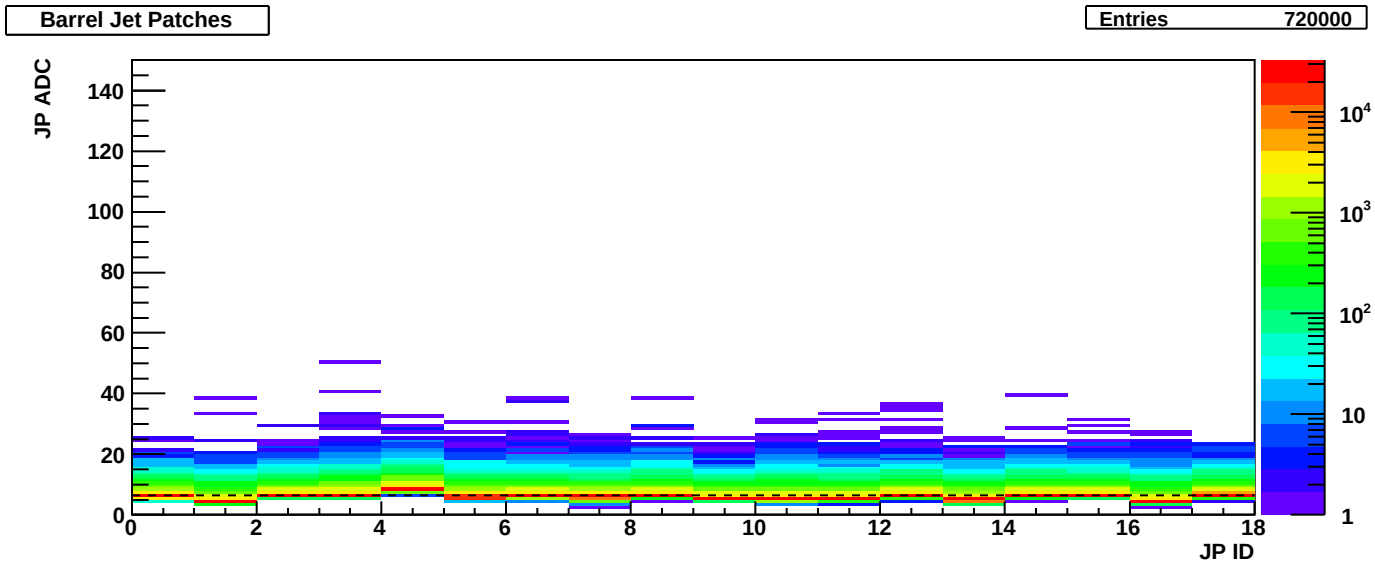
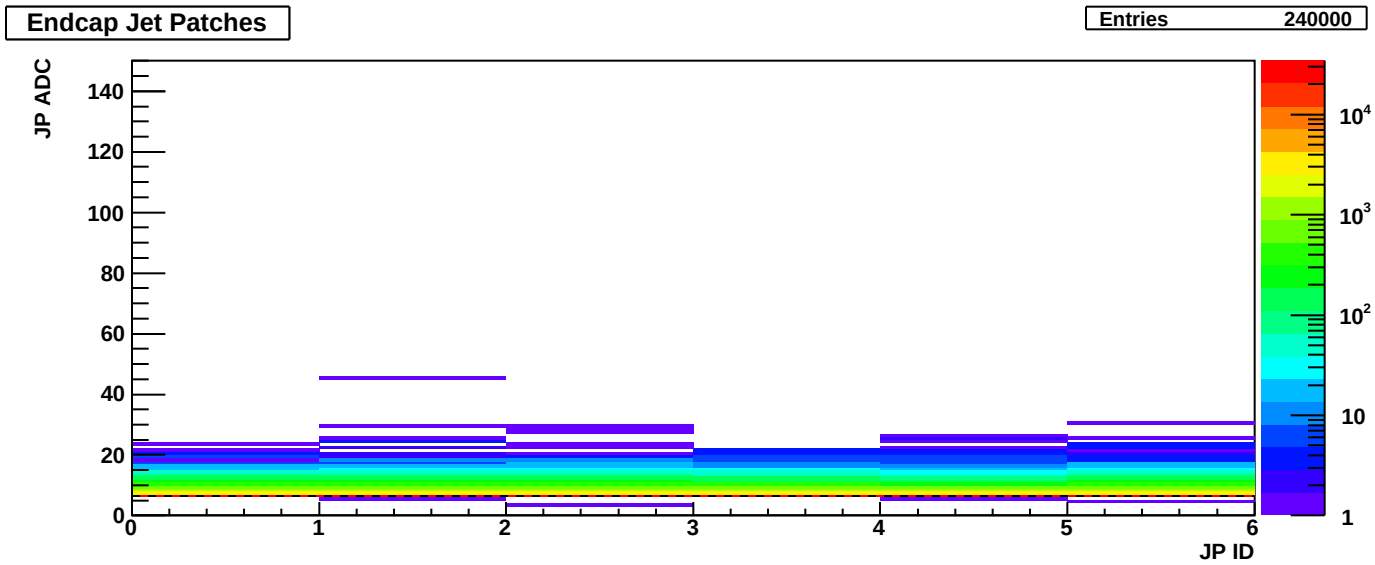

Barrel EMC L0 Input - High Tower
Entries 1.2e+07
High Tower
Trigger Patch
0
10
20
30
40
50
60
0
50
100
150
200
250
300
1
10
$10^2$
$10^3$
$10^4$

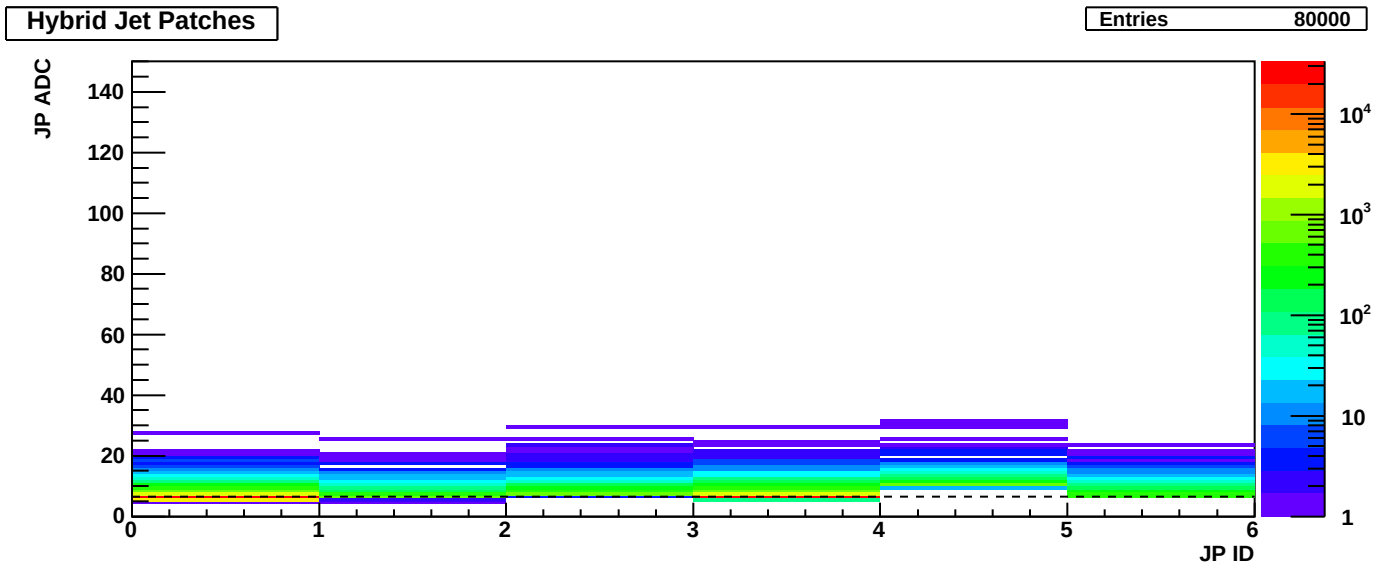

Barrel EMC L0 Input - Patch Sum
Entries 1.2e+07
Patch Sum
Trigger Patch
0
10
20
30
40
50
60
0
50
100
150
200
250
300
1
10
$10^2$
$10^3$
$10^4$

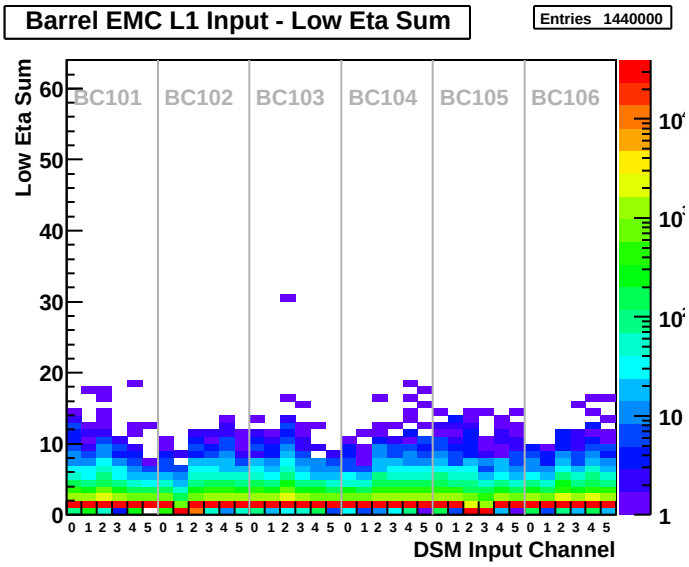

Endcap EMC L0 Input - High Tower
Entries 3600000
High Tower
crate 3
crate 4
crate 5
crate 6
crate 1
crate 2
Trigger Patch
0
10
20
30
40
50
60
70
80
90
1
10
$10^2$
$10^3$
$10^4$

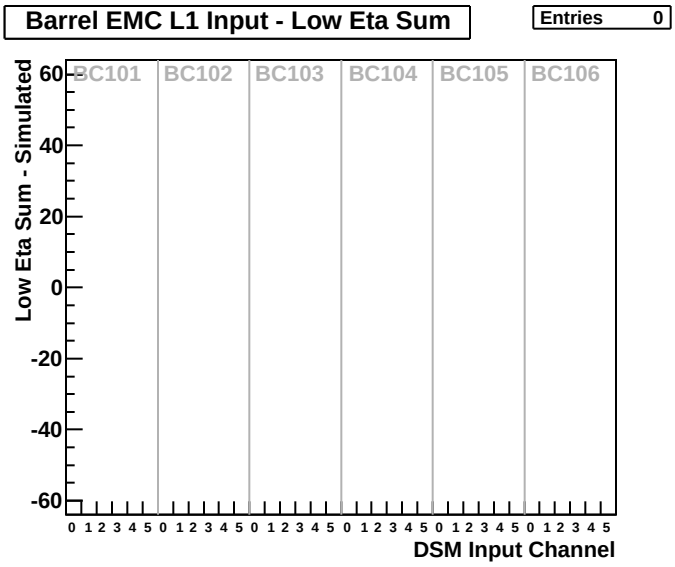

Endcap EMC L0 Input - Patch Sum
Entries 3600000
Patch Sum
crate 3
crate 4
crate 5
crate 6
crate 1
crate 2
Trigger Patch
0
10
20
30
40
50
60
70
80
90
1
10
$10^2$
$10^3$
$10^4$

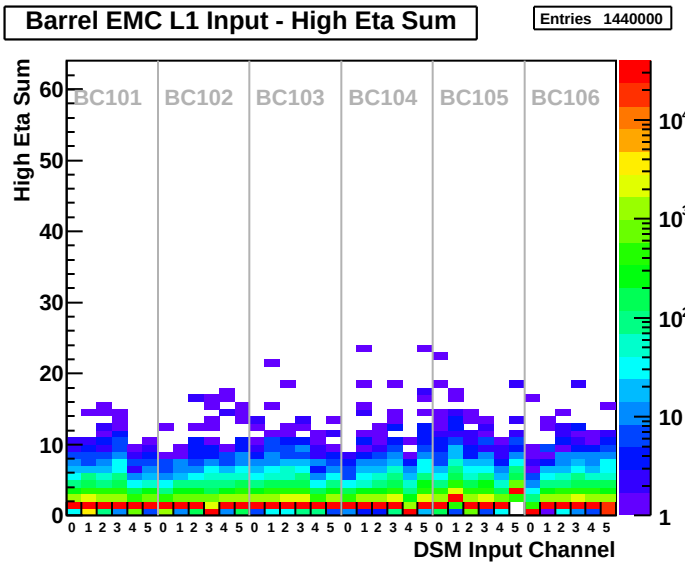

Barrel Jet Patches
Entries 720000
JP ADC
JP ID

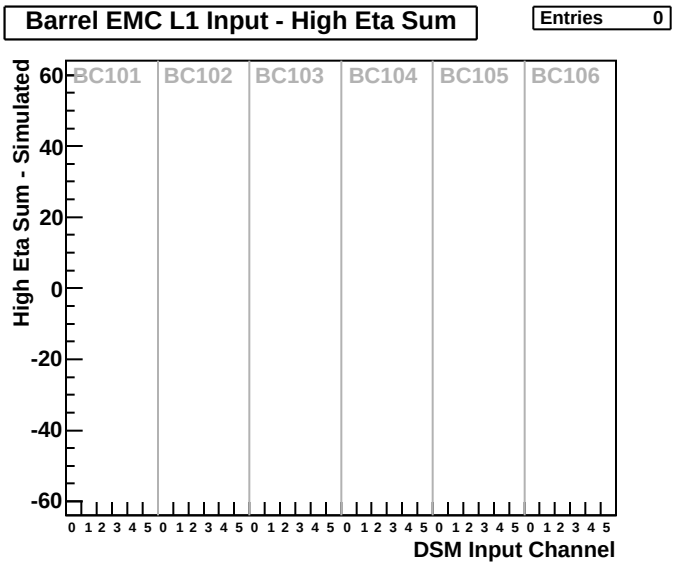

Endcap Jet Patches
Entries 240000
JP ADC
JP ID

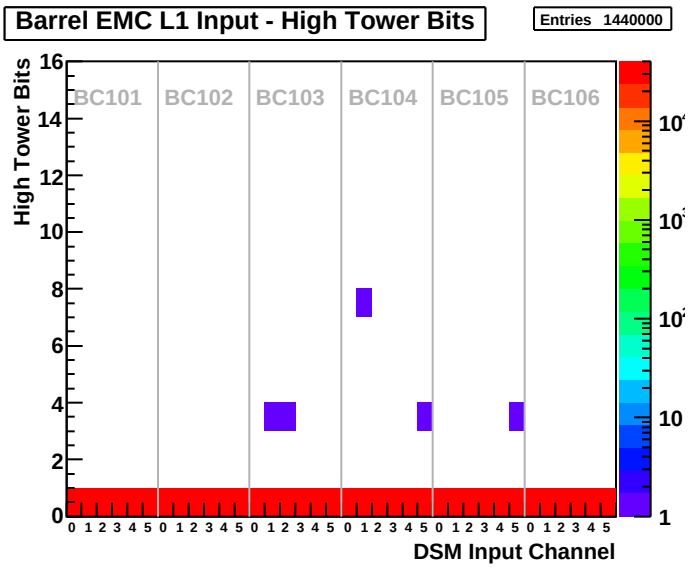

Hybrid Jet Patches
Entries 80000
JP ADC
JP ID

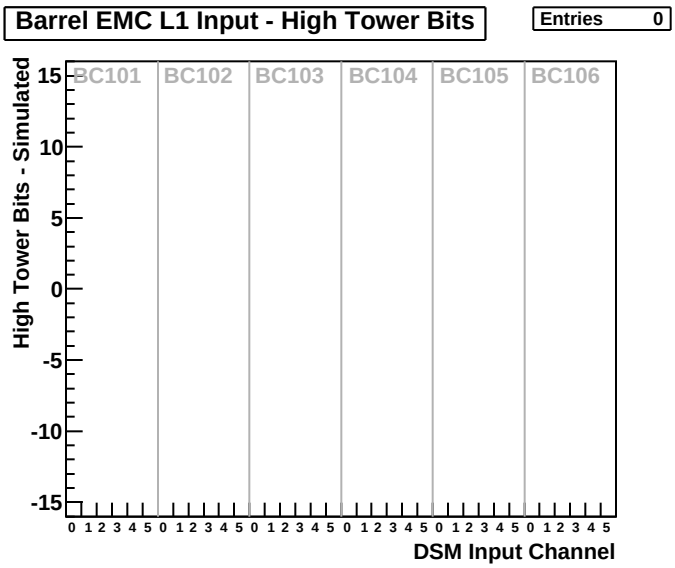

Barrel EMC L1 Input - Low Eta Sum
Entries 1440000
Low Eta Sum
BC101
BC102
BC103
BC104
BC105
BC106
DSM Input Channel

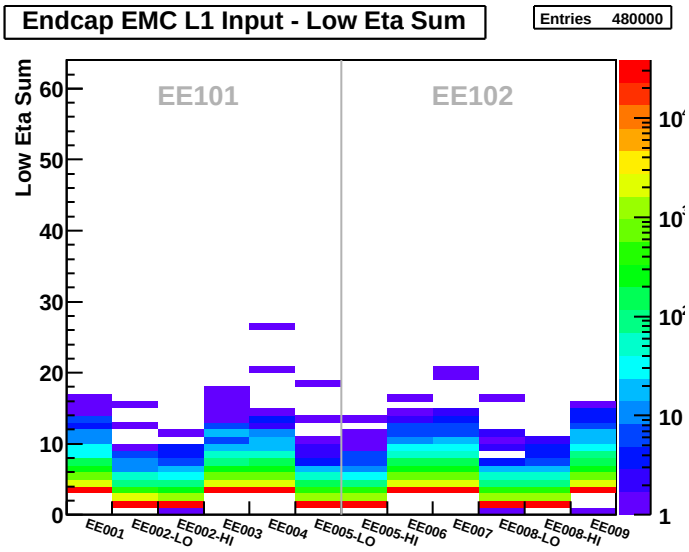

Barrel EMC L1 Input - Low Eta Sum
Entries 0
Low Eta Sum - Simulated
BC101
BC102
BC103
BC104
BC105
BC106
DSM Input Channel

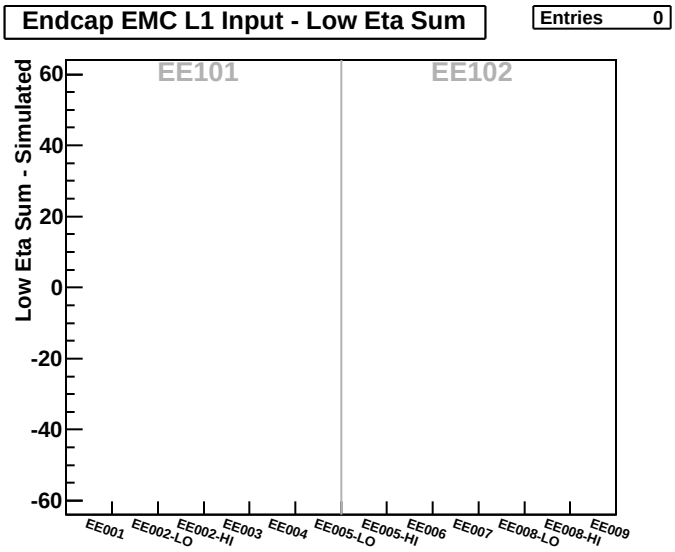

Barrel EMC L1 Input - High Eta Sum
Entries 1440000
High Eta Sum
BC101
BC102
BC103
BC104
BC105
BC106
DSM Input Channel

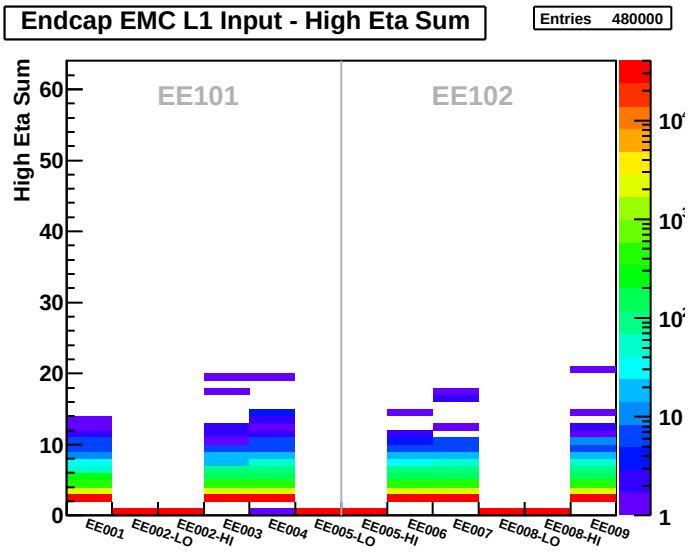

Barrel EMC L1 Input - High Eta Sum
Entries 0
High Eta Sum - Simulated
BC101
BC102
BC103
BC104
BC105
BC106
DSM Input Channel

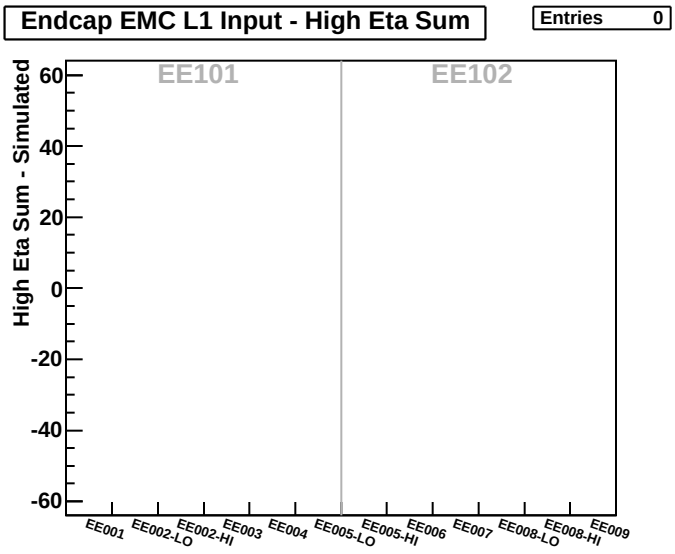

Barrel EMC L1 Input - High Tower Bits
Entries 1440000
High Tower Bits
BC101
BC102
BC103
BC104
BC105
BC106
DSM Input Channel

