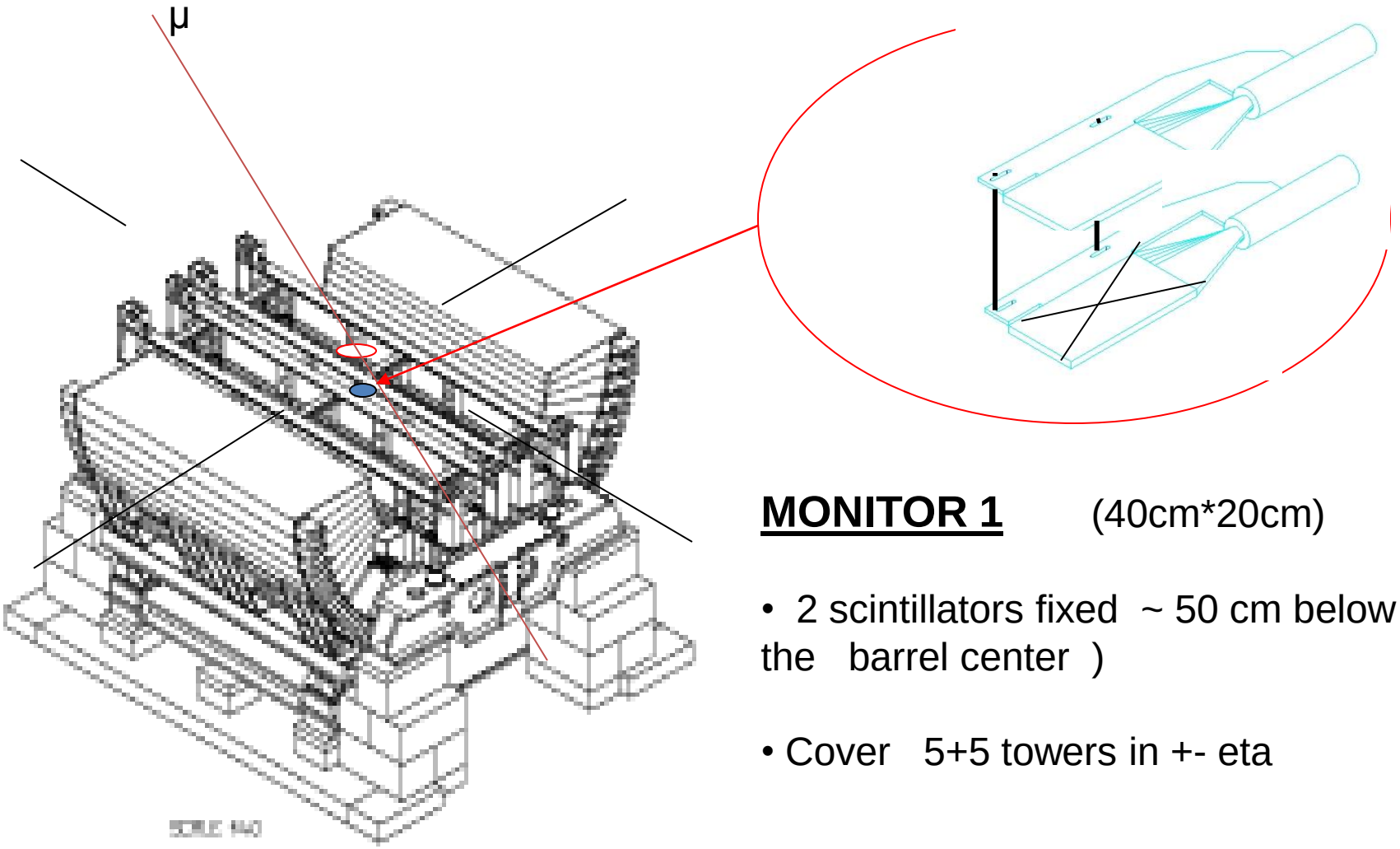
Tile_Slice_bat_175
first data with cosmics muons

1. Scintillator detectors teleskop
2. Data taking and processing – small modification of standard Tile approach
3. DQ validation => need HW repair

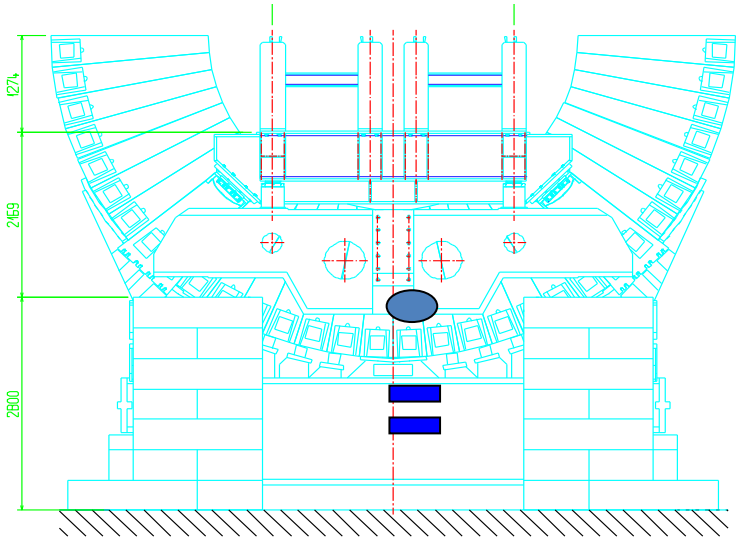
Beam scintillators

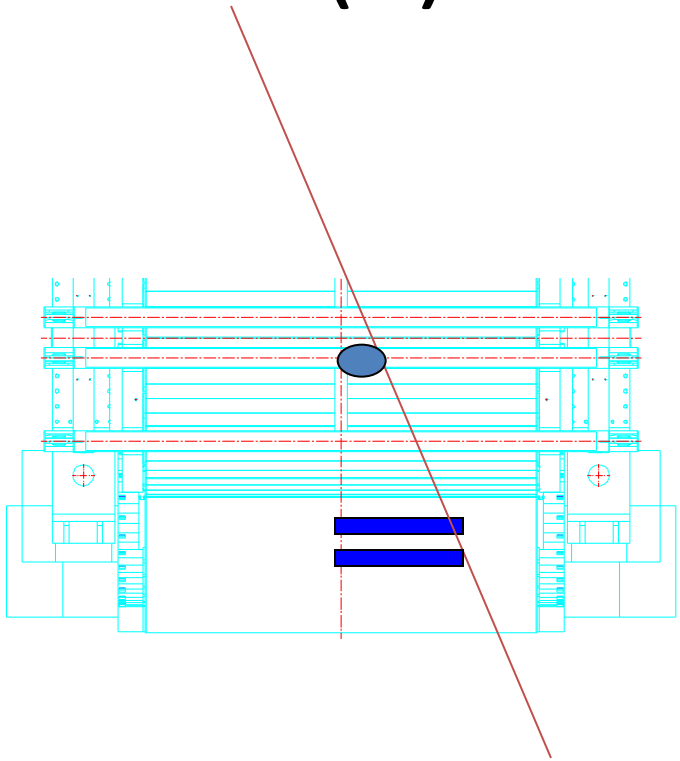


MONITOR 1 (40cm*20cm)

- 2 scintillators fixed ~ 50 cm below the barrel center)
- Cover 5+5 towers in +- eta

Beam scintillators (2)

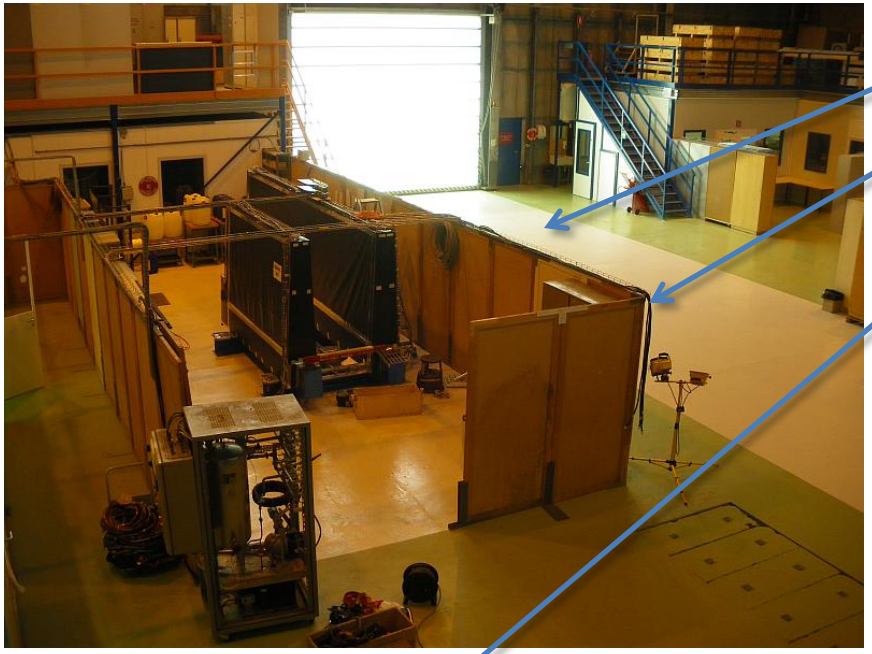


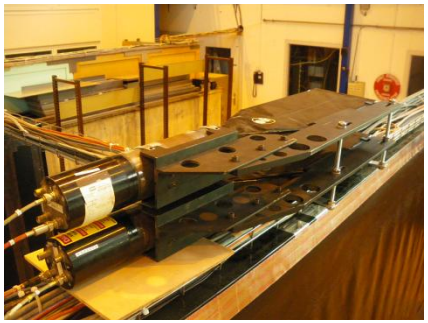


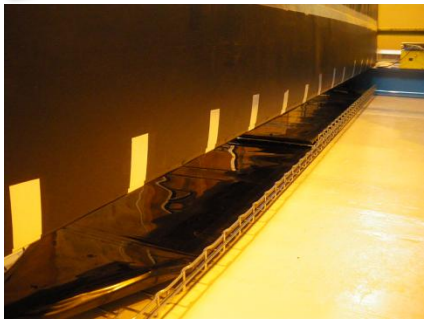
MONITOR 2 (185cm*40cm)

- 2 scintillators underneath of the barrel bottom part R(ATLAS) = 430cm in coincidence
- Cover one module in phi and 2 towers in eta at 0.05 and 0.15 (z = 0 to 180 cm)