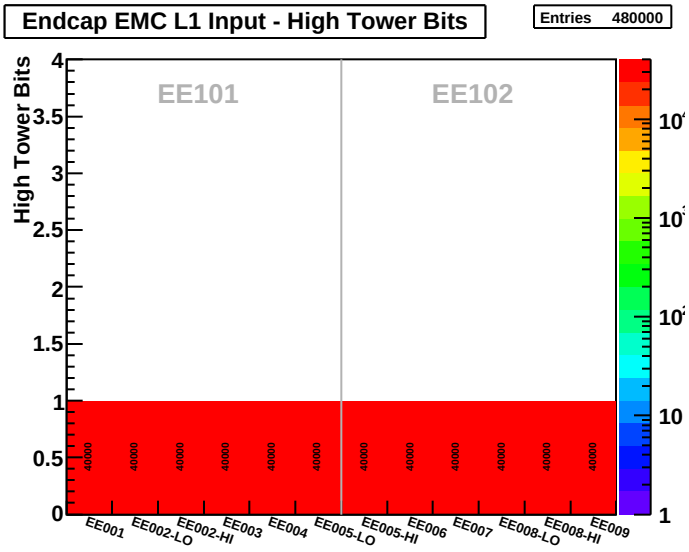

Barrel EMC L1 Input - High Tower Bits
Entries 0
High Tower Bits - Simulated
BC101
BC102
BC103
BC104
BC105
BC106
DSM Input Channel

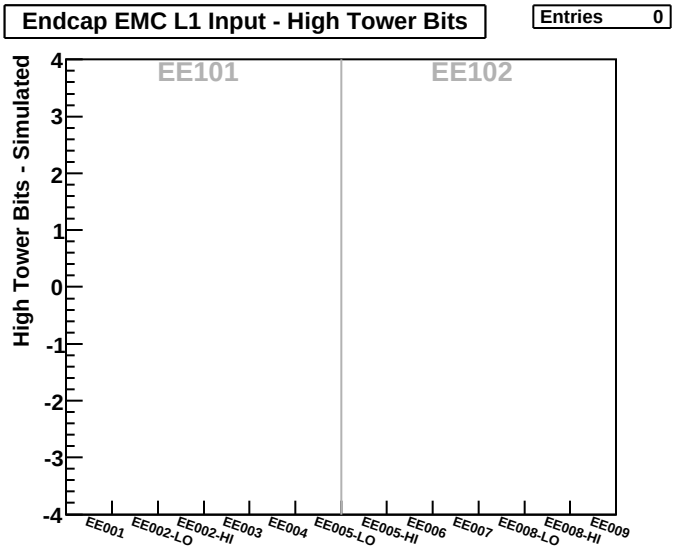

Endcap EMC L1 Input - Low Eta Sum
Entries 480000
Low Eta Sum
EE101
EE102
EE001 EE002-LO EE002-HI EE003 EE004 EE005-LO EE005-HI EE006 EE007 EE008-LO EE008-HI EE009

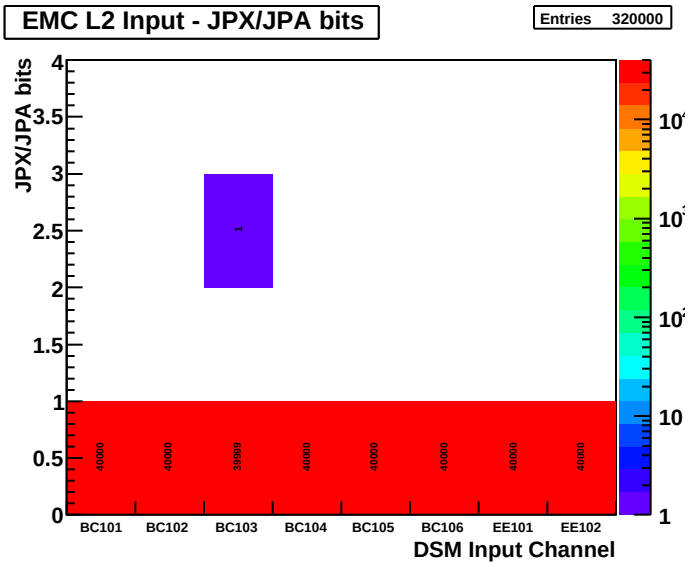

Endcap EMC L1 Input - Low Eta Sum
Entries 0
Low Eta Sum - Simulated
EE101
EE102
EE001 EE002-LO EE002-HI EE003 EE004 EE005-LO EE005-HI EE006 EE007 EE008-LO EE008-HI EE009

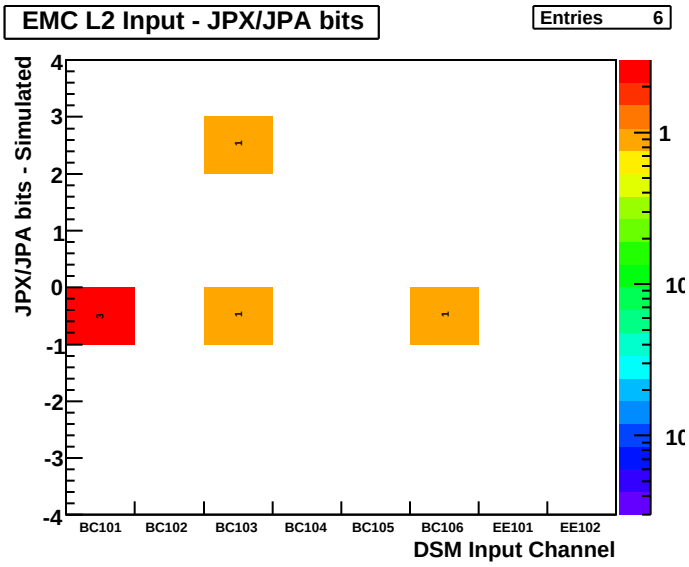

Endcap EMC L1 Input - High Eta Sum
Entries 480000
High Eta Sum
EE101
EE102
EE001 EE002-LO EE002-HI EE003 EE004 EE005-LO EE005-HI EE006 EE007 EE008-LO EE008-HI EE009

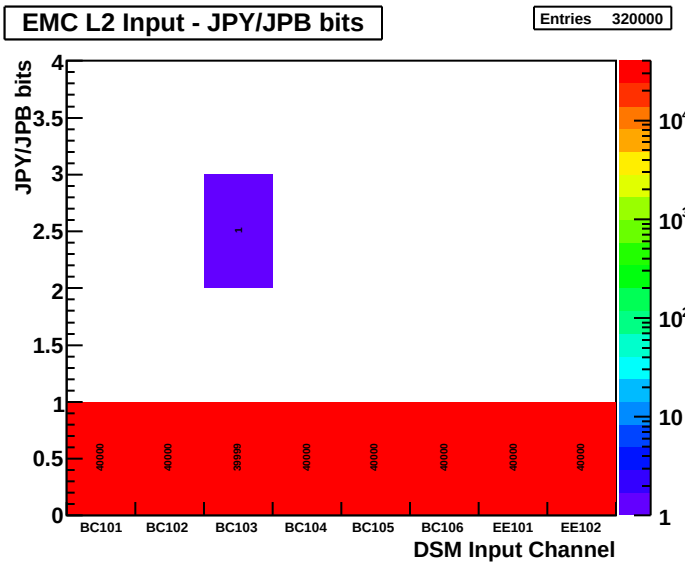

Endcap EMC L1 Input - High Eta Sum
Entries 0
High Eta Sum - Simulated
EE101
EE102
EE001 EE002-LO EE002-HI EE003 EE004 EE005-LO EE005-HI EE006 EE007 EE008-LO EE008-HI EE009

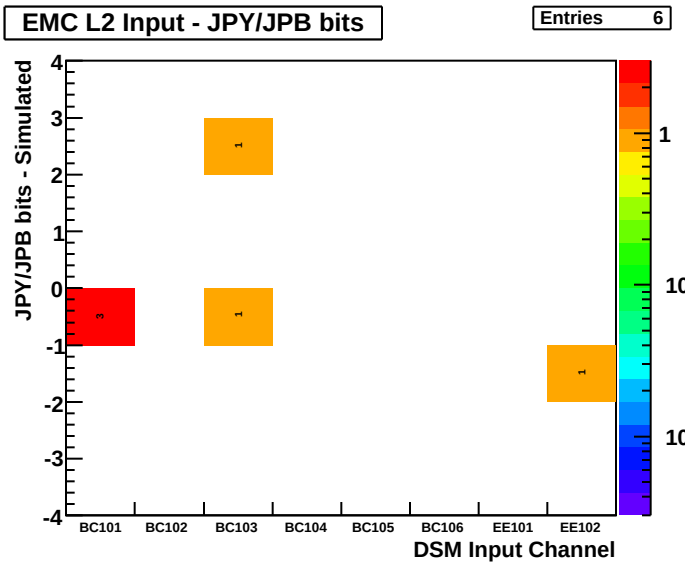

Endcap EMC L1 Input - High Tower Bits
Entries 480000
High Tower Bits
EE101
EE102
40000
EE001 EE002-LO EE002-HI EE003 EE004 EE005-LO EE005-HI EE006 EE007 EE008-LO EE008-HI EE009

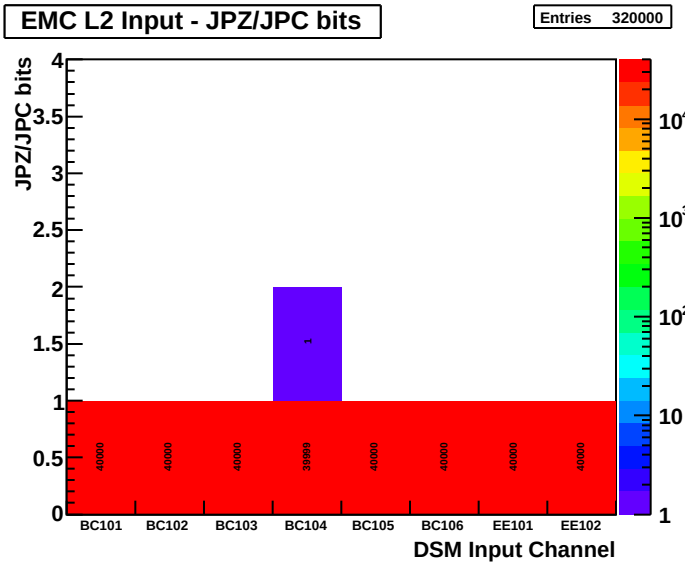

Endcap EMC L1 Input - High Tower Bits
Entries 0
High Tower Bits - Simulated
EE101
EE102
EE001 EE002-LO EE002-HI EE003 EE004 EE005-LO EE005-HI EE006 EE007 EE008-LO EE008-HI EE009

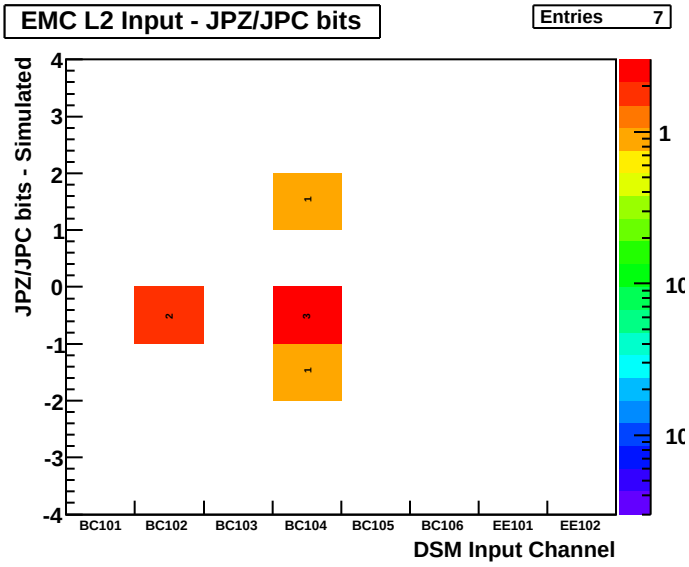

EMC L2 Input - JPX/JPA bits
Entries 320000
JPX/JPA bits
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102
40000 40000 39999 40000 40000 40000 40000 40000

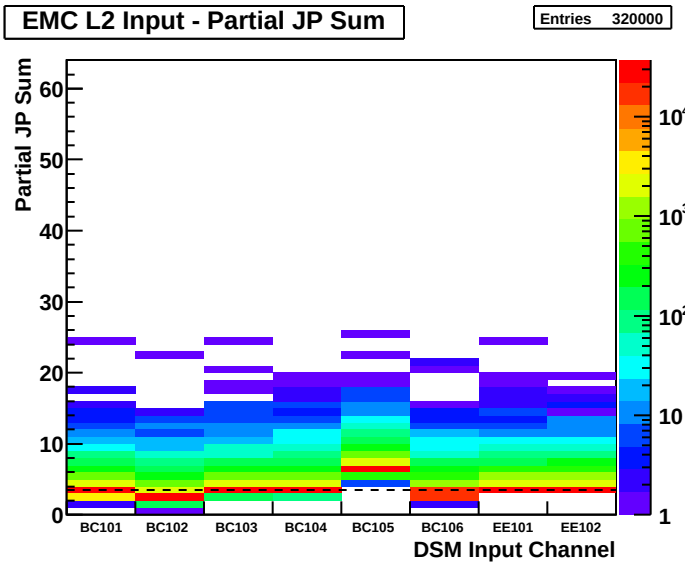

EMC L2 Input - JPX/JPA bits
Entries 6
JPX/JPA bits - Simulated
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102

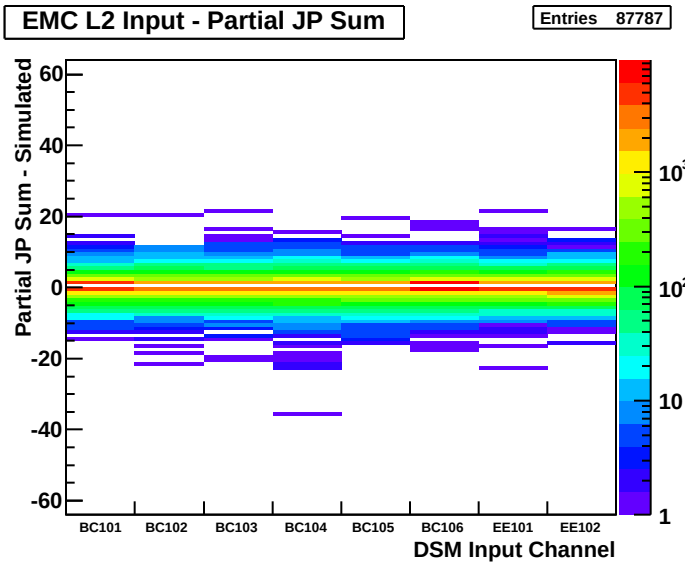

EMC L2 Input - JPY/JPB bits
Entries 320000
JPY/JPB bits
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102
40000 40000 39999 40000 40000 40000 40000 40000

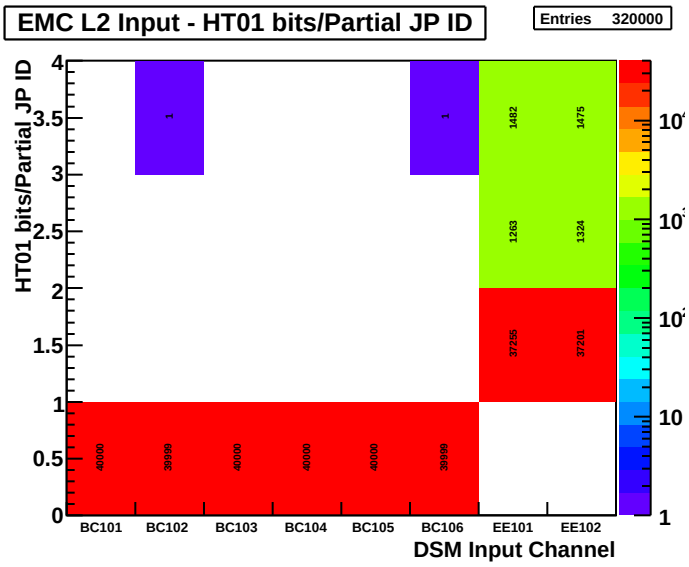

EMC L2 Input - JPY/JPB bits
Entries 6
JPY/JPB bits - Simulated
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102

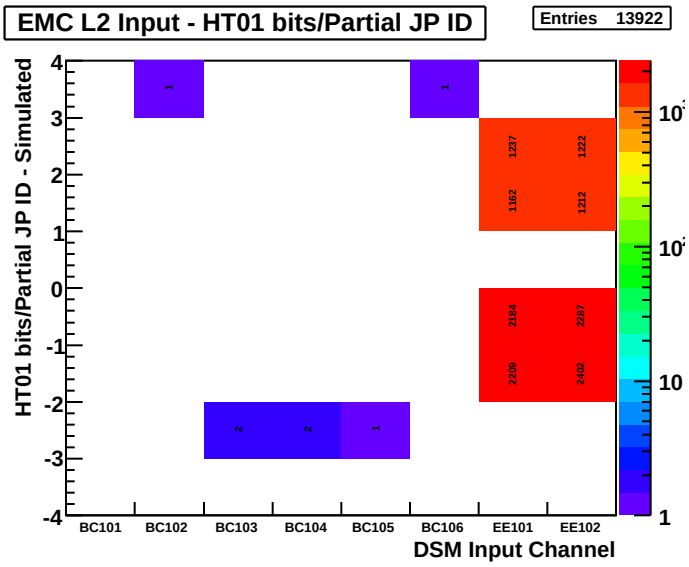

EMC L2 Input - JPZ/JPC bits
Entries 320000
JPZ/JPC bits
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102
40000 40000 40000 39999 40000 40000 40000 40000

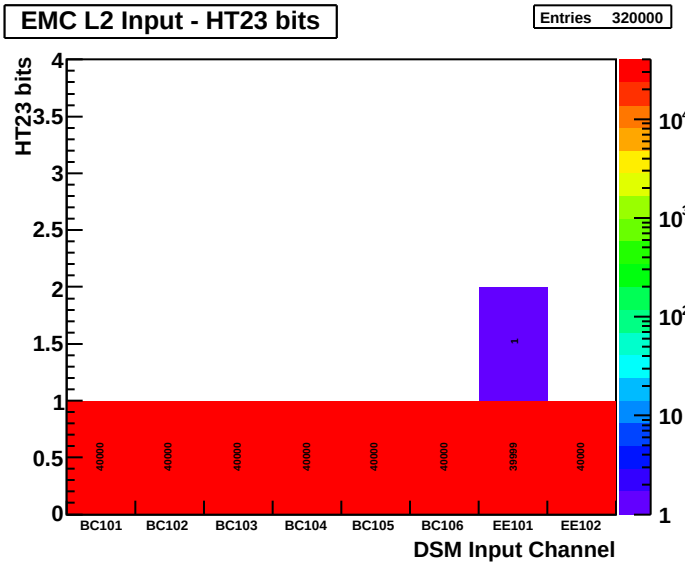

EMC L2 Input - JPZ/JPC bits
Entries 7
JPZ/JPC bits - Simulated
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102

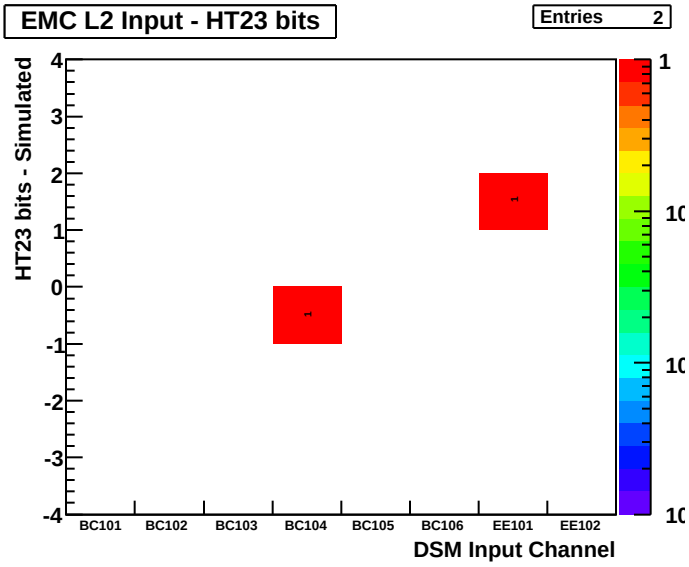

EMC L2 Input - Partial JP Sum
Entries 320000
Partial JP Sum
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102

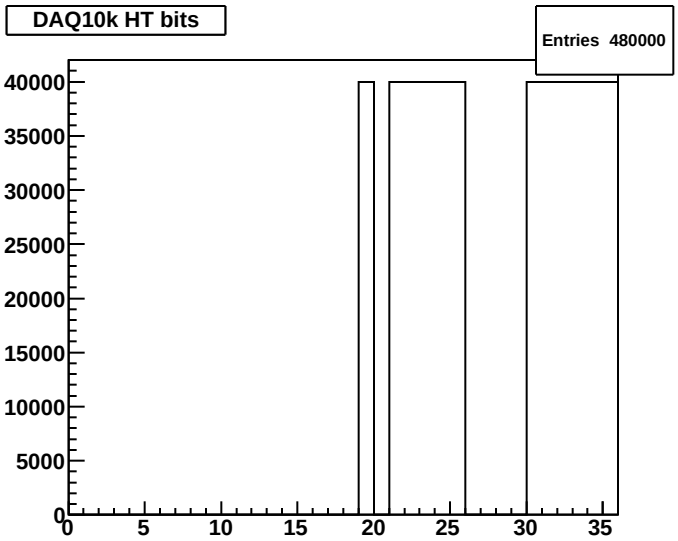

EMC L2 Input - Partial JP Sum
Entries 87787
Partial JP Sum - Simulated
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102

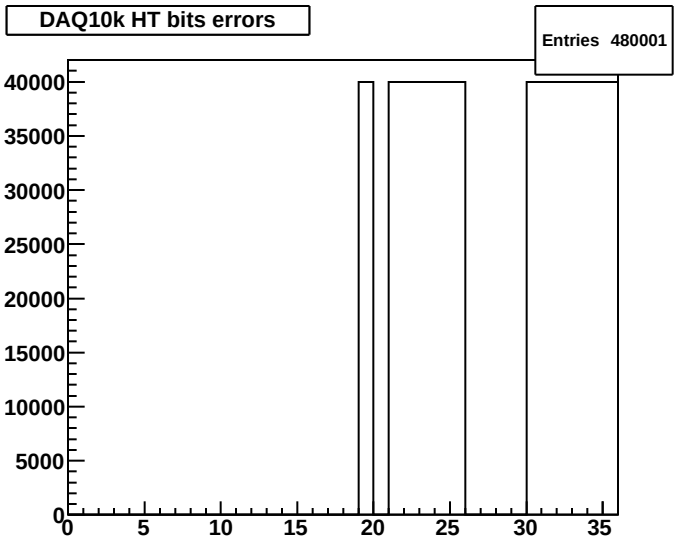

EMC L2 Input - HT01 bits/Partial JP ID
Entries 320000
HT01 bits/Partial JP ID
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102