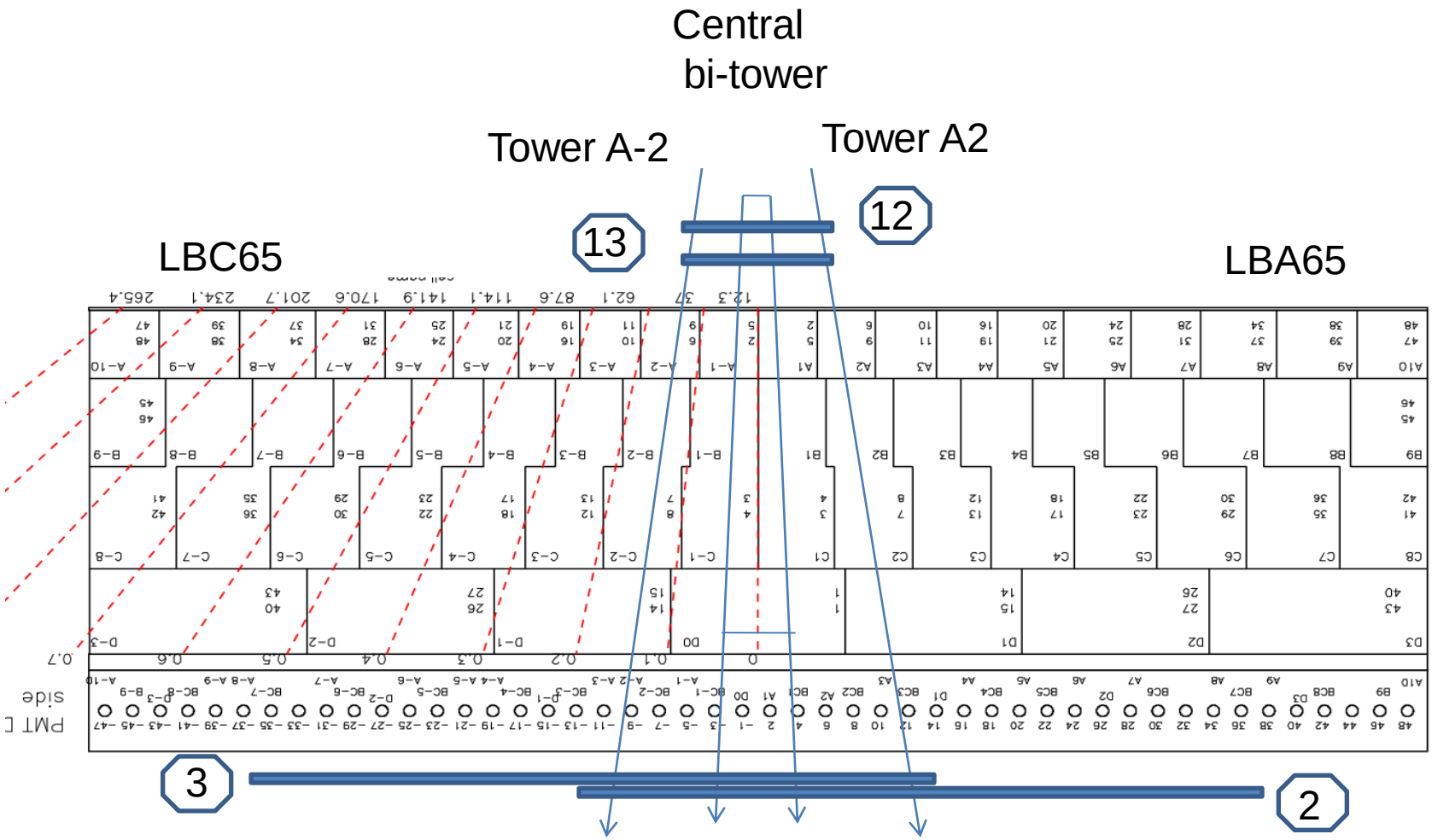
B.175 status







- Floors painted
- Cesium zone enlargement is in progress
- Cosmic ray trigger
  - Installed top/bottom scintillator pairs for long barrel module
- New activity
  - Pilot project for visual guidance/step system for complex procedures in limited time (like ALARA) – using Tile drawer maintenance as an example



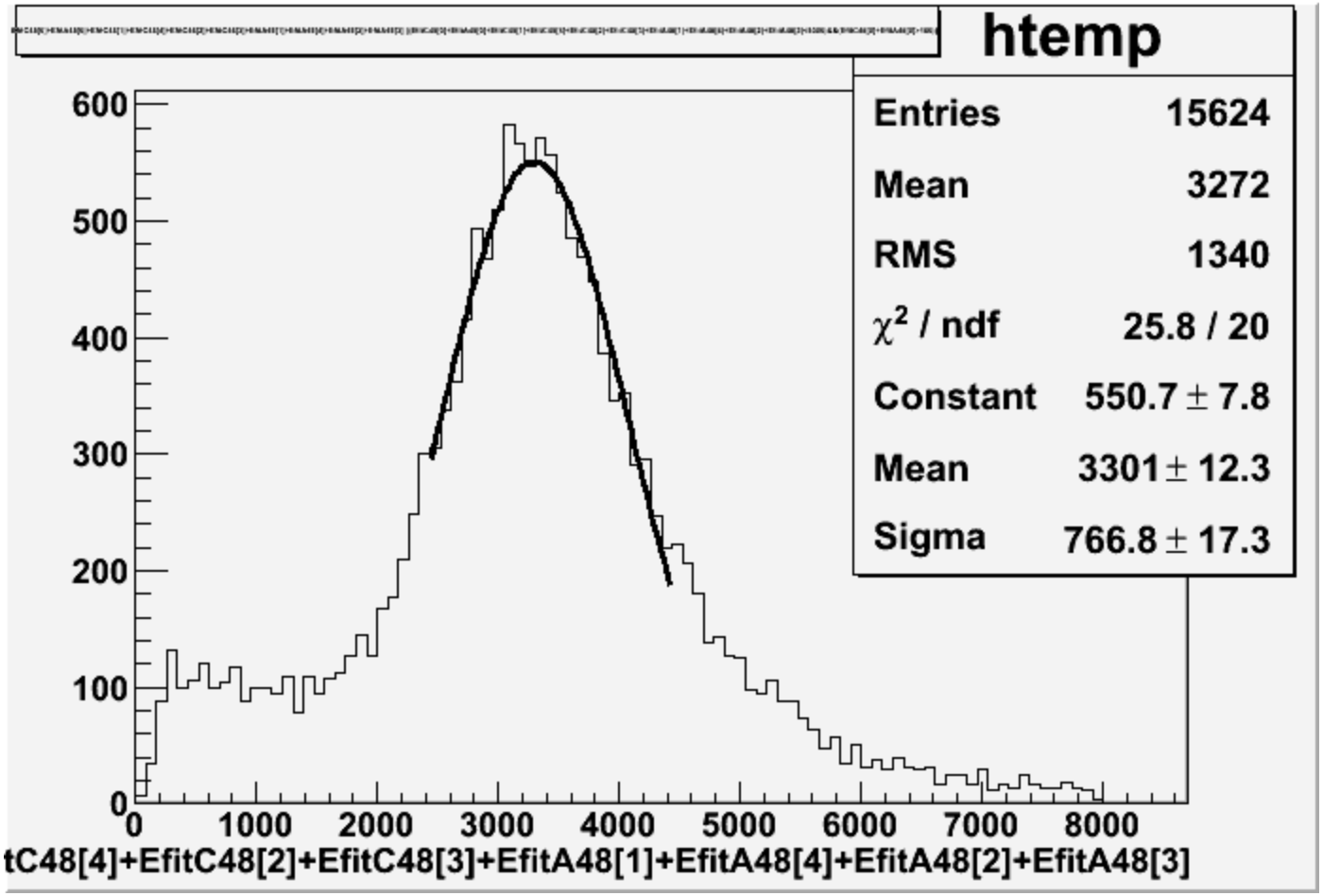
Cosmic muons trigger: (12 AND 13) AND (2 OR 3) (~0.13 Hz)