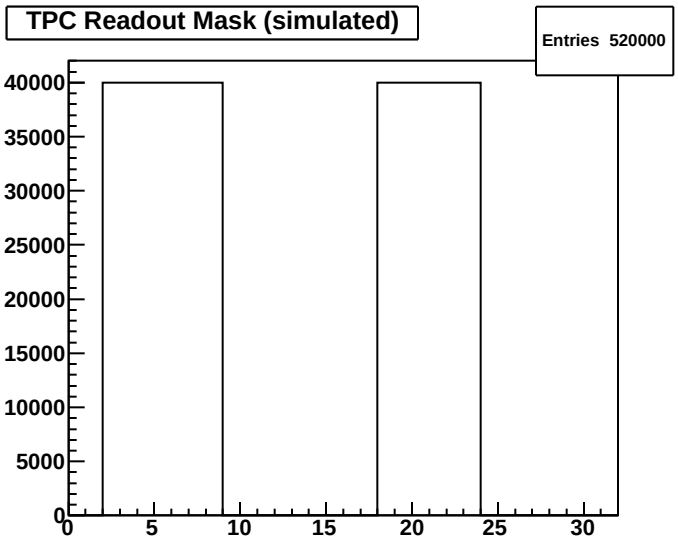

EMC L2 Input - HT01 bits/Partial JP ID
Entries 13922
HT01 bits/Partial JP ID - Simulated
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102

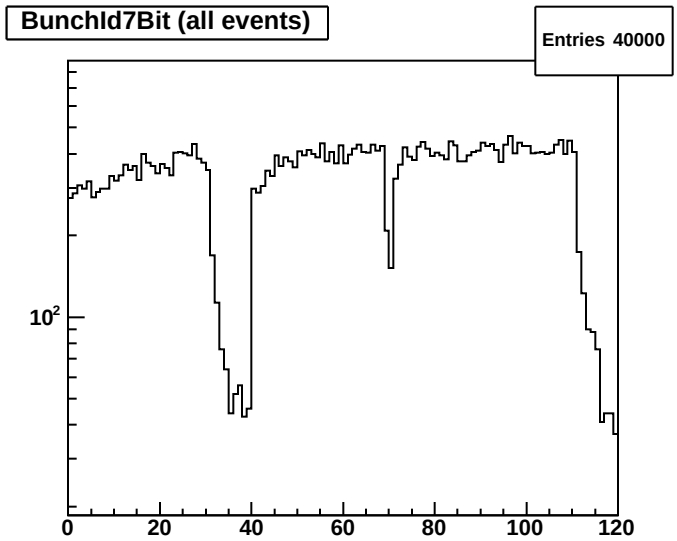

EMC L2 Input - HT23 bits
Entries 320000
HT23 bits
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102

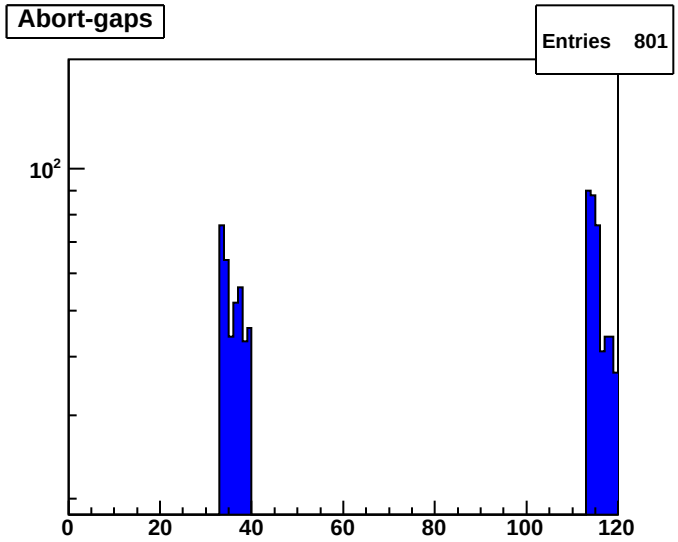

EMC L2 Input - HT23 bits
Entries 2
HT23 bits - Simulated
DSM Input Channel
BC101 BC102 BC103 BC104 BC105 BC106 EE101 EE102

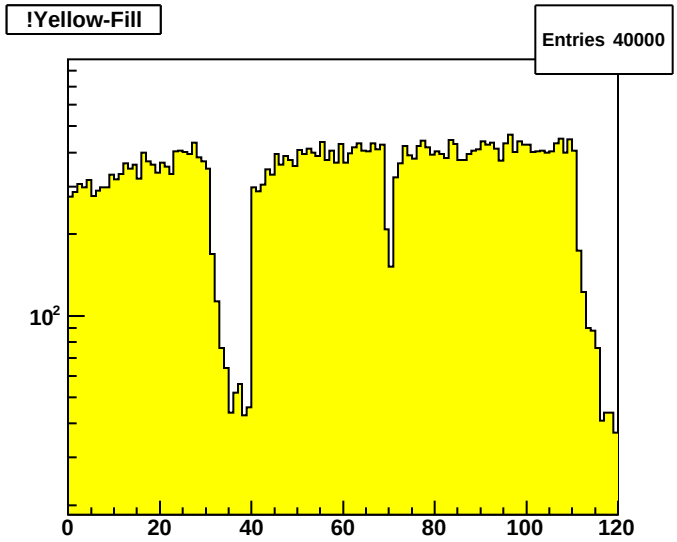

DAQ10k HT bits
Entries 480000
40000
35000
30000
25000
20000
15000
10000
5000
0
0 5 10 15 20 25 30 35

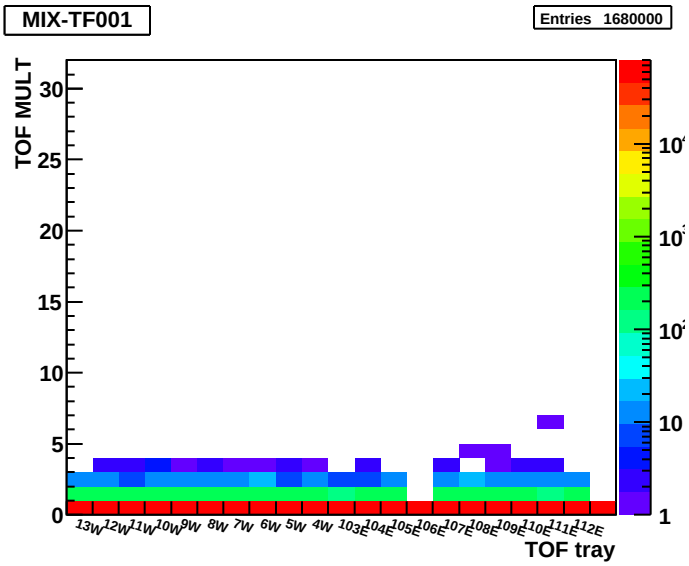

DAQ10k HT bits errors
Entries 480001
40000
35000
30000
25000
20000
15000
10000
5000
0
0 5 10 15 20 25 30 35

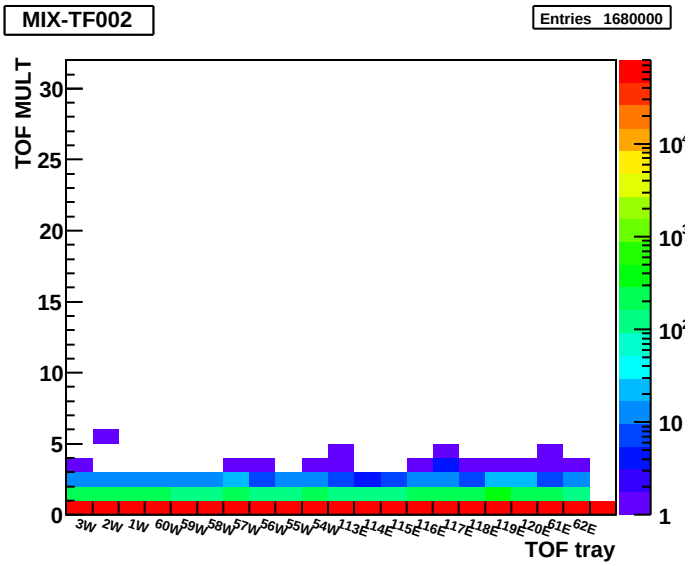

TPC Readout Mask (simulated)
Entries 520000
40000
35000
30000
25000
20000
15000
10000
5000
0
0 5 10 15 20 25 30

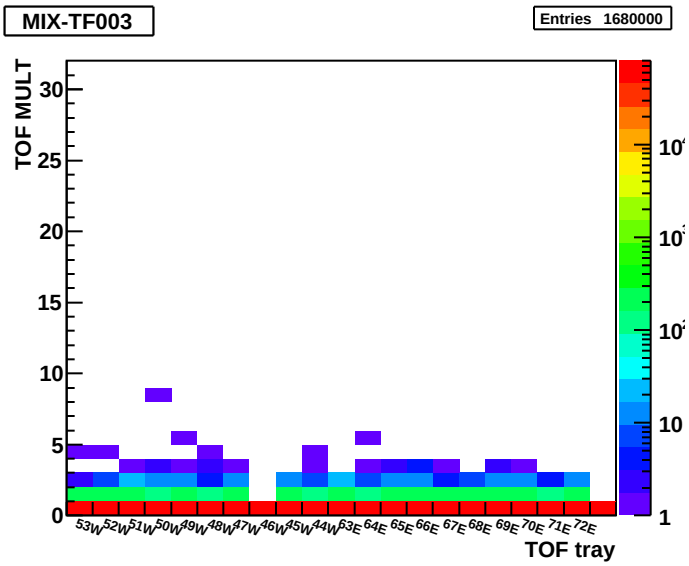

BunchId7Bit (all events)
Entries 40000
$10^2$
0 20 40 60 80 100 120

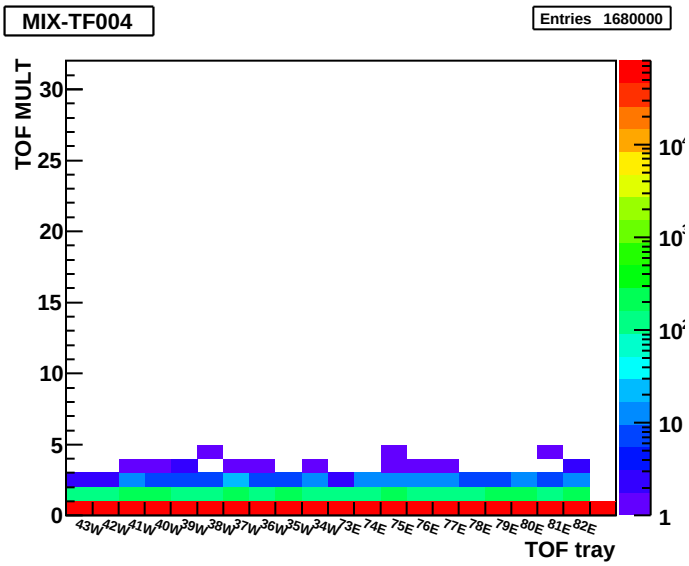

Abort-gaps
Entries 801
$10^2$
0 20 40 60 80 100 120

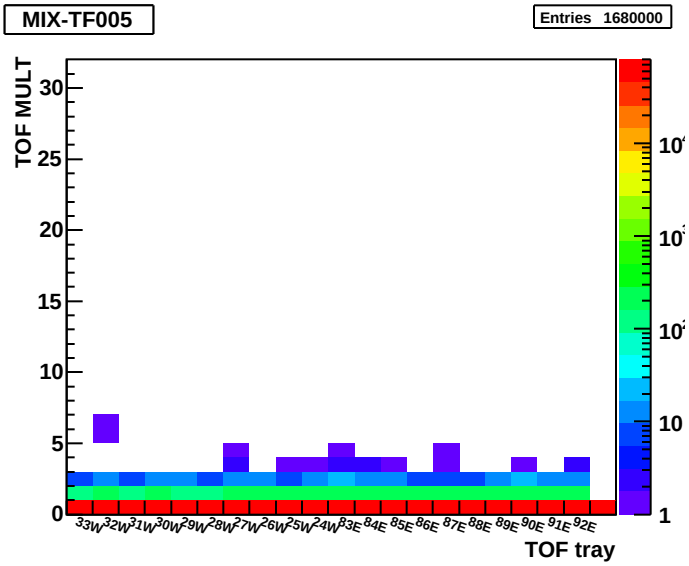

!Yellow-Fill
Entries 40000
$10^2$
0 20 40 60 80 100 120

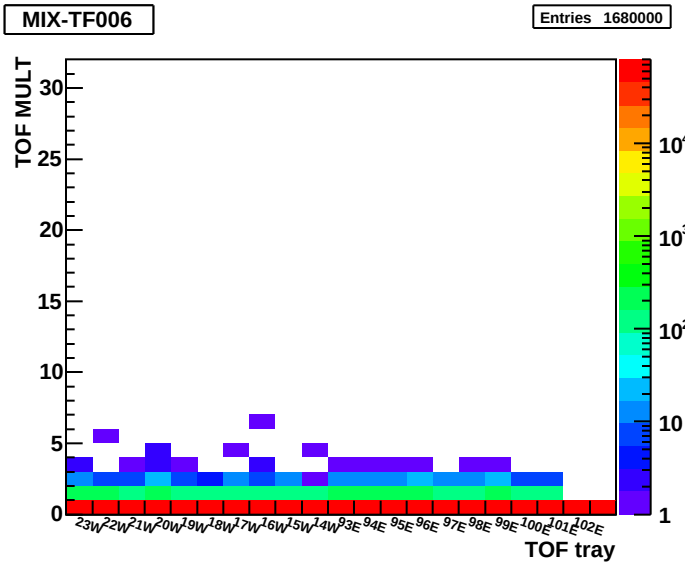

MIX-TF001
Entries 1680000
TOF MULT
TOF tray


MIX-TF002
Entries 1680000
TOF MULT
TOF tray

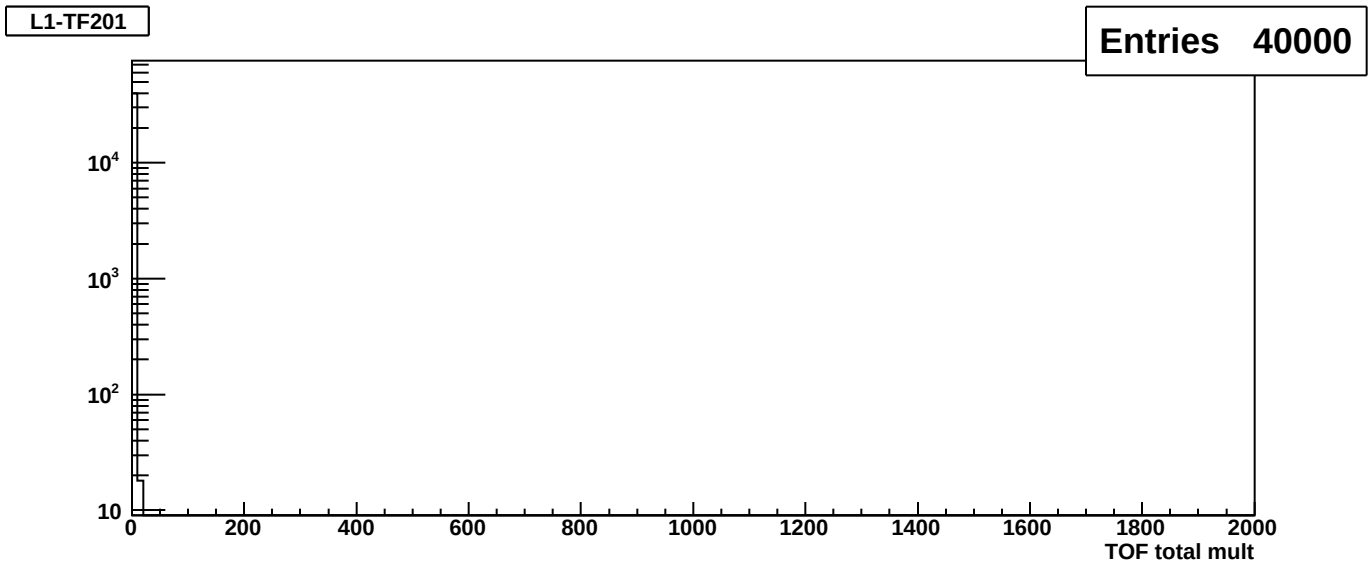

MIX-TF003
Entries 1680000
TOF MULT
TOF tray

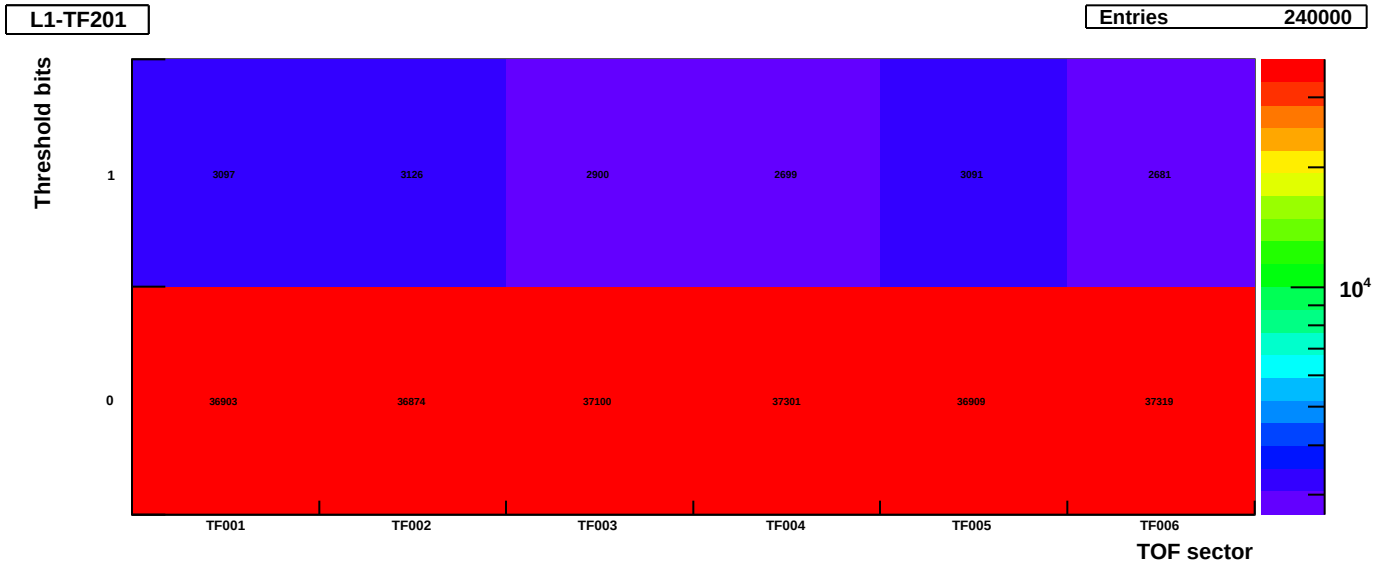

MIX-TF004
Entries 1680000
TOF MULT
TOF tray

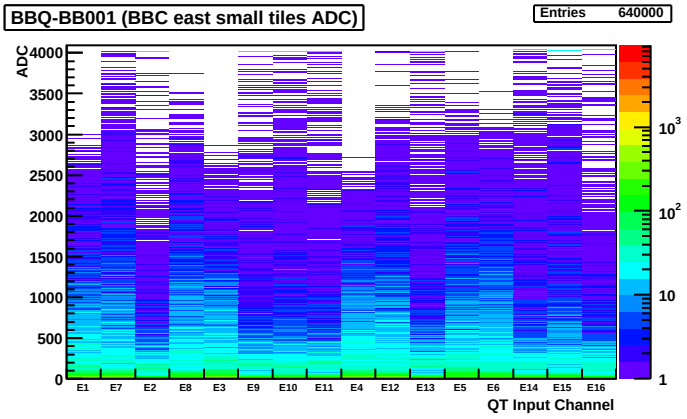

MIX-TF005
Entries 1680000
TOF MULT
TOF tray

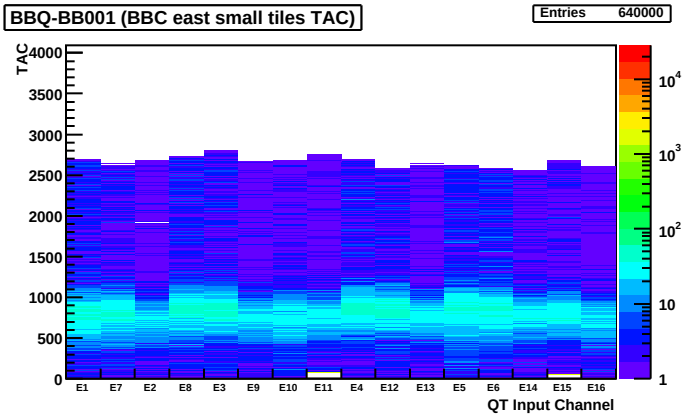

MIX-TF006
Entries 1680000
TOF MULT
TOF tray

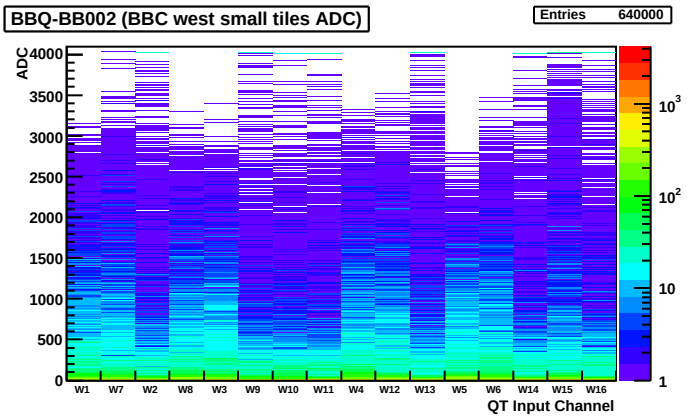
MIX-TF101
Entries 240000
TOF MULT
400
350
300
250
200
150
100
50
0
TF001
TF002
TF003
TF004
TF005
TF006
DSM Input Channel
$10^4$
$10^3$
$10^2$
10
1

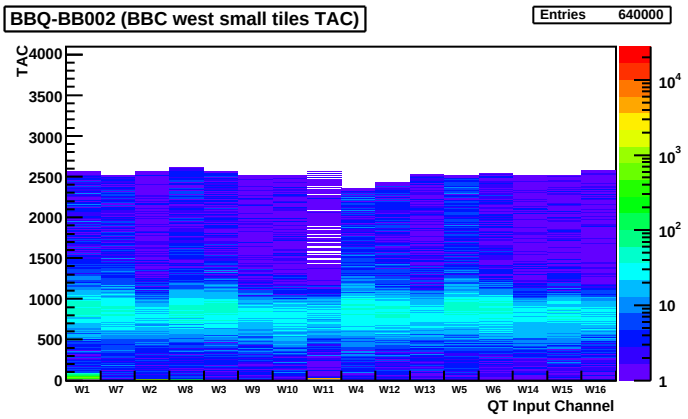

L1-TF201
Entries 40000
$10^4$
$10^3$
$10^2$
10
0
200
400
600
800
1000
1200
1400
1600
1800
2000
TOF total mult

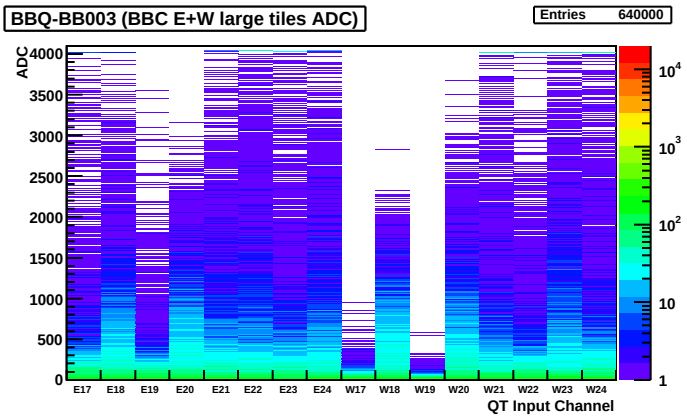

L1-TF201
Entries 240000
Threshold bits
1
0
3097
3126
2900
2699
3091
2681
36903
36874
37100
37301
36909
37319
TF001
TF002
TF003
TF004
TF005
TF006
TOF sector
$10^4$

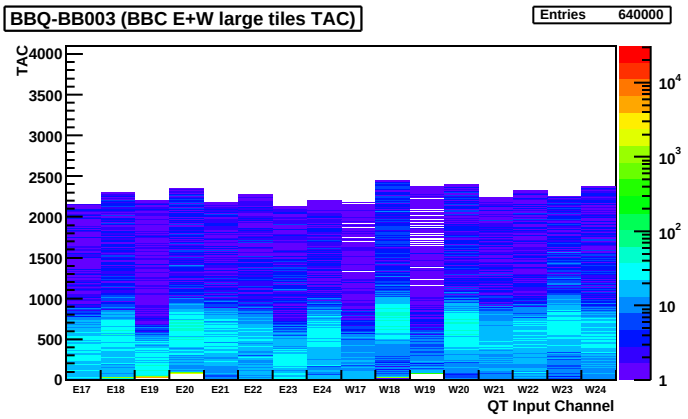

BBQ-BB001 (BBC east small tiles ADC)
Entries 640000
ADC
QT Input Channel

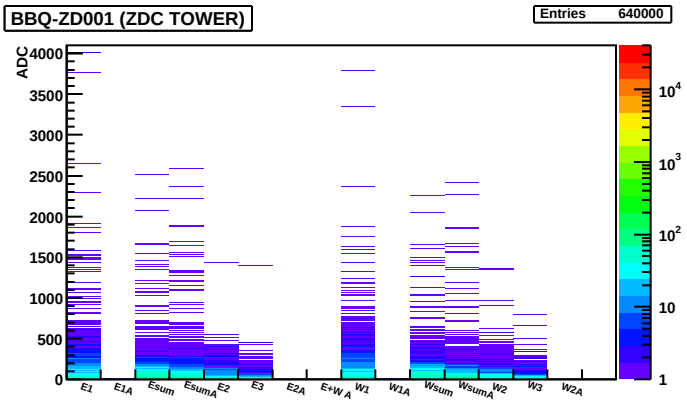

BBQ-BB001 (BBC east small tiles TAC)
Entries 640000
TAC
QT Input Channel

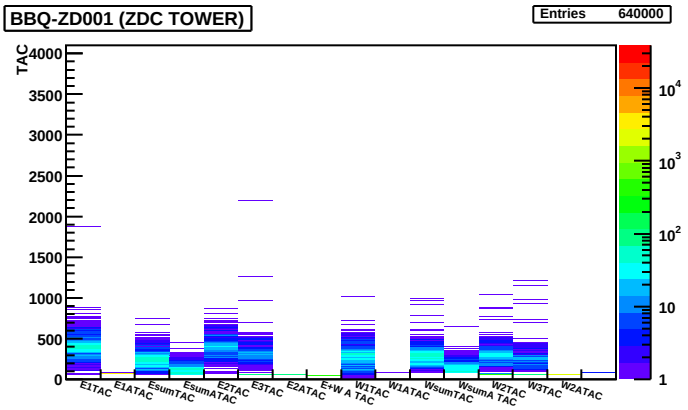

BBQ-BB002 (BBC west small tiles ADC)
Entries 640000
ADC
QT Input Channel

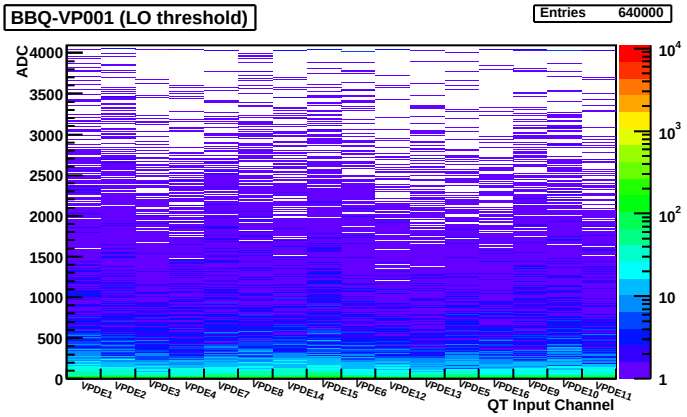

BBQ-BB002 (BBC west small tiles TAC)
Entries 640000
TAC
QT Input Channel

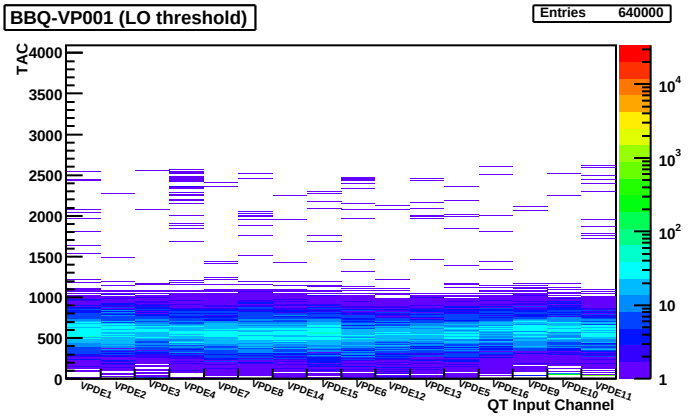

BBQ-BB003 (BBC E+W large tiles ADC)
Entries 640000
ADC
QT Input Channel

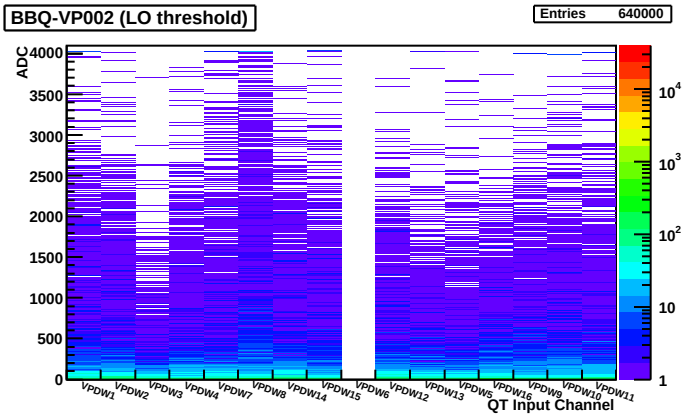

BBQ-BB003 (BBC E+W large tiles TAC)
Entries 640000
TAC
QT Input Channel

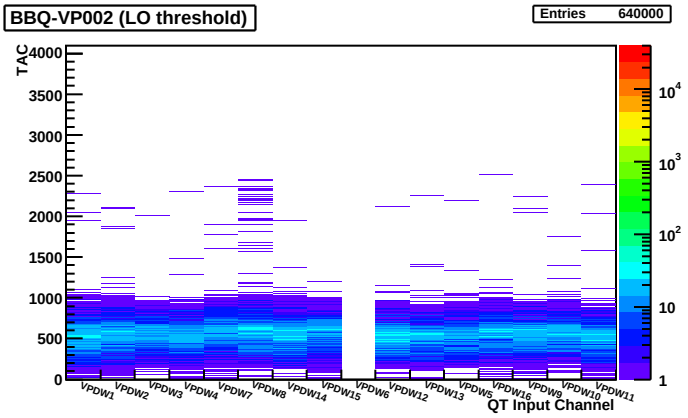

BBQ-ZD001 (ZDC TOWER)
Entries 640000
ADC

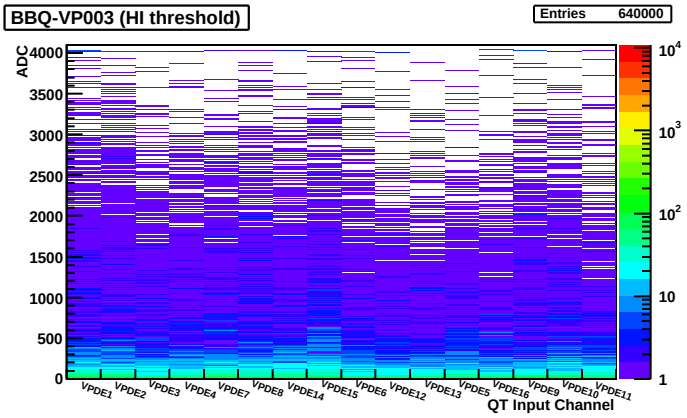

BBQ-ZD001 (ZDC TOWER)
Entries 640000
TAC

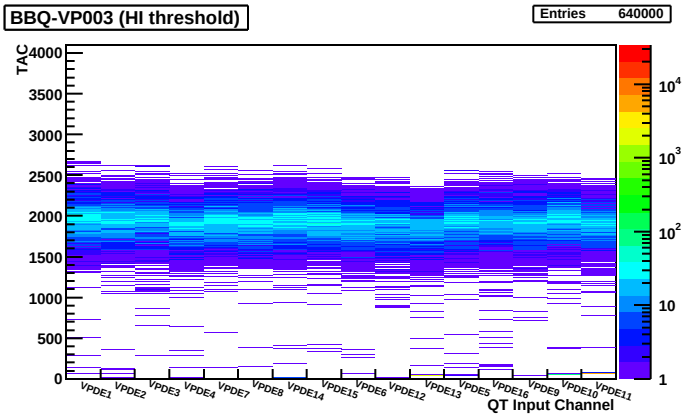

BBQ-VP001 (LO threshold)
Entries 640000
ADC
QT Input Channel

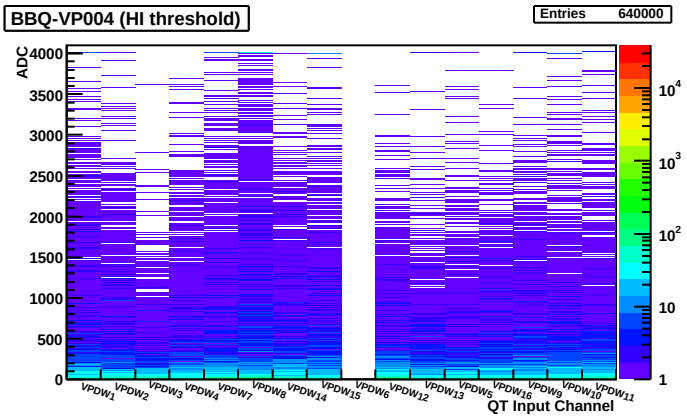

BBQ-VP001 (LO threshold)
Entries 640000
TAC
QT Input Channel

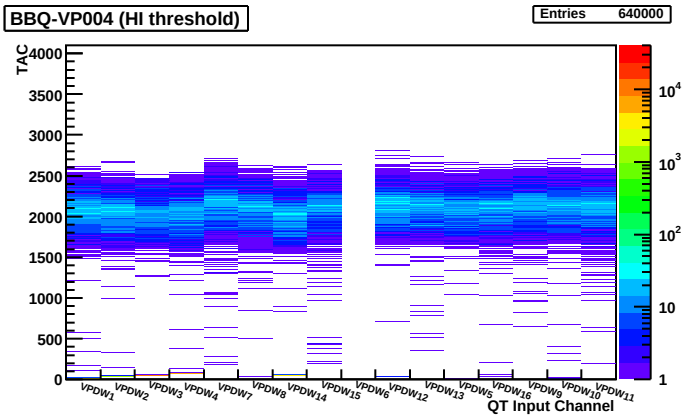

BBQ-VP002 (LO threshold)
Entries 640000
ADC
QT Input Channel

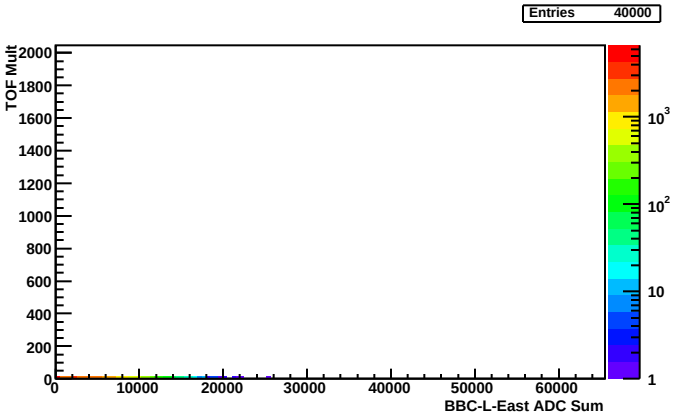

BBQ-VP002 (LO threshold)
Entries 640000
TAC
QT Input Channel

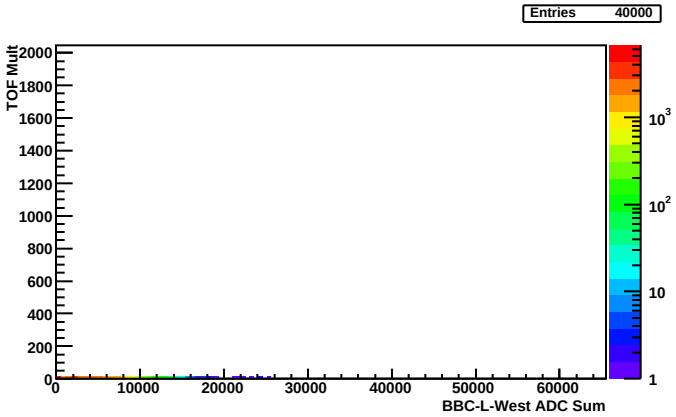

BBQ-VP003 (HI threshold)
Entries 640000
ADC
QT Input Channel

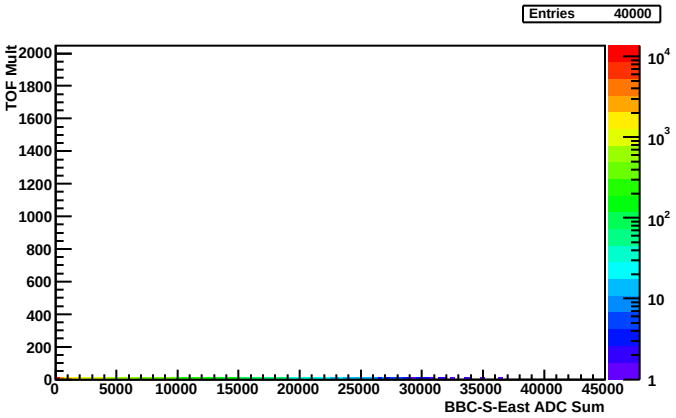

BBQ-VP003 (HI threshold)
Entries 640000
TAC
QT Input Channel

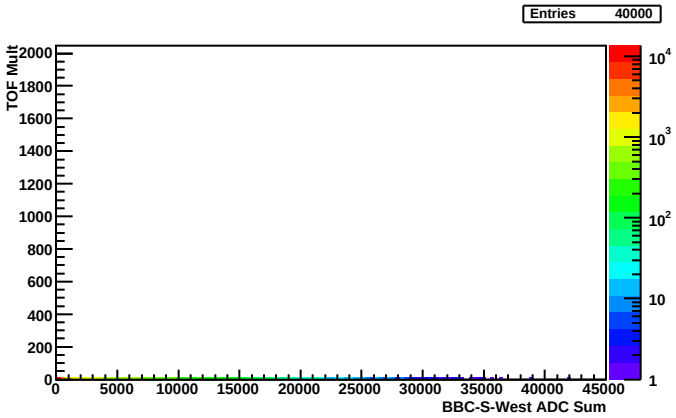

BBQ-VP004 (HI threshold)
Entries 640000
ADC
QT Input Channel

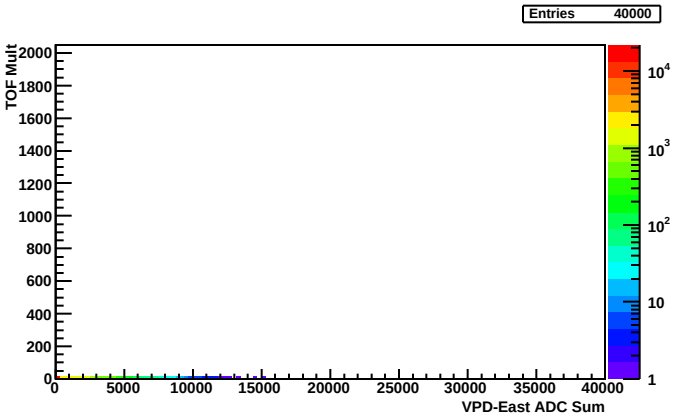

BBQ-VP004 (HI threshold)
Entries 640000
TAC
QT Input Channel

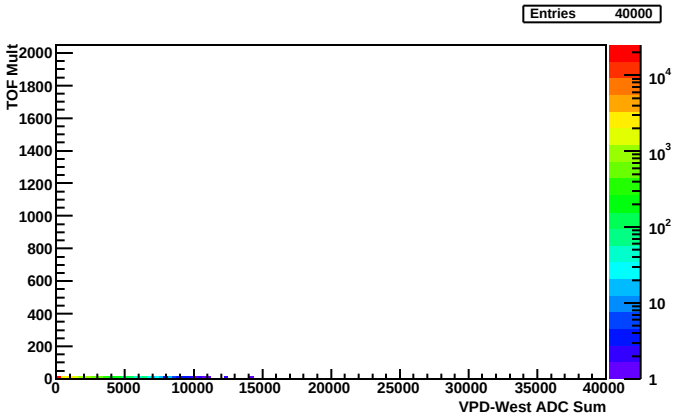

Entries 40000
TOF Mult
BBC-L-East ADC Sum

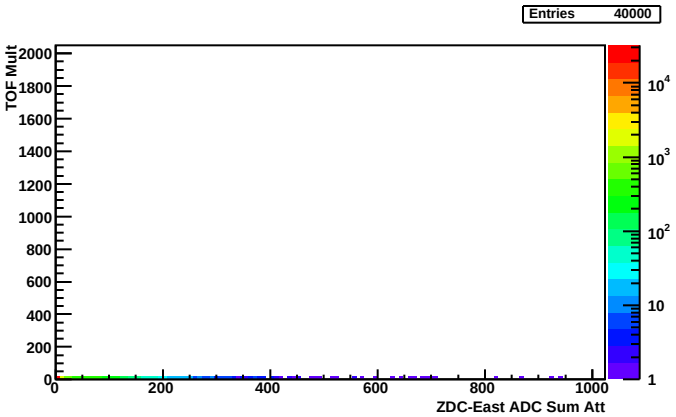

Entries 40000
TOF Mult
BBC-L-West ADC Sum

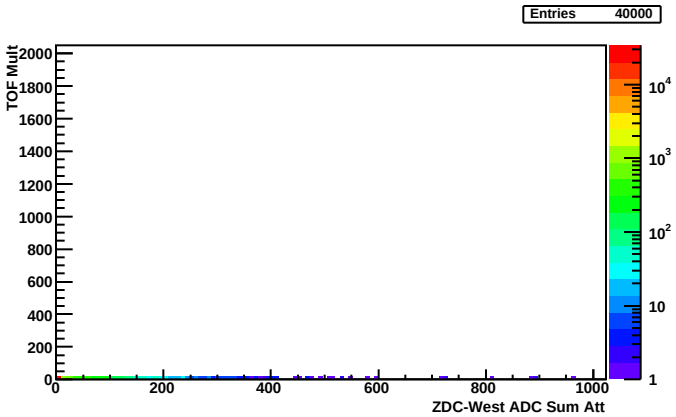

Entries 40000
TOF Mult
BBC-S-East ADC Sum

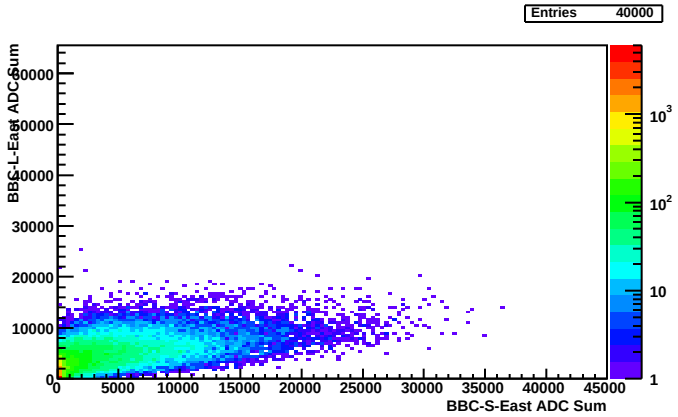