Central bi-tower = cells: A1 , A-1, B1, B-1, D0; Efit(mu) ~ 3.3 GeV

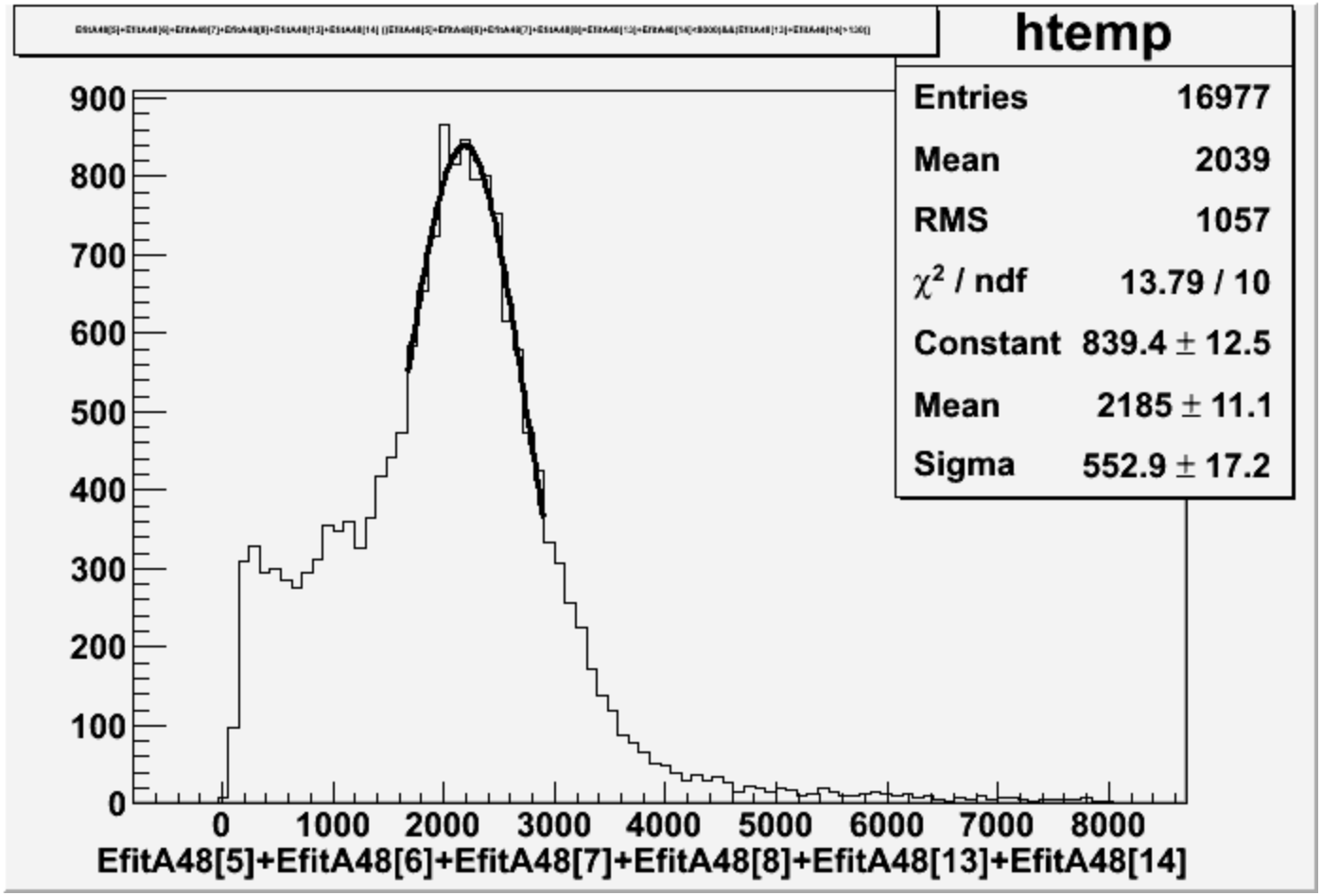
LBC Tower A-2 = cells: A-2, B-2, D -1; Efit(mu) ~ 2.5 GeV