Entries 40000
TOF Mult
BBC-S-West ADC Sum

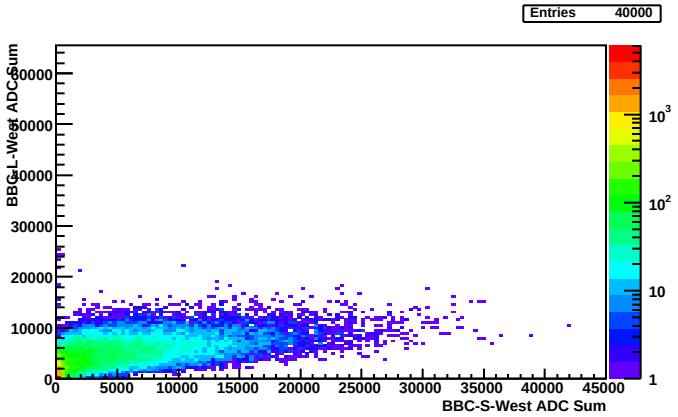

Entries 40000
TOF Mult
VPD-East ADC Sum

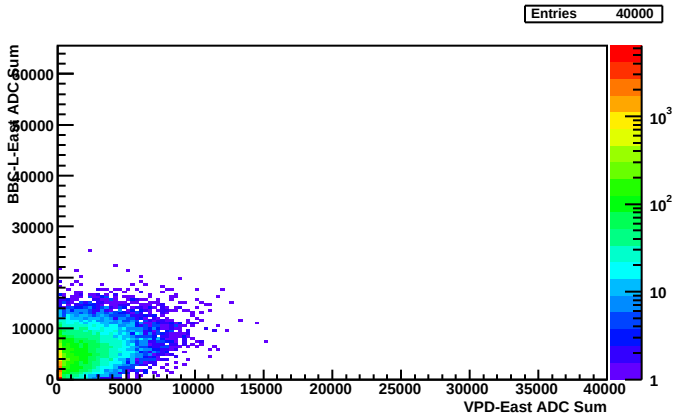

Entries 40000
TOF Mult
VPD-West ADC Sum

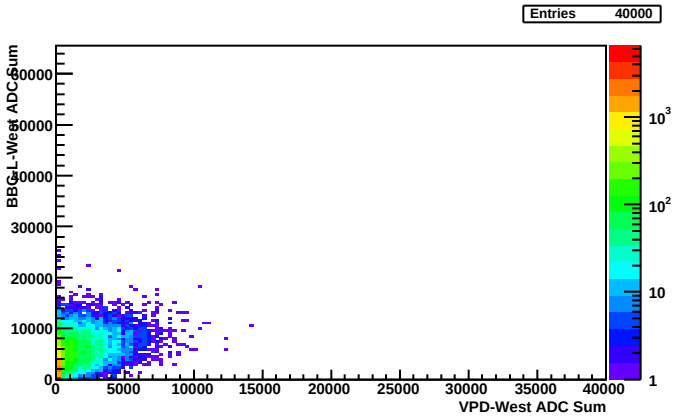

Entries 40000
TOF Mult
ZDC-East ADC Sum Att

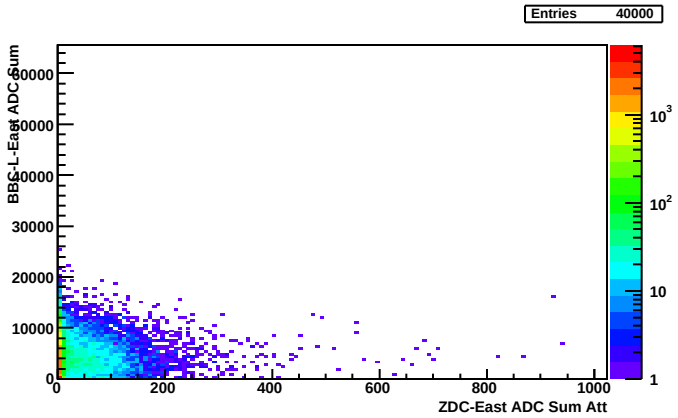

Entries 40000
TOF Mult
ZDC-West ADC Sum Att

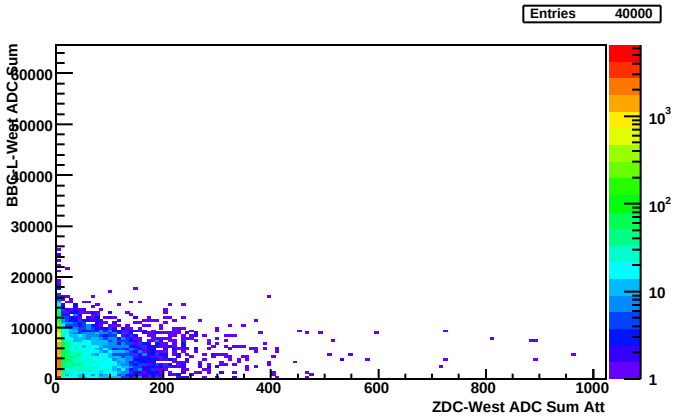

Entries 40000
BBC-L-East ADC Sum
BBC-S-East ADC Sum

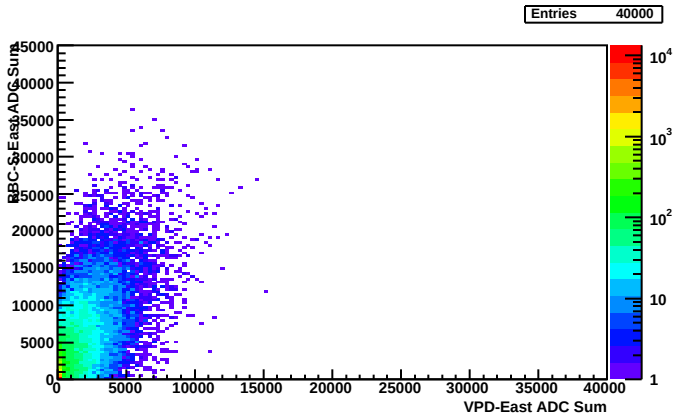

Entries 40000
BBC-L-West ADC Sum
BBC-S-West ADC Sum

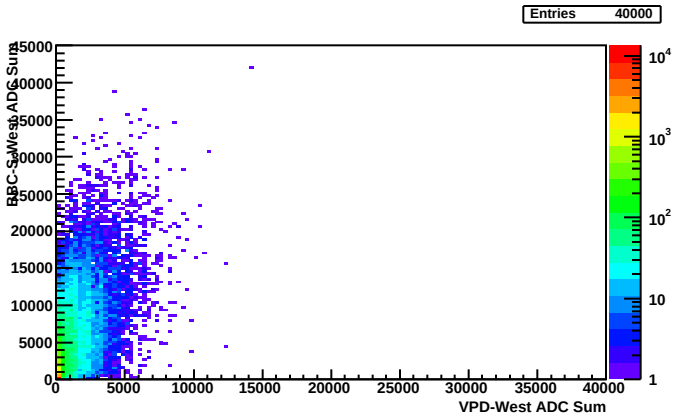

Entries 40000
BBC-L-East ADC Sum
VPD-East ADC Sum

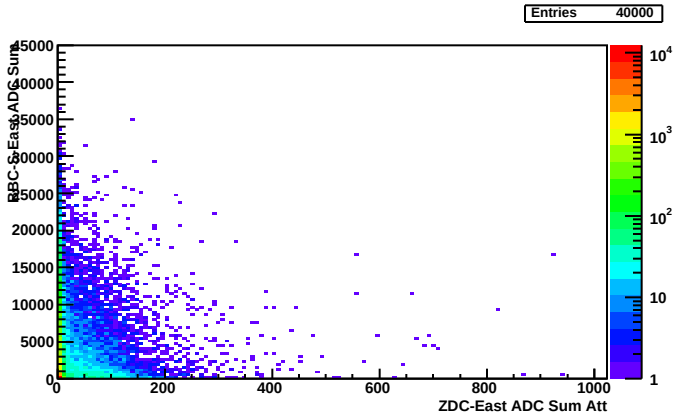

Entries 40000
BBC-L-West ADC Sum
VPD-West ADC Sum

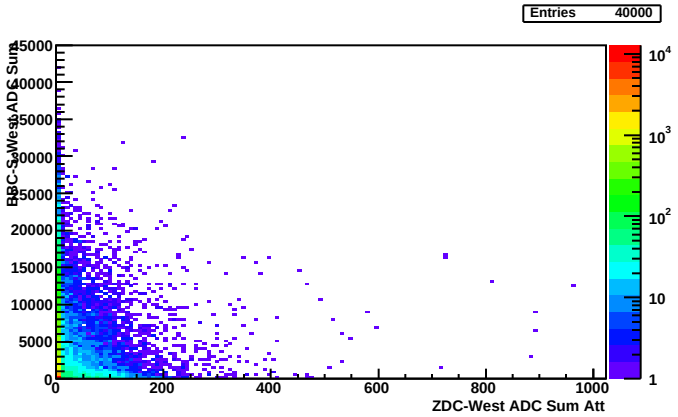

Entries 40000
BBC-L-East ADC Sum
ZDC-East ADC Sum Att

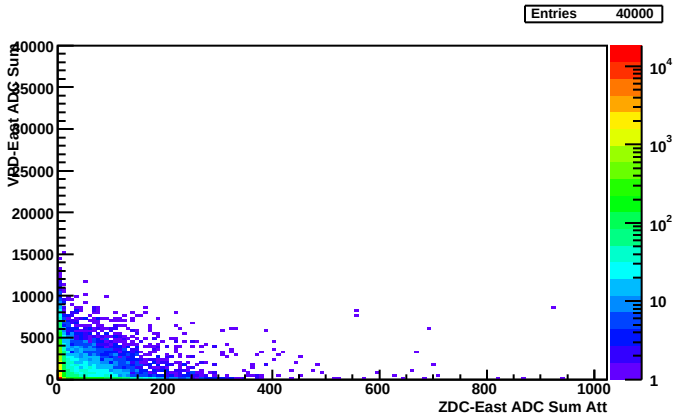

Entries 40000
BBC-L-West ADC Sum
ZDC-West ADC Sum Att

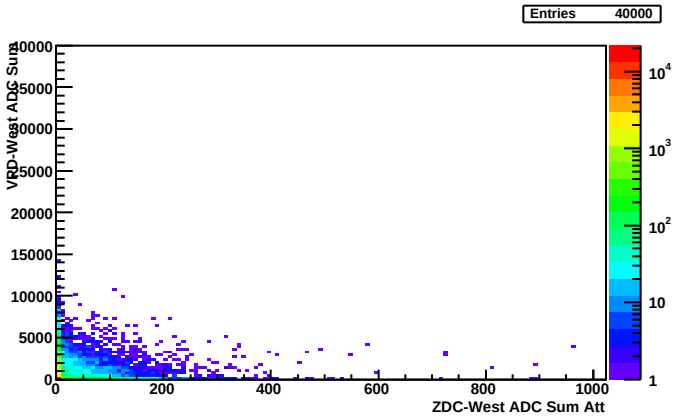

Entries 40000
BBC-S-East ADC Sum
VPD-East ADC Sum

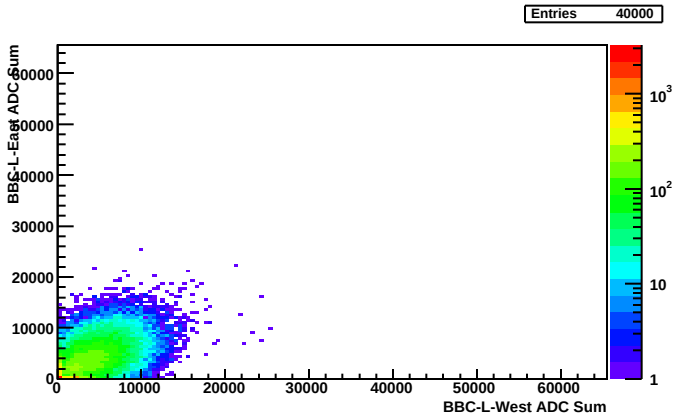

Entries 40000
BBC-S-West ADC Sum
VPD-West ADC Sum

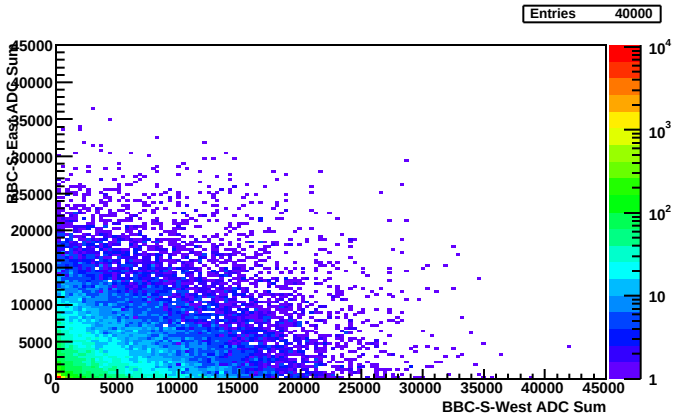

Entries 40000
BBC-S-East ADC Sum
ZDC-East ADC Sum Att

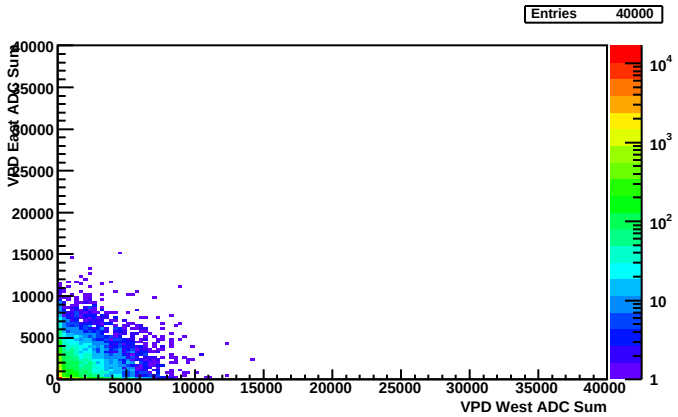

Entries 40000
BBC-S-West ADC Sum
ZDC-West ADC Sum Att

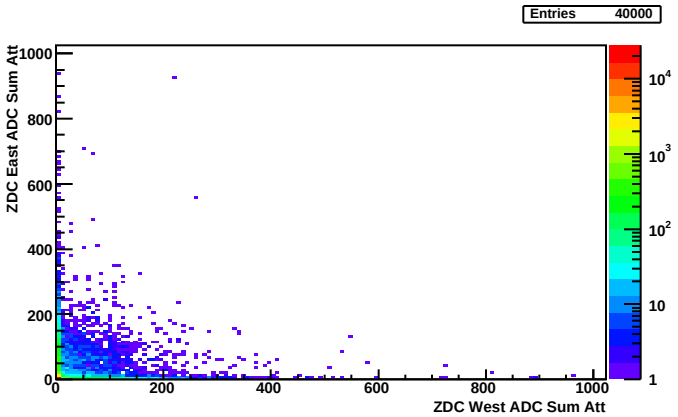

Entries 40000
VPD-East ADC Sum
ZDC-East ADC Sum Att

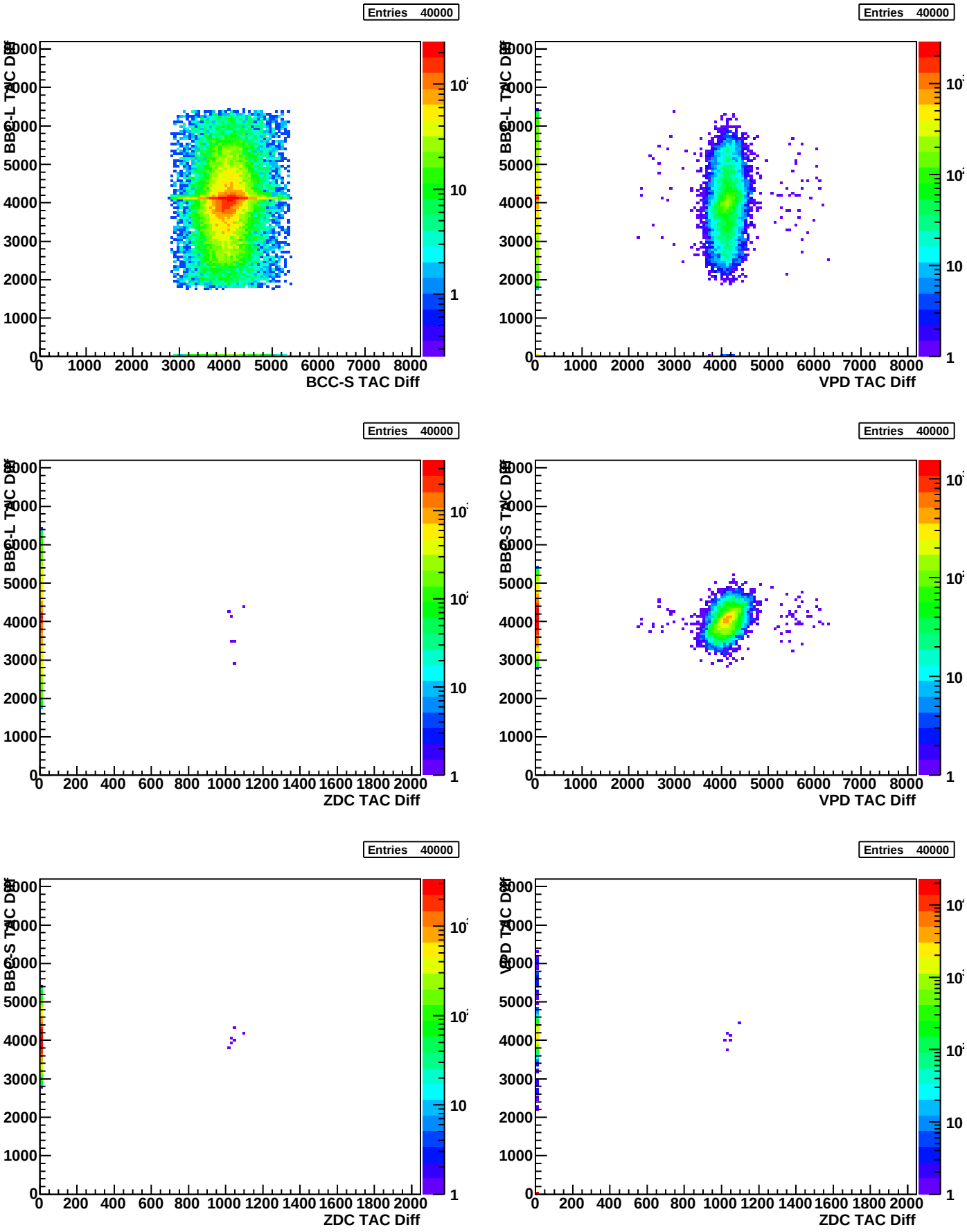

Entries 40000
VPD-West ADC Sum
ZDC-West ADC Sum Att

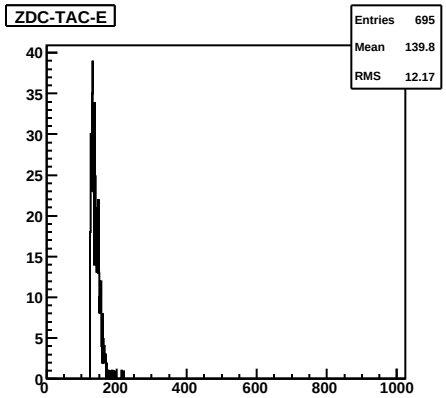

Entries 40000
BBC-L-East ADC Sum
BBC-L-West ADC Sum

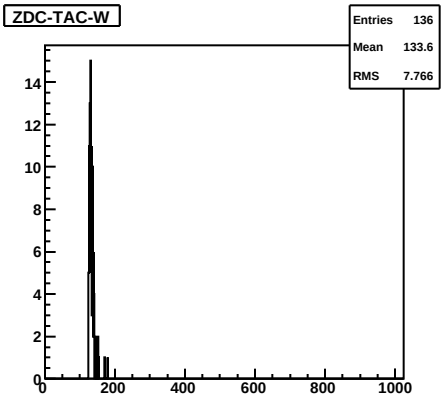

Entries 40000
BBC-S-East ADC Sum
BBC-S-West ADC Sum

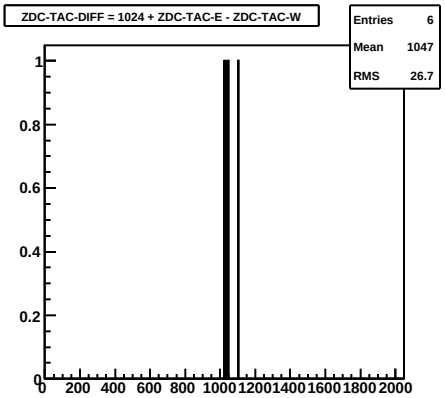

Entries 40000
VPD East ADC Sum
VPD West ADC Sum

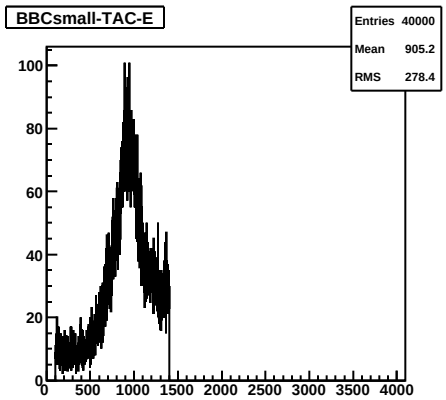

Entries 40000
ZDC East ADC Sum Att
ZDC West ADC Sum Att

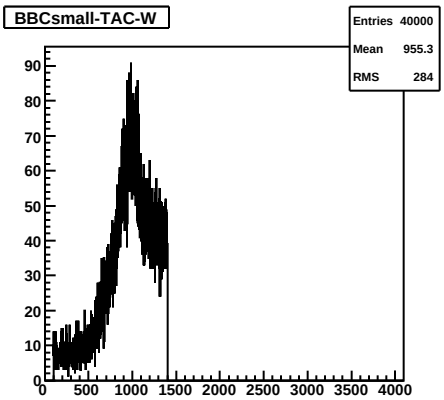

Entries 40000
BBC-L TAC Diff
BCC-S TAC Diff
Entries 40000
BBC-L TAC Diff
VPD TAC Diff
Entries 40000
BBC-L TAC Diff
ZDC TAC Diff
Entries 40000
BBC-S TAC Diff
VPD TAC Diff
Entries 40000
BBC-S TAC Diff
ZDC TAC Diff
Entries 40000
VPD TAC Diff
ZDC TAC Diff

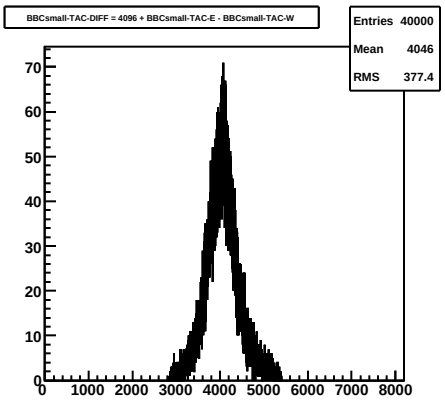

ZDC-TAC-E
Entries 695
Mean 139.8
RMS 12.17

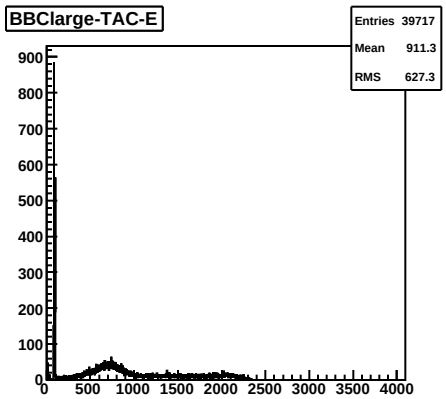

ZDC-TAC-W
Entries 136
Mean 133.6
RMS 7.766

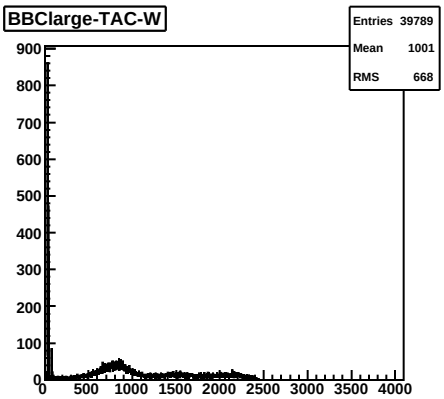

ZDC-TAC-DIFF = 1024 + ZDC-TAC-E - ZDC-TAC-W
Entries 6
Mean 1047
RMS 26.7

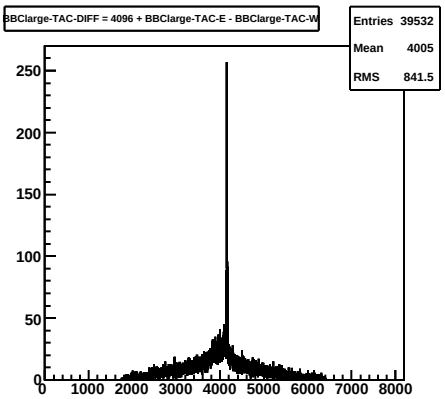

BBCsmall-TAC-E
Entries 40000
Mean 905.2
RMS 278.4

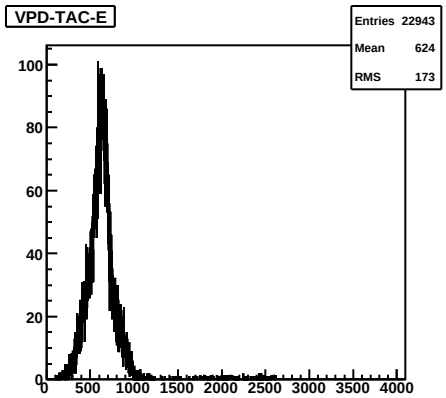

BBCsmall-TAC-W
Entries 40000
Mean 955.3
RMS 284

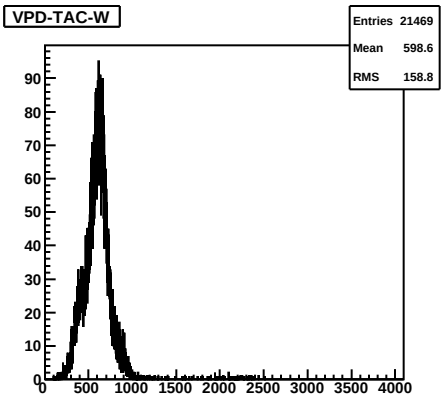

BBCsmall-TAC-DIFF = 4096 + BBCsmall-TAC-E - BBCsmall-TAC-W
Entries 40000
Mean 4046
RMS 377.4

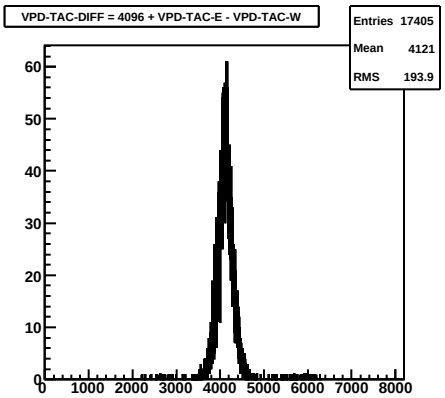

BBClarge-TAC-E
Entries 39717
Mean 911.3
RMS 627.3

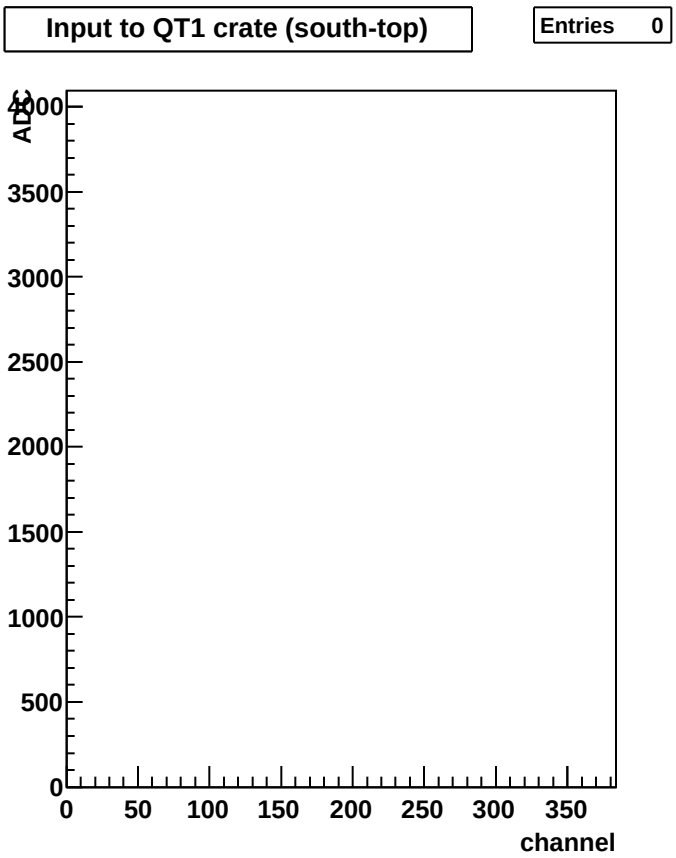

BBClarge-TAC-W
Entries 39789
Mean 1001
RMS 668

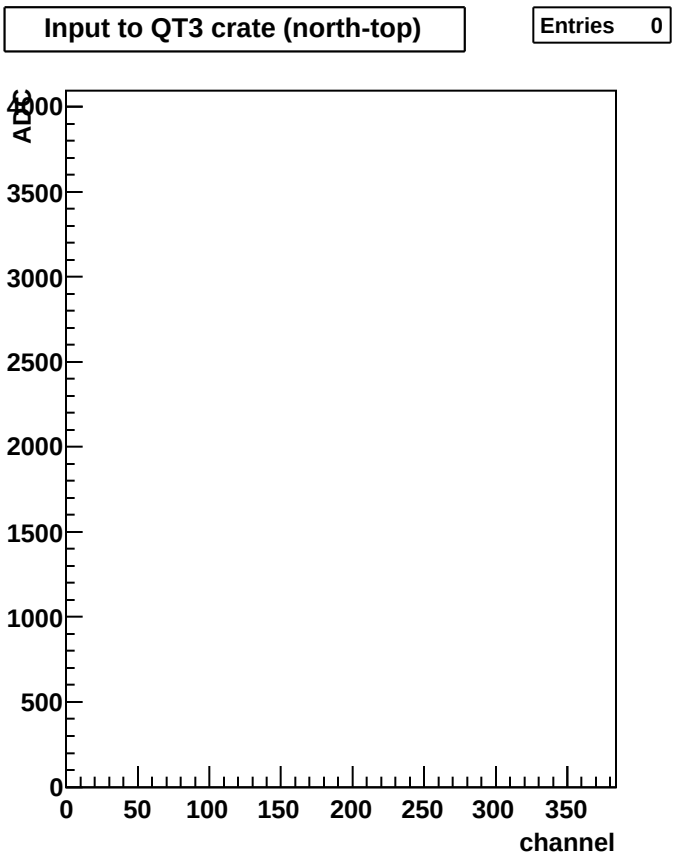

BBClarge-TAC-DIFF = 4096 + BBClarge-TAC-E - BBClarge-TAC-W
Entries 39532
Mean 4005
RMS 841.5

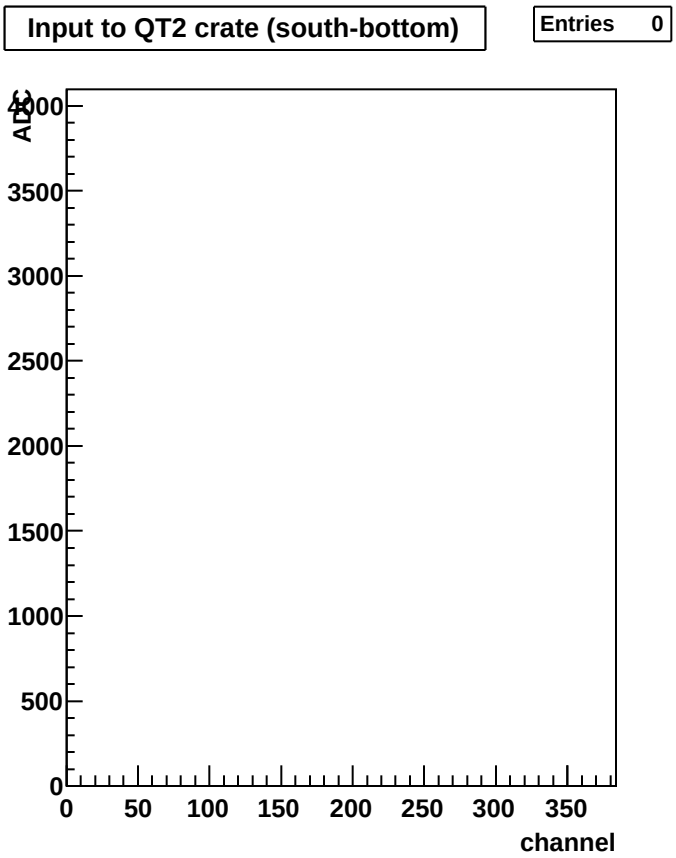

VPD-TAC-E
Entries 22943
Mean 624
RMS 173

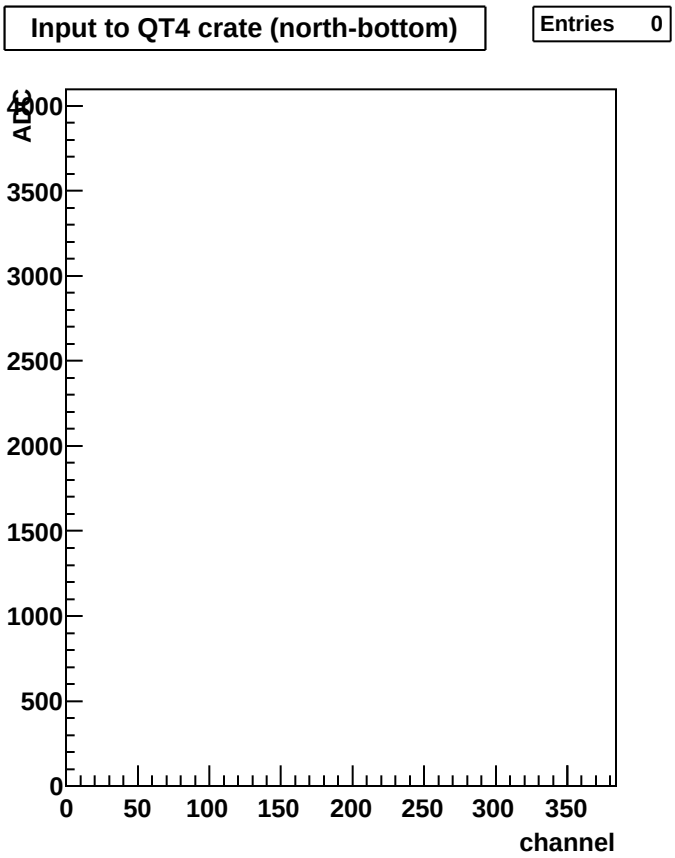

VPD-TAC-W
Entries 21469
Mean 598.6
RMS 158.8

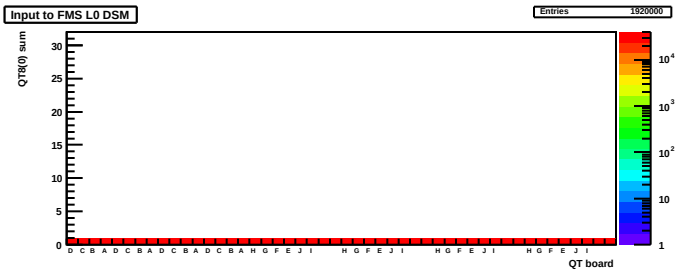

VPD-TAC-DIFF = 4096 + VPD-TAC-E - VPD-TAC-W
Entries 17405
Mean 4121
RMS 193.9

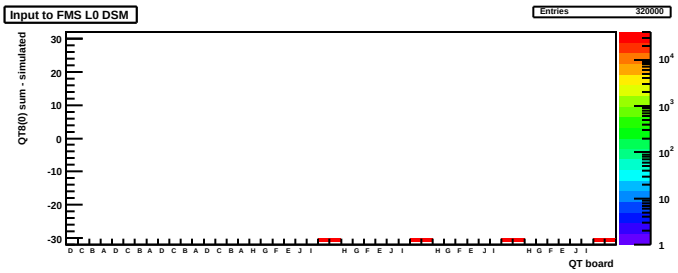

Input to QT1 crate (south-top)
Entries 0
ADC
4000
3500
3000
2500
2000
1500
1000
500
0
0 50 100 150 200 250 300 350
channel

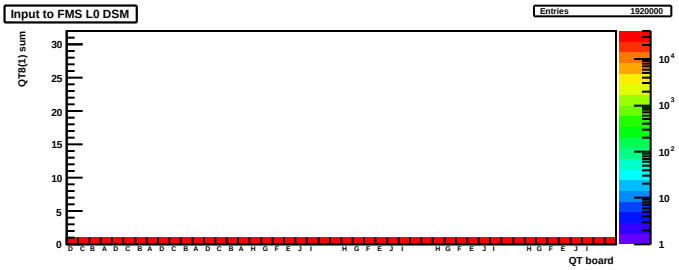

Input to QT3 crate (north-top)
Entries 0
ADC
4000
3500
3000
2500
2000
1500
1000
500
0
0 50 100 150 200 250 300 350
channel

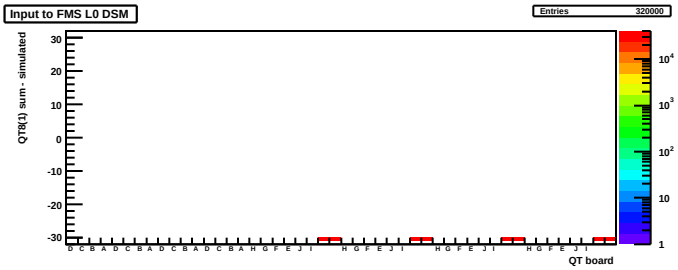

Input to QT2 crate (south-bottom)
Entries 0
ADC
4000
3500
3000
2500
2000
1500
1000
500
0
0 50 100 150 200 250 300 350
channel

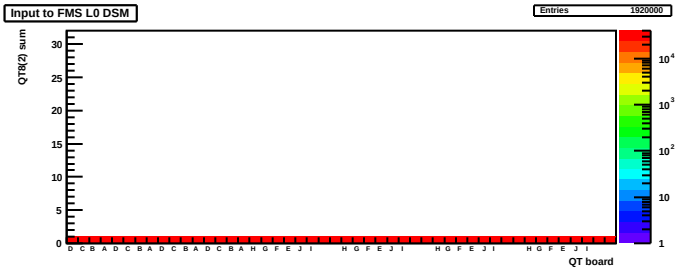

Input to QT4 crate (north-bottom)
Entries 0
ADC
4000
3500
3000
2500
2000
1500
1000
500
0
0 50 100 150 200 250 300 350
channel