LBA Tower A2 = cells: A2, B2, D 1; Efit(mu) ~ 2.5 GeV

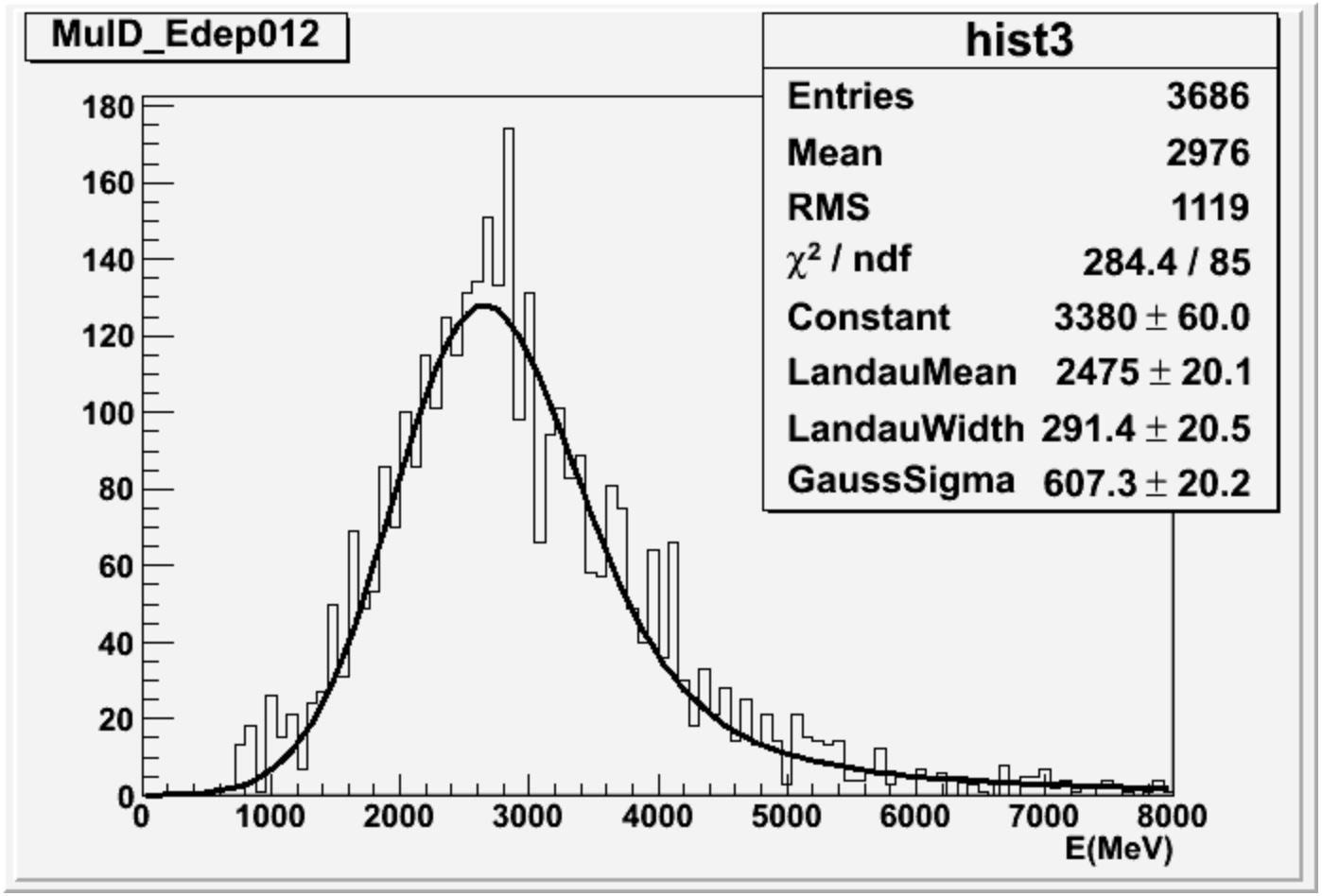
Efit (Sum of PMTs) Central bi-tower



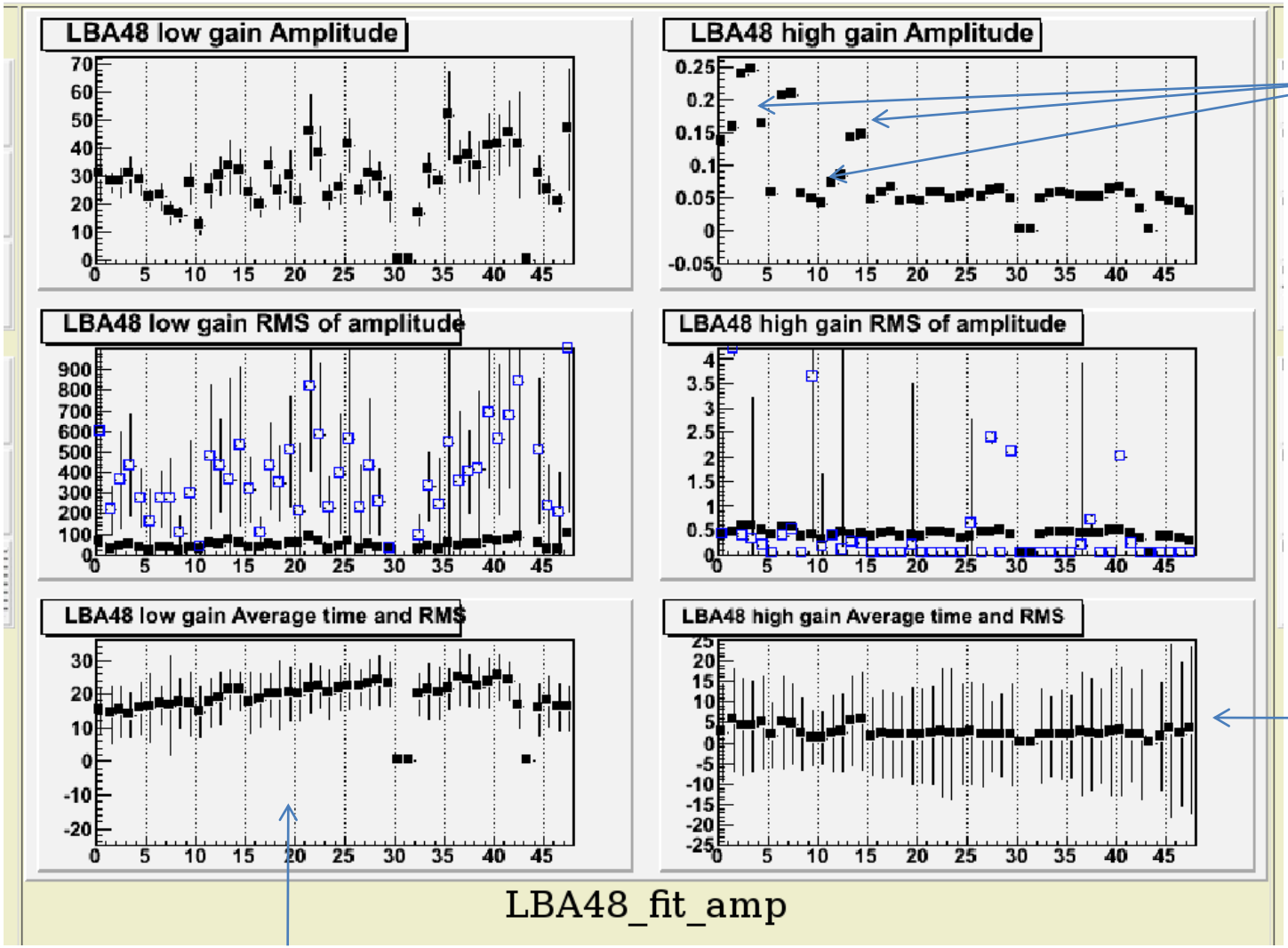
Efit (Sum of PMTs) LBA Tower A2



Trial to use TileMuId variables