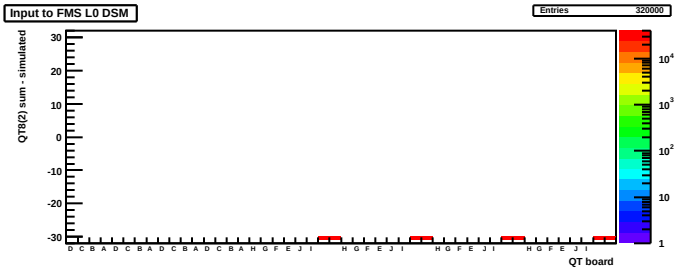

Input to FMS L0 DSM
Entries 1920000
QT8(0) sum
QT board

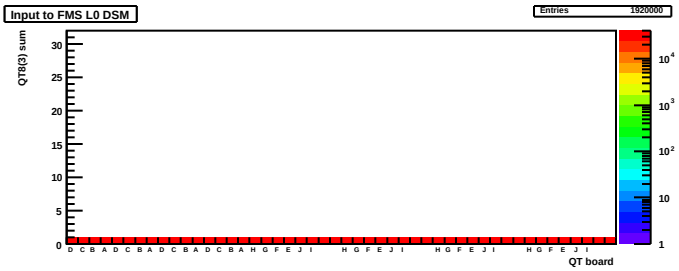

Input to FMS L0 DSM
Entries 320000
QT8(0) sum - simulated
QT board

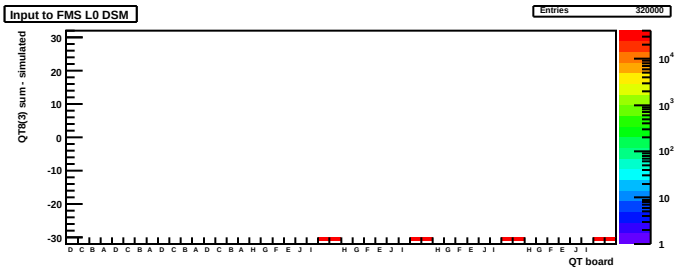

Input to FMS L0 DSM
Entries 1920000
QT8(1) sum
QT board

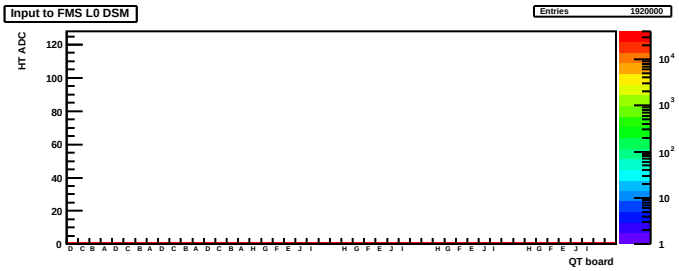

Input to FMS L0 DSM
Entries 320000
QT8(1) sum - simulated
QT board

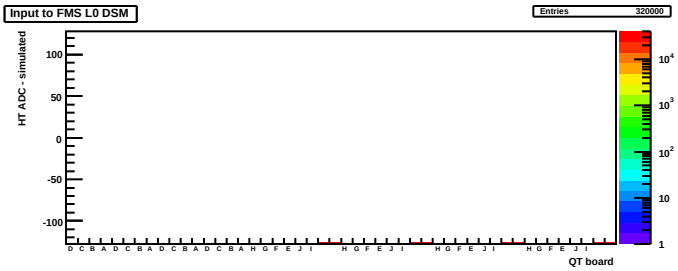

Input to FMS L0 DSM
Entries 1920000
QT8(2) sum
QT board

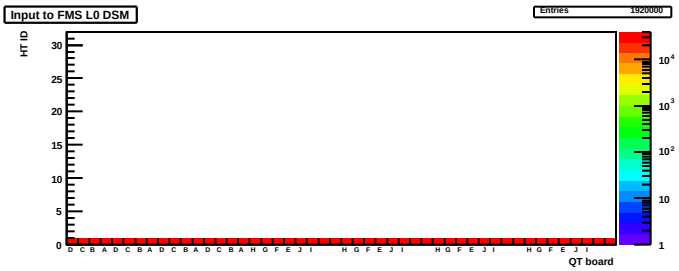

Input to FMS L0 DSM
Entries 320000
QT8(2) sum - simulated
QT board

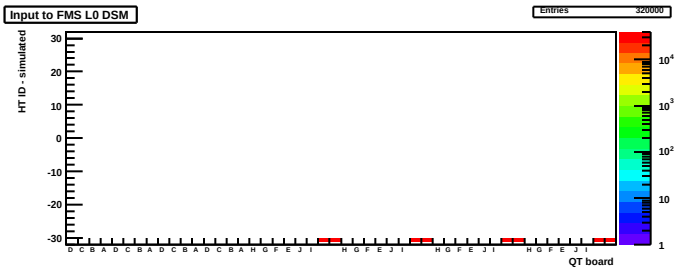

Input to FMS L0 DSM
Entries 1920000
QT8(3) sum
QT board

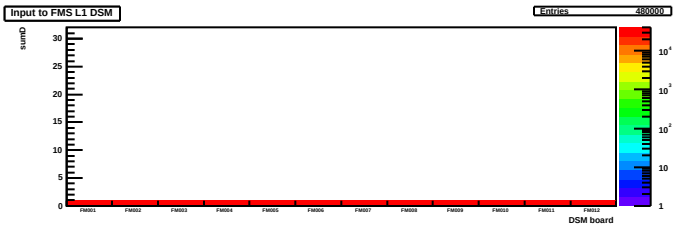

Input to FMS L0 DSM
Entries 320000
QT8(3) sum - simulated
QT board

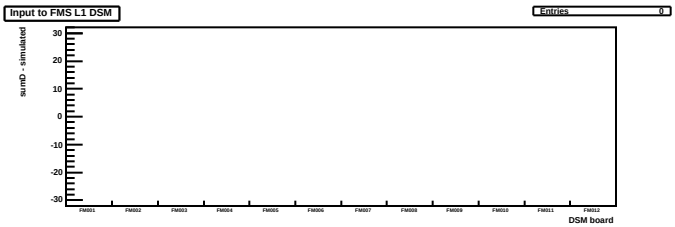

Input to FMS L0 DSM
Entries 1920000
HT ADC
QT board

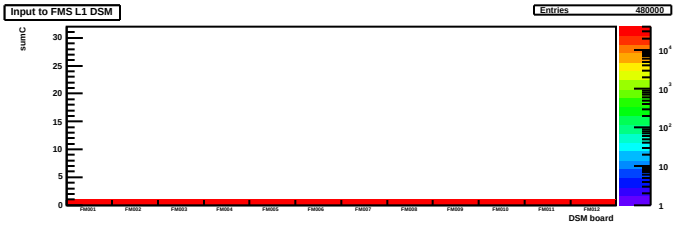

Input to FMS L0 DSM
Entries 320000
HT ADC - simulated
QT board

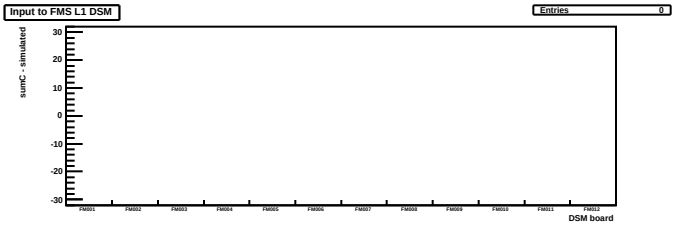

Input to FMS L0 DSM
Entries 1920000
HT ID
QT board

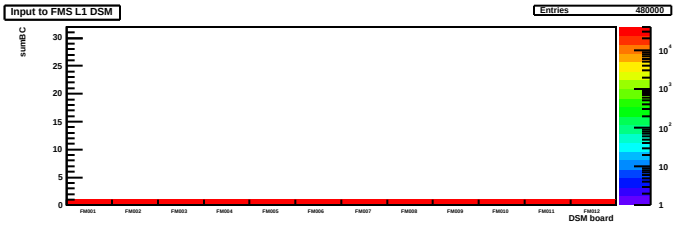

Input to FMS L0 DSM
Entries 320000
HT ID - simulated
QT board

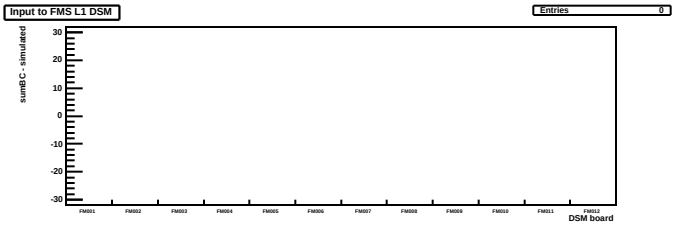

Input to FMS L1 DSM
Entries 480000
sumD
DSM board

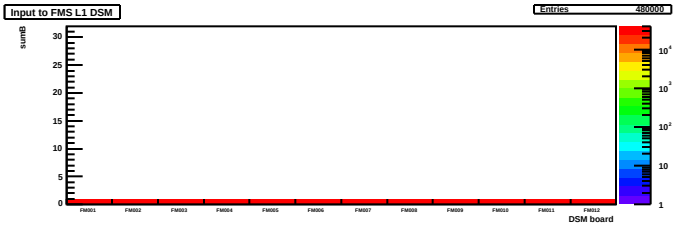

Input to FMS L1 DSM
Entries 0
sumD - simulated
DSM board

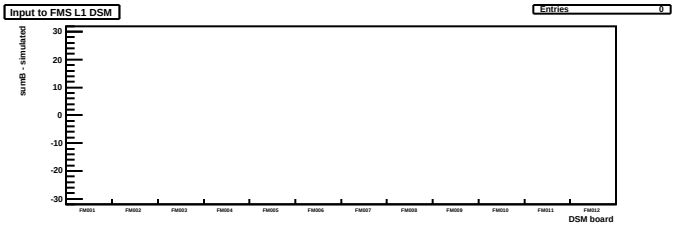

Input to FMS L1 DSM
Entries 480000
sumC
DSM board

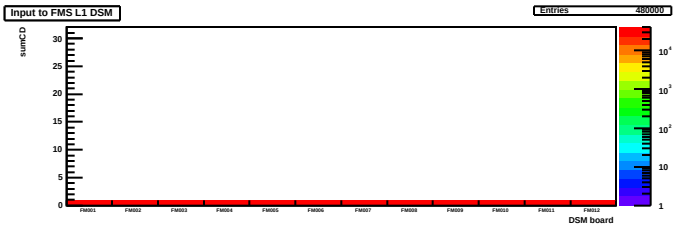

Input to FMS L1 DSM
Entries 0
sumC - simulated
DSM board

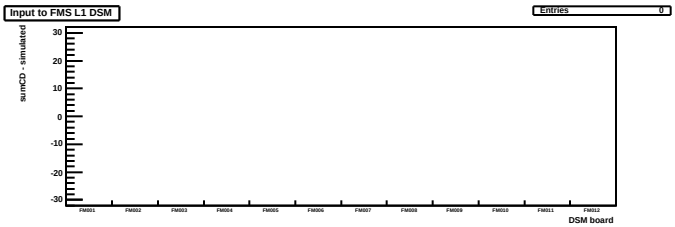

Input to FMS L1 DSM
Entries 480000
sumBC
DSM board

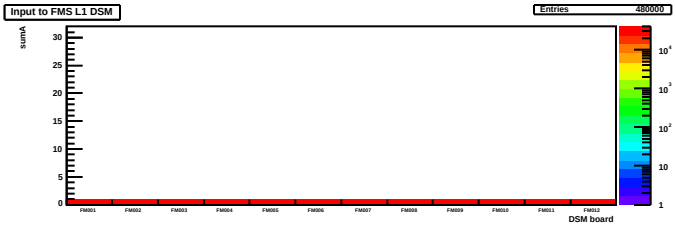

Input to FMS L1 DSM
Entries 0
sumBC - simulated
DSM board

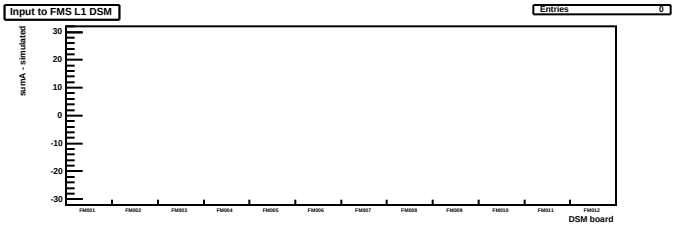

Input to FMS L1 DSM
Entries 480000
sumB
DSM board

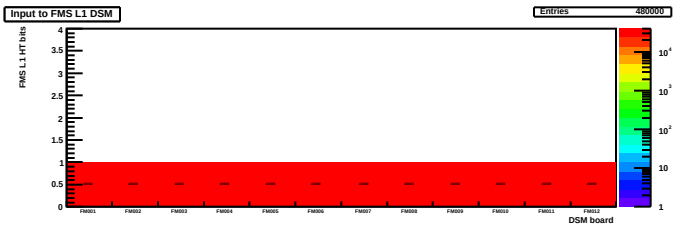

Input to FMS L1 DSM
Entries 0
sumB - simulated
DSM board

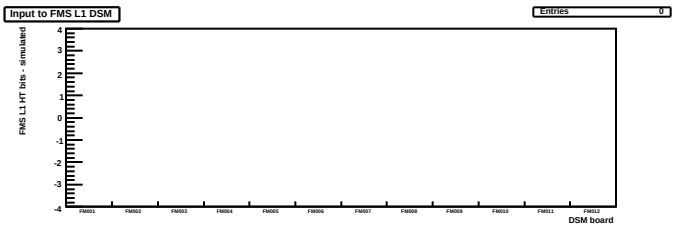

Input to FMS L1 DSM
Entries 480000
sumCD
DSM board

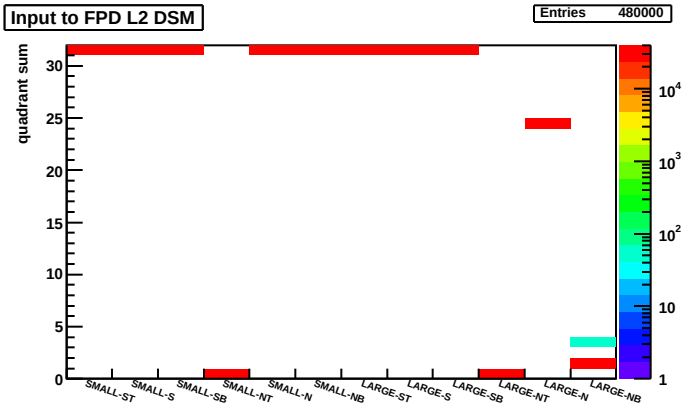

Input to FMS L1 DSM
Entries 0
sumCD - simulated
DSM board

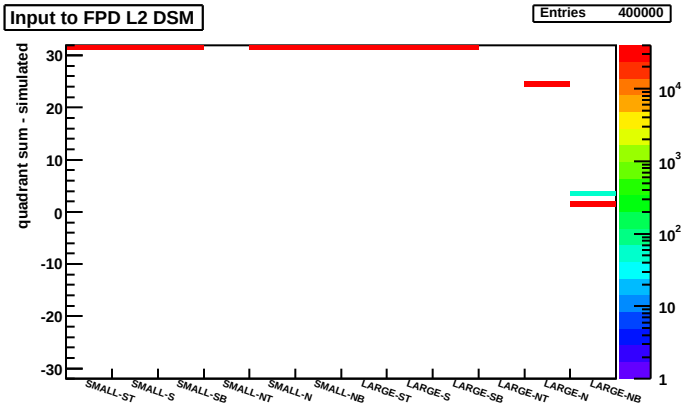

Input to FMS L1 DSM
Entries 480000
sumA
DSM board

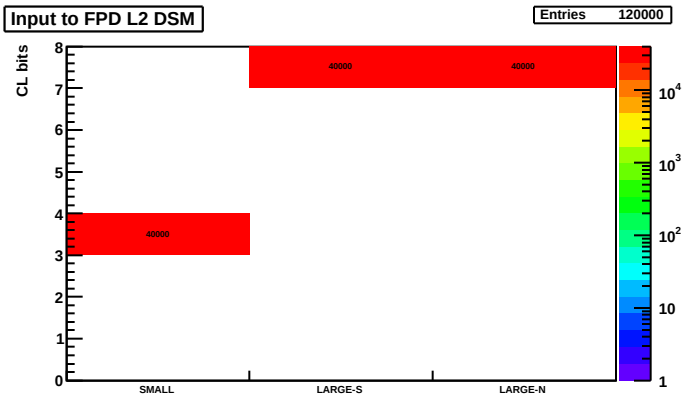

Input to FMS L1 DSM
Entries 0
sumA - simulated
DSM board

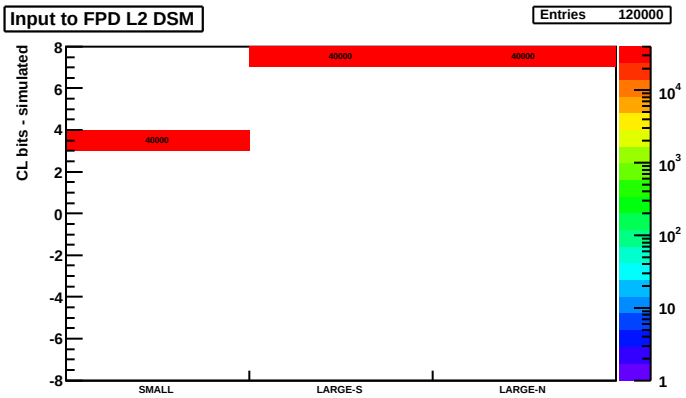

Input to FMS L1 DSM
Entries 480000
FMS L1 HT bits
DSM board

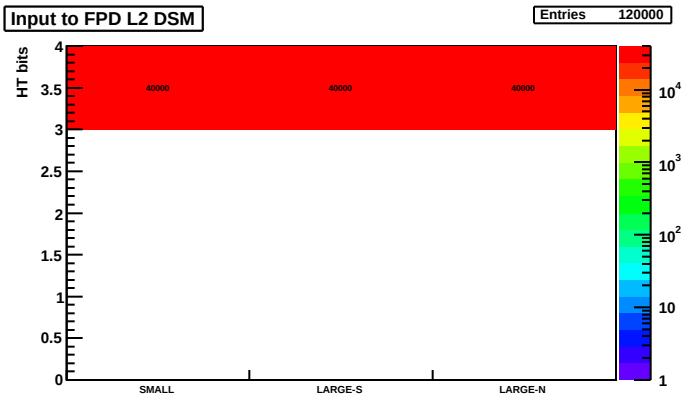

Input to FMS L1 DSM
Entries 0
FMS L1 HT bits - simulated
DSM board

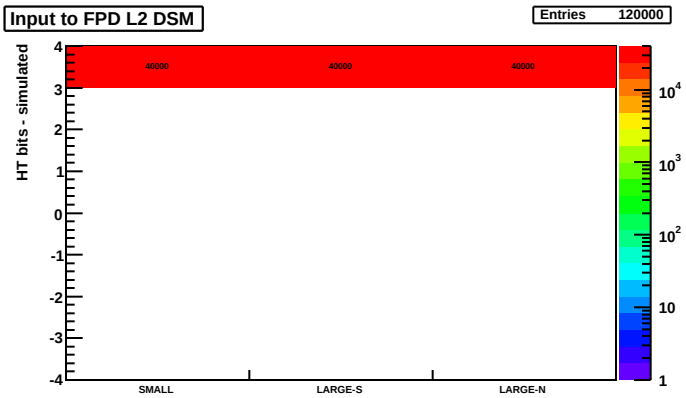

Input to FPD L2 DSM
Entries 480000
quadrant sum
SMALL-ST
SMALL-S
SMALL-SB
SMALL-NT
SMALL-N
SMALL-NB
LARGE-ST
LARGE-S
LARGE-SB
LARGE-NT
LARGE-N
LARGE-NB

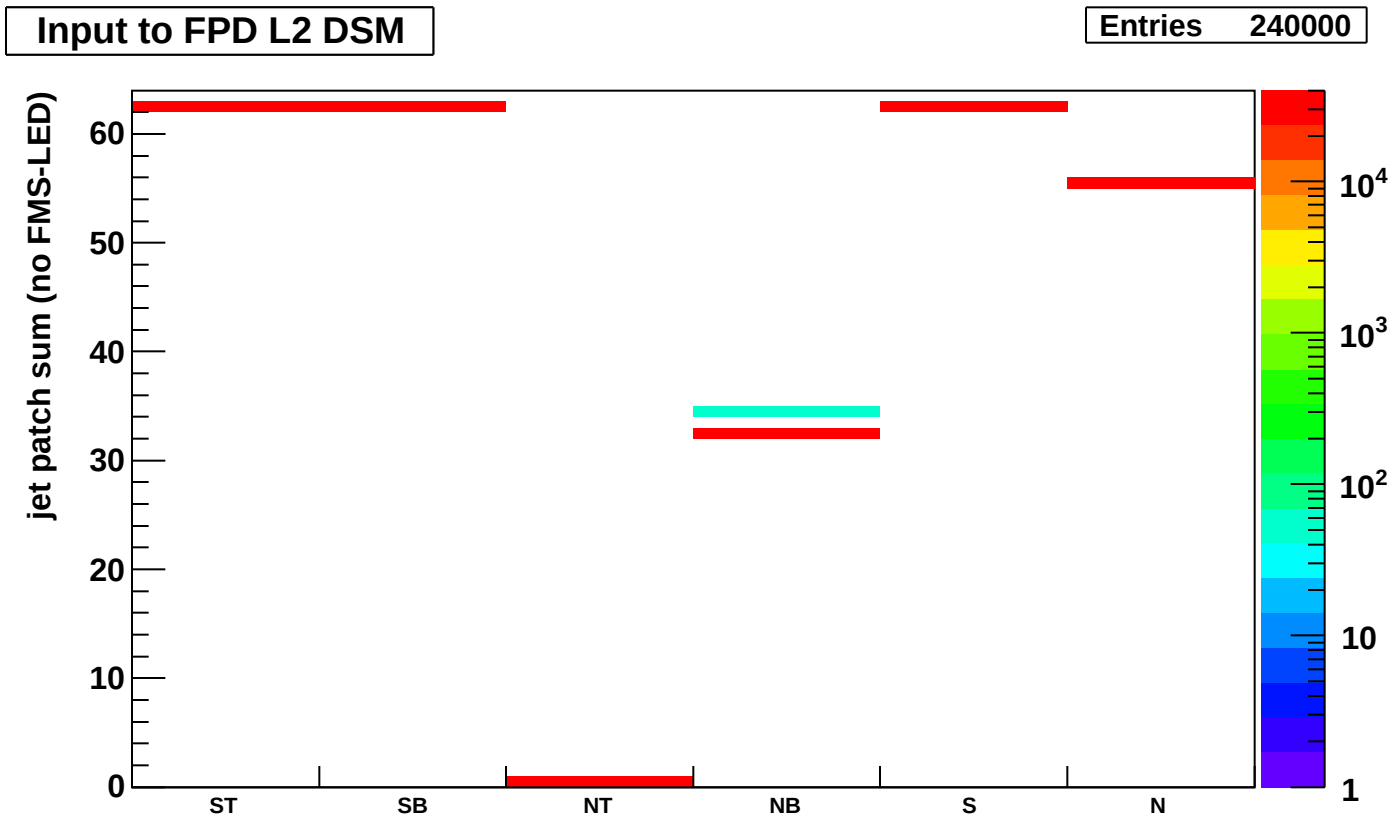

Input to FPD L2 DSM
Entries 400000
quadrant sum - simulated
SMALL-ST
SMALL-S
SMALL-SB
SMALL-NT
SMALL-N
SMALL-NB
LARGE-ST
LARGE-S
LARGE-SB
LARGE-NT
LARGE-N
LARGE-NB

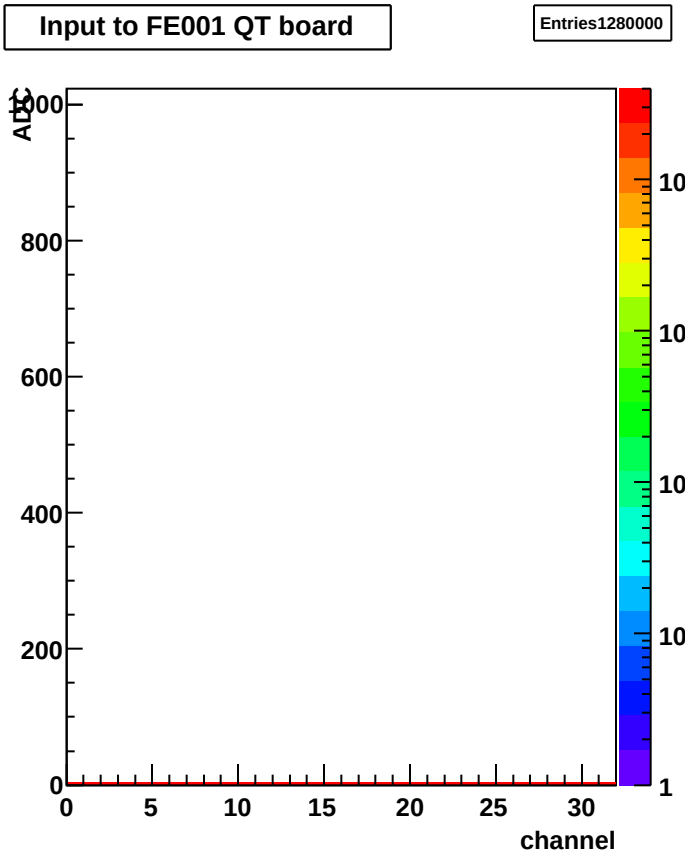

Input to FPD L2 DSM
Entries 120000
CL bits
40000
40000
40000
SMALL
LARGE-S
LARGE-N

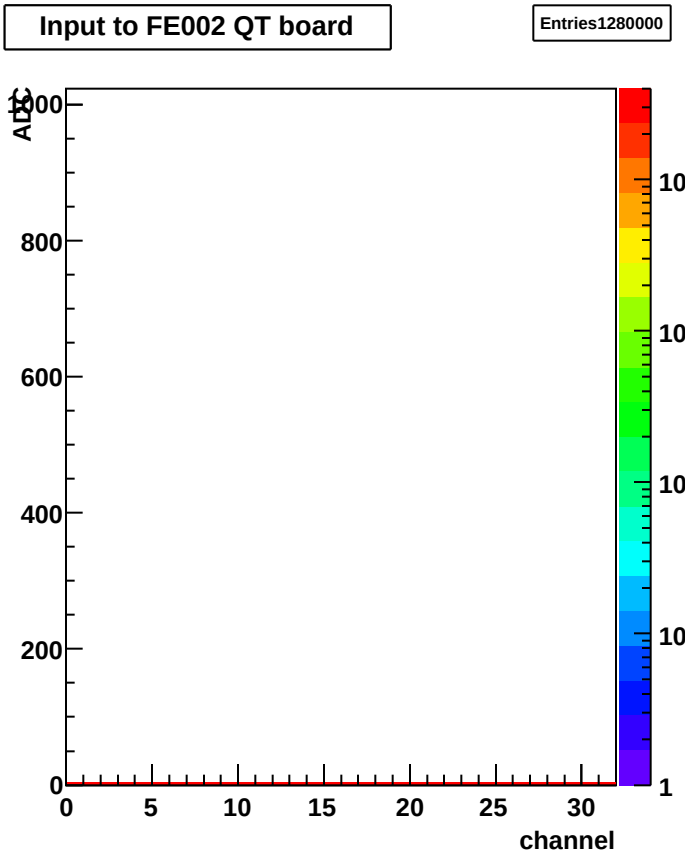

Input to FPD L2 DSM
Entries 120000
CL bits - simulated
40000
40000
40000
SMALL
LARGE-S
LARGE-N

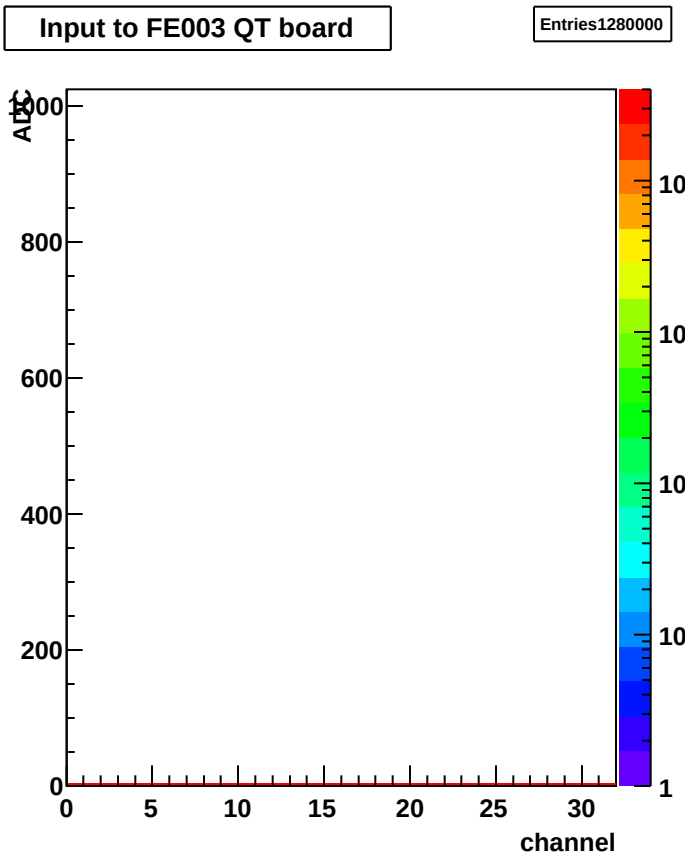

Input to FPD L2 DSM
Entries 120000
HT bits
40000
40000
40000
SMALL
LARGE-S
LARGE-N

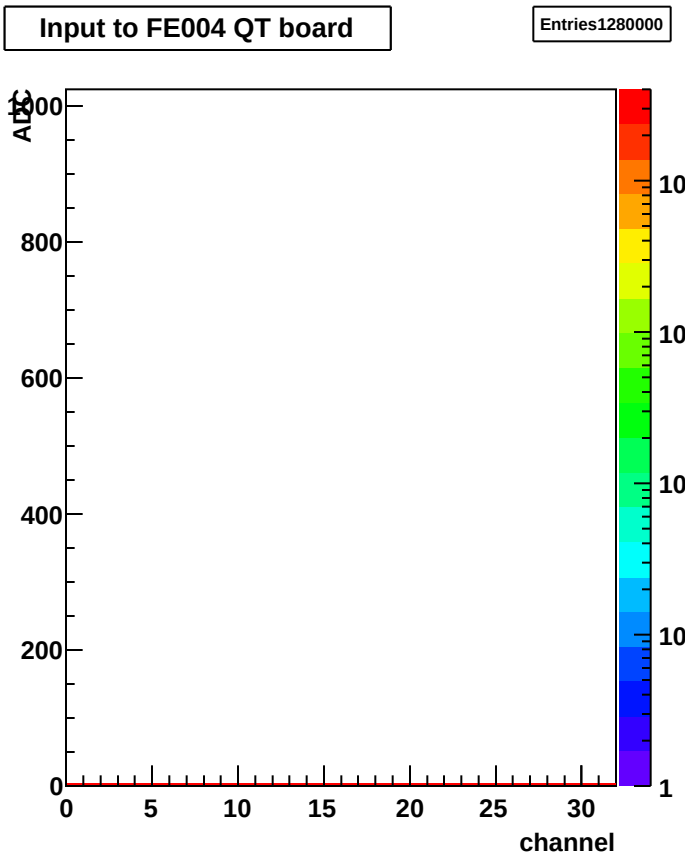

Input to FPD L2 DSM
Entries 120000
HT bits - simulated
40000
40000
40000
SMALL
LARGE-S
LARGE-N

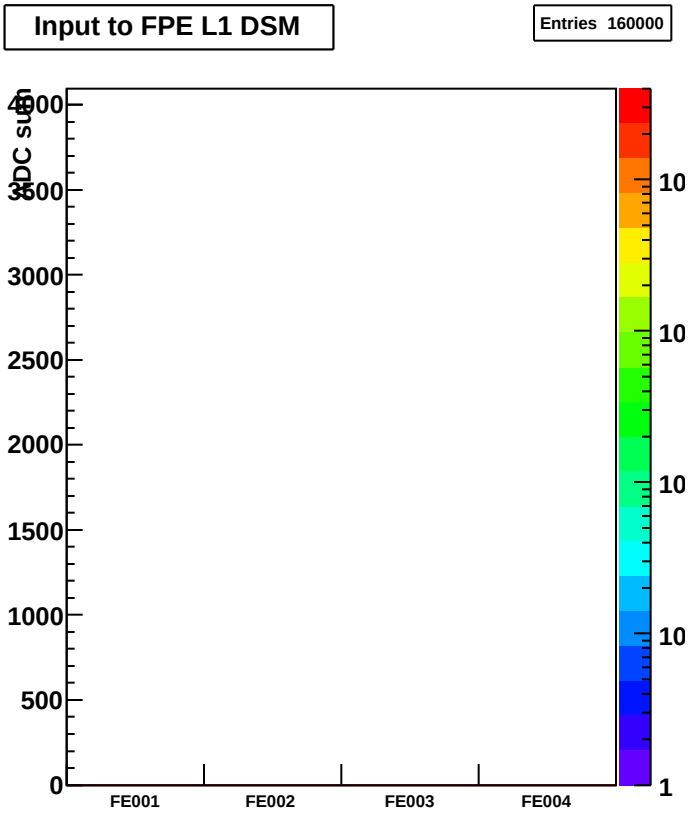

Input to FPD L2 DSM
Entries 240000
jet patch sum (no FMS-LED)
0
10
20
30
40
50
60
ST
SB
NT
NB
S
N
1
10
$10^2$
$10^3$
$10^4$

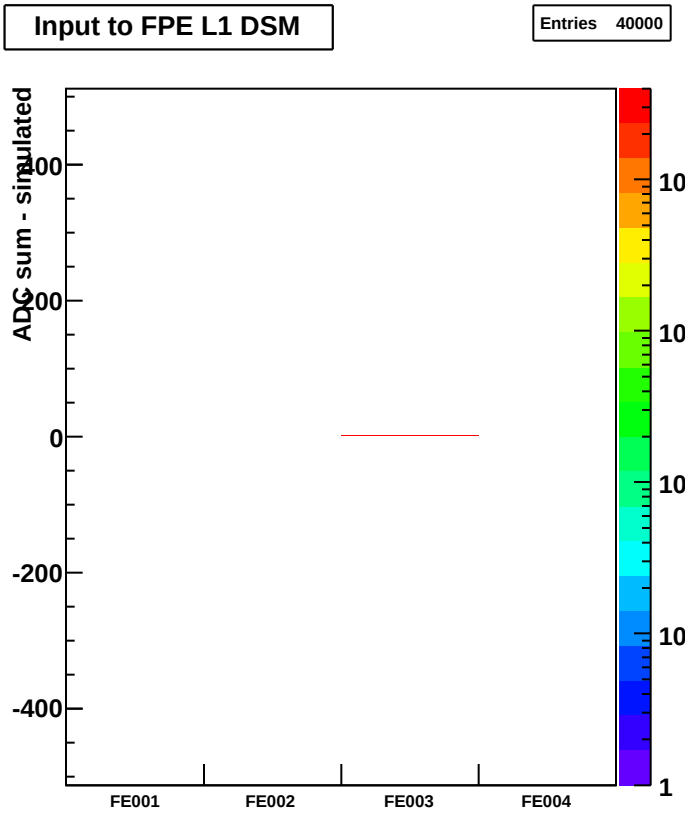

Input to FE001 QT board
Entries1280000
ADC
channel

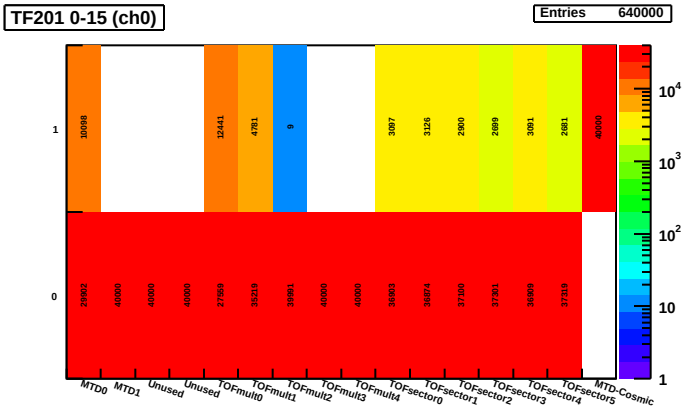

Input to FE002 QT board
Entries1280000
ADC
channel

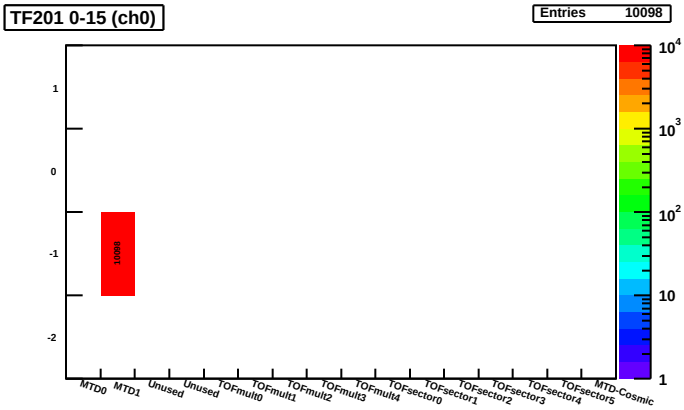

Input to FE003 QT board
Entries1280000
ADC
channel

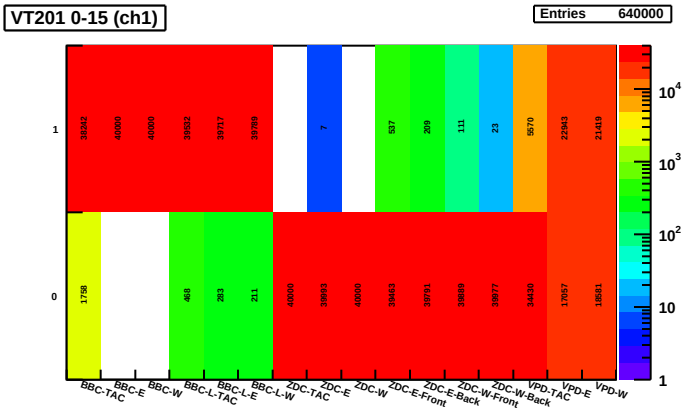

Input to FE004 QT board
Entries1280000
ADC
channel

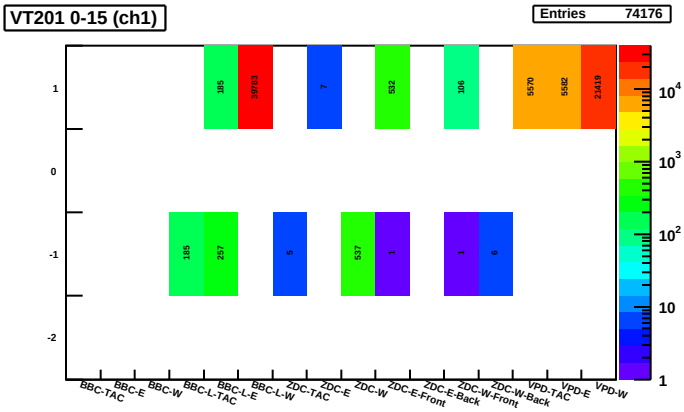

Input to FPE L1 DSM
Entries 160000
ADC sum
4000
3500
3000
2500
2000
1500
1000
500
0
FE001
FE002
FE003
FE004
10
10
10
10
1

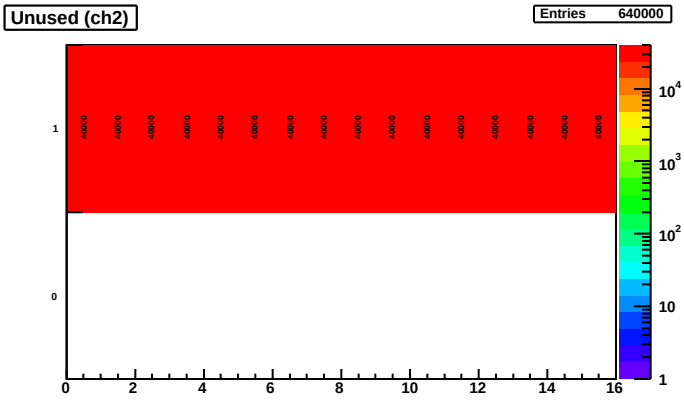

Input to FPE L1 DSM
Entries 40000
ADC sum - simulated
0
-200
-400
FE001
FE002
FE003
FE004
10
10
10
10
1

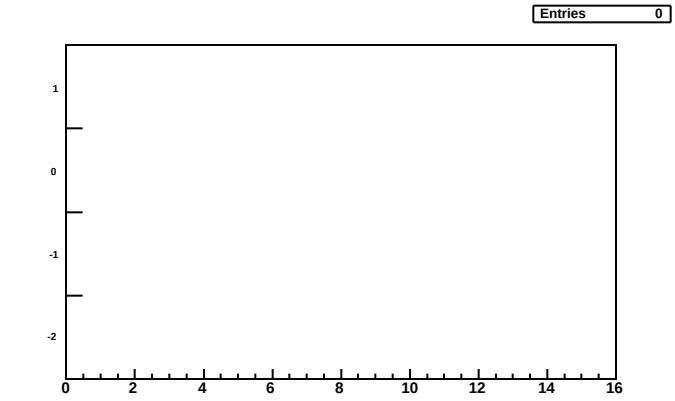

TF201 0-15 (ch0)
Entries 640000
MTD0 MTD1 Unused Unused TOFmult0 TOFmult1 TOFmult2 TOFmult3 TOFmult4 TOFsector0 TOFsector1 TOFsector2 TOFsector3 TOFsector4 TOFsector5 MTD-Cosmic

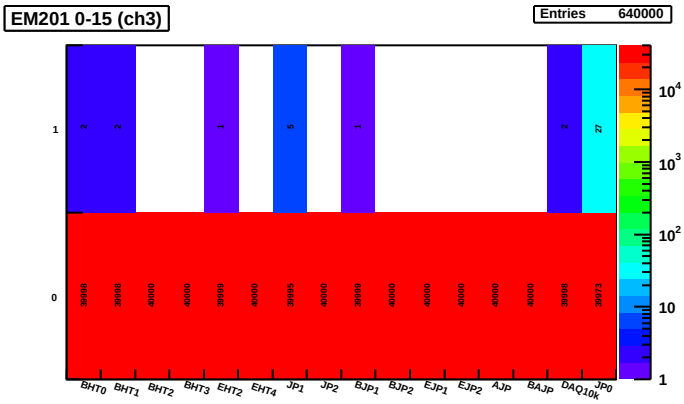

TF201 0-15 (ch0)
Entries 10098
MTD0 MTD1 Unused Unused TOFmult0 TOFmult1 TOFmult2 TOFmult3 TOFmult4 TOFsector0 TOFsector1 TOFsector2 TOFsector3 TOFsector4 TOFsector5 MTD-Cosmic

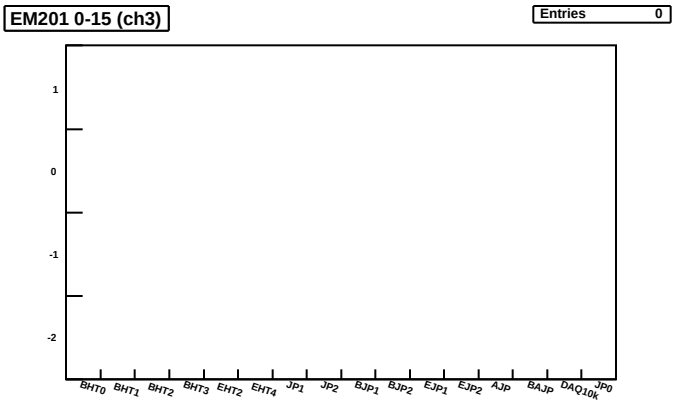

VT201 0-15 (ch1)
Entries 640000
BBC-TAC BBC-E BBC-W BBC-L-TAC BBC-L-E BBC-L-W ZDC-TAC ZDC-E ZDC-W ZDC-E-Front ZDC-E-Back ZDC-W-Front ZDC-W-Back VPD-TAC VPD-E VPD-W

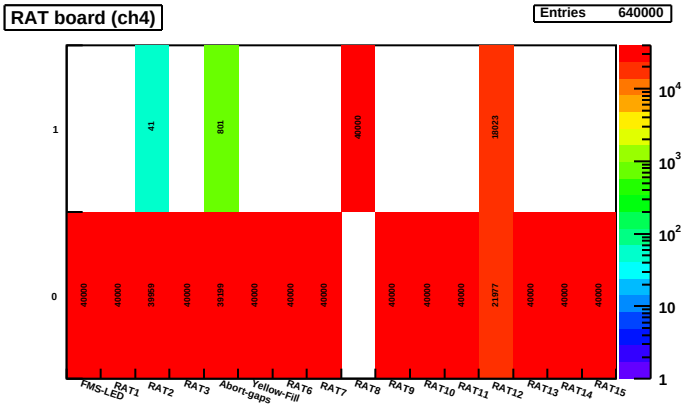

VT201 0-15 (ch1)
Entries 74176
BBC-TAC BBC-E BBC-W BBC-L-TAC BBC-L-E BBC-L-W ZDC-TAC ZDC-E ZDC-W ZDC-E-Front ZDC-E-Back ZDC-W-Front ZDC-W-Back VPD-TAC VPD-E VPD-W

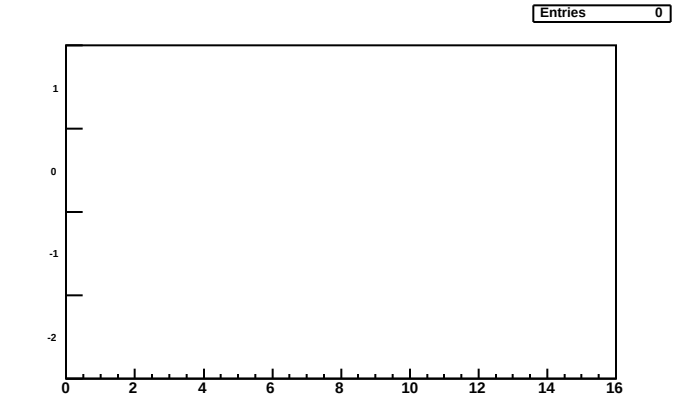

Unused (ch2)
Entries 640000

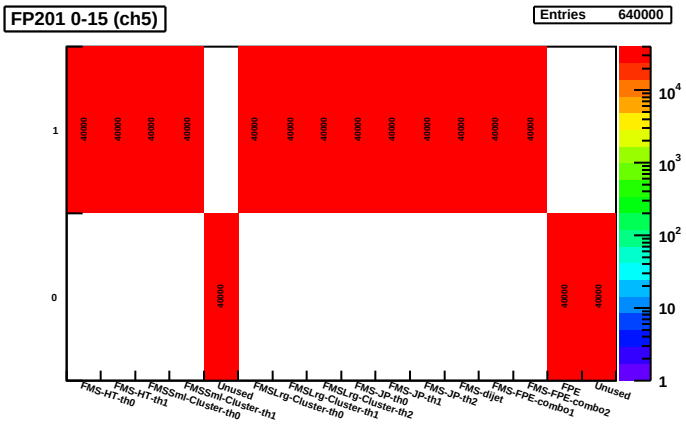

Entries 0

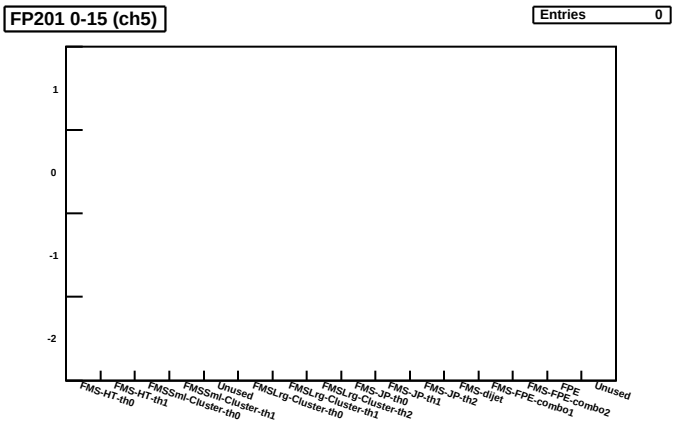

EM201 0-15 (ch3)
Entries 640000
BHT0 BHT1 BHT2 BHT3 EHT2 EHT4 JP1 JP2 BJP1 BJP2 EJP1 EJP2 AJP BAJP DAQ10k JP0

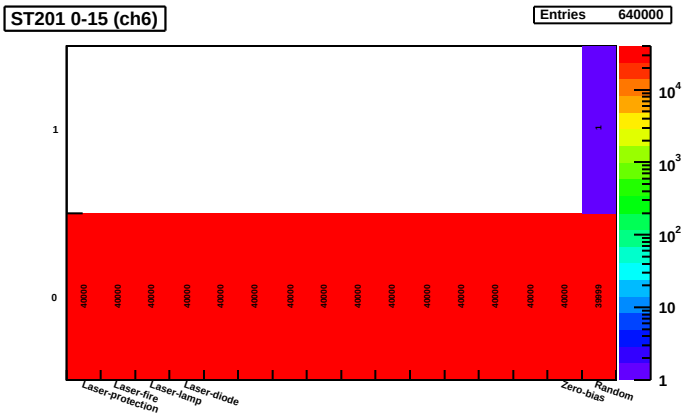

EM201 0-15 (ch3)
Entries 0
BHT0 BHT1 BHT2 BHT3 EHT2 EHT4 JP1 JP2 BJP1 BJP2 EJP1 EJP2 AJP BAJP DAQ10k JP0

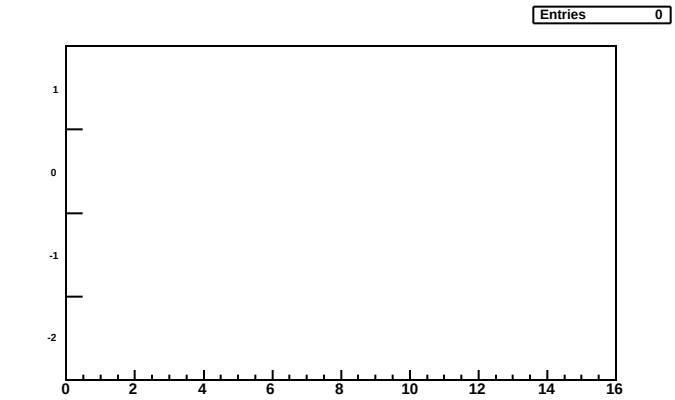

RAT board (ch4)
Entries 640000
FMS-LED
RAT1
RAT2
RAT3
Abort-gaps
Yellow-Fill
RAT6
RAT7
RAT8
RAT9
RAT10
RAT11
RAT12
RAT13
RAT14
RAT15

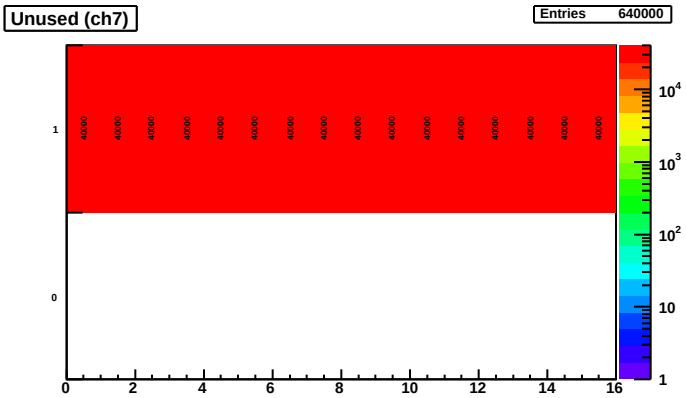

Entries 0

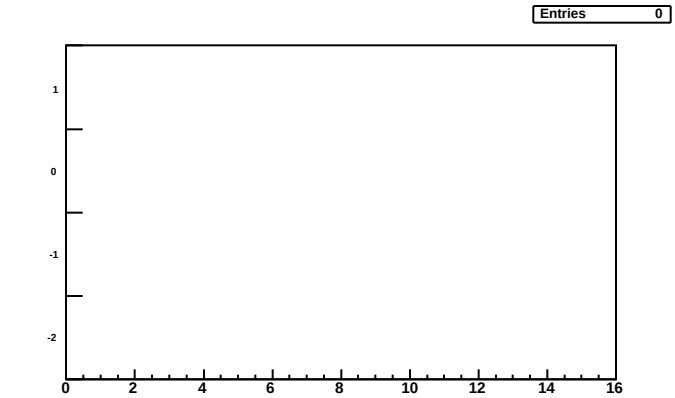

FP201 0-15 (ch5)
Entries 640000
FMS-HT-th0
FMS-HT-th1
FMSSml-Cluster-th0
FMSSml-Cluster-th1
Unused
FMSLrg-Cluster-th0
FMSLrg-Cluster-th1
FMS-JP-th0
FMS-JP-th1
FMS-JP-th2
FMS-dijet
FMS-FPE-combo1
FPE
FMS-FPE-combo2
Unused


FP201 0-15 (ch5)
Entries 0


ST201 0-15 (ch6)
Entries 640000
Laser-protection
Laser-fire
Laser-lamp
Laser-diode
Zero-bias
Random


Entries 0


Unused (ch7)
Entries 640000


Entries 0