Run 1251471087 Phys 12514710xx r



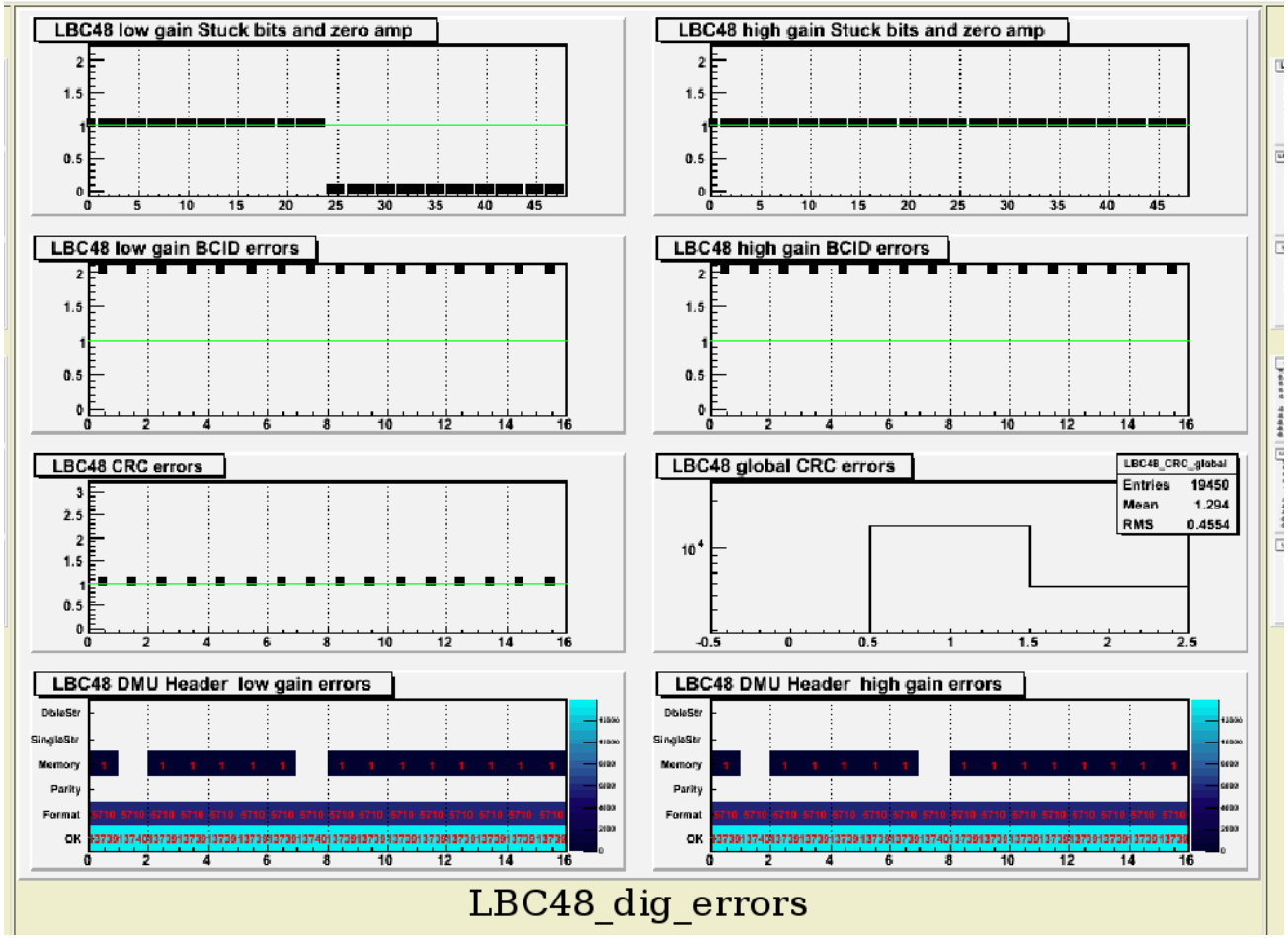
PMTs with signals

Good timing For HG ampli

Only permil fraction of LG events

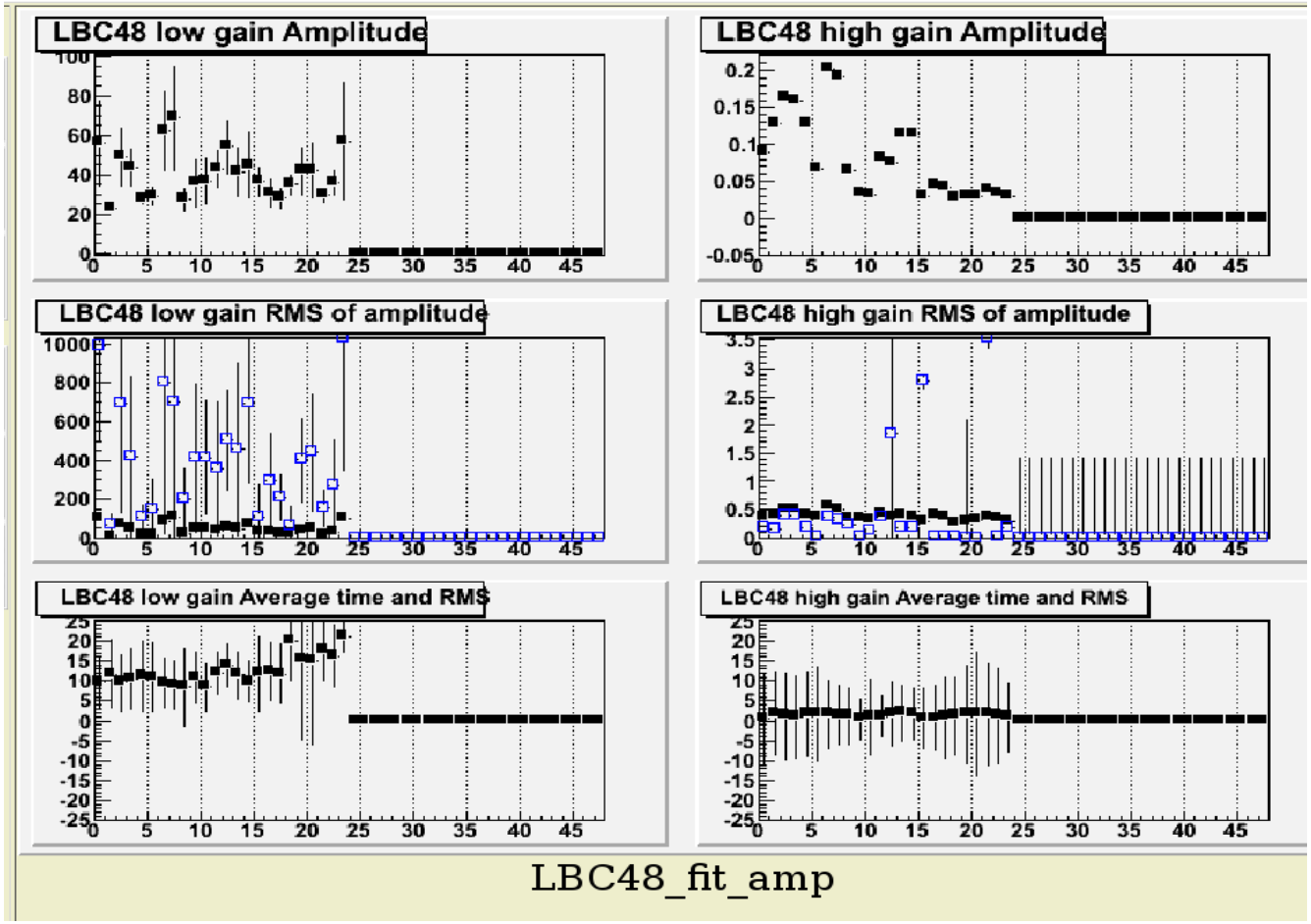
LBC module with problems

Run 1251471087 Phys 12514710xx r



LBC digi ampli from ½ S-D are zero

Run 1251471087 Phys 12514710xx run



Zeroes in external LBC65 drawer confirmed by DUMP

2 extra words: 4294967295 (0xffffffff) 2224767353 (0x849b4179)

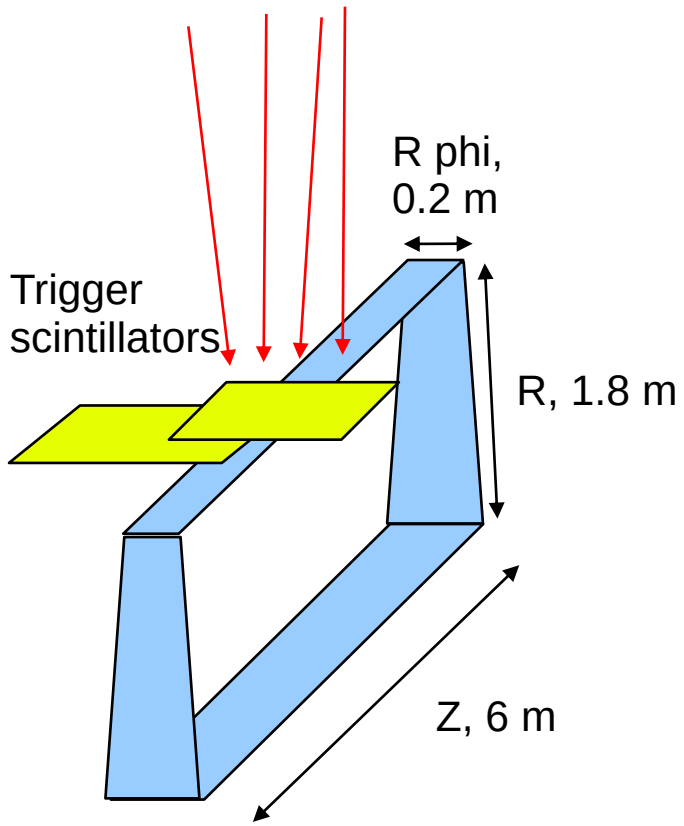
PMT	Ch	BCID	M	G	0	1	2	3	4	5	6	Head/Data/CRC
1	0	986	0	1	45	39	41	42	43	41	43	0xda0c73da Head
2	1			1	39	39	38	42	42	42	38	0x42209c2d Data
3	2			1	34	30	31	31	34	30	32	0x4e752f80 CRC
4	3	986	0	1	49	46	48	48	50	48	50	0x980c73da Head
5	4			1	50	47	47	50	50	47	48	0x02f0c831 Data
6	5			1	47	44	46	48	49	46	47	0x58b40af1 CRC
7	6	986	0	1	34	31	33	34	32	30	35	0xda0c73da Head
8	7			1	43	44	46	45	45	45	50	0x02a0ac22 Data
9	8			1	42	40	41	41	41	40	41	0x4356ed09 CRC
10	9	986	0	1	32	35	35	35	34	36	35	0xda0c73da Head
11	10			1	37	38	35	37	39	39	40	0x41d09420 Data
12	11			1	29	28	30	31	30	30	31	0x78ef1102 CRC
13	12	986	0	1	49	49	49	50	49	49	51	0xda0c73da Head
14	13			1	56	55	57	61	57	57	57	0x42d0e031 Data
15	14			1	45	47	47	49	46	46	47	0x19c55b49 CRC
16	15	986	0	1	65	68	67	67	67	66	67	0xda0c73da Head
17	16			1	66	67	68	67	68	66	68	0x44210841 Data
18	17			1	66	70	67	70	66	66	69	0x3aacb51f CRC
19	18	986	0	1	37	31	35	35	35	36	35	0xda0c73da Head
20	19			1	43	34	39	38	41	38	41	0x01d0ac25 Data
21	20			1	29	23	30	29	28	30	31	0x42ef0603 CRC
22	21	986	0	1	51	48	51	51	50	50	51	0x980c73da Head
23	22			1	50	46	51	52	49	48	49	0x02e0c833 Data
24	23			1	46	43	43	48	48	46	49	0x7b969364 CRC
27	24	986	0	0	0	0	0	0	0	0	0	0x9a0c03da Head
26	25			0	0	0	0	0	0	0	0	0x40000000 Data
25	26			0	0	0	0	0	0	0	0	0x3ec61e71 CRC
30	27	986	0	0	0	0	0	0	0	0	0	0x9a0c03da Head
29	28			0	0	0	0	0	0	0	0	0x40000000 Data
28	29			0	0	0	0	0	0	0	0	0x3ec61e71 CRC
--	30	986	0	0	0	0	0	0	0	0	0	0x9a0c03da Head
--	31			0	0	0	0	0	0	0	0	0x40000000 Data
31	32			0	0	0	0	0	0	0	0	0x3ec61e71 CRC
36	33	986	0	0	0	0	0	0	0	0	0	0x9a0c03da Head
35	34			0	0	0	0	0	0	0	0	0x40000000 Data
34	35			0	0	0	0	0	0	0	0	0x3ec61e71 CRC
39	36	986	0	0	0	0	0	0	0	0	0	0x9a0c03da Head
38	37			0	0	0	0	0	0	0	0	0x40000000 Data
37	38			0	0	0	0	0	0	0	0	0x3ec61e71 CRC
42	39	986	0	0	0	0	0	0	0	0	0	0x9a0c03da Head
41	40			0	0	0	0	0	0	0	0	0x40000000 Data
40	41			0	0	0	0	0	0	0	0	0x3ec61e71 CRC
45	42	986	0	0	0	0	0	0	0	0	0	0x9a0c03da Head
--	43			0	0	0	0	0	0	0	0	0x40000000 Data
43	44			0	0	0	0	0	0	0	0	0x3ec61e71 CRC
48	45	986	0	0	0	0	0	0	0	0	0	0x9a0c03da Head
47	46			0	0	0	0	0	0	0	0	0x40000000 Data
46	47			0	0	0	0	0	0	0	0	0x3ec61e71 CRC

/tmp/tilebeam/1251471087_0_10.dump lines 963-1016/10860 9%

Conclusions

- Cosmics muons data triggered on long LB65 barrel at bat.175 become standard tilecal data. Thanks to Carlos, Luca, Sasha (new tag: “doLab”)
- First energy spectra looks promising, further tuning is need to reach precision for long time stability studies
- Using DQ-validator methods problems were found for LBC65 Super-Drawer; HW repair was started

Cosmic setup at CERN-Meyrin, B175



- Interest:
- Measure z coordinate of the impact point and phi
- Precision:
  - z: < 1 mm
  - Phi: < 2 mrad
- Area:
  - ~100 mm z
  - ~200 mm R x phi
- Rate: 0.01 /cm^2 /s

Possible arrangement

- 2 SiLC modules above
- Strips perpendicular to z
- Angular precision: 100 microns/100 mm=1 mrad
- DAQ: synchronized with common trigger and busy signals (at rate ~ 1 Hz/wafer should be no problem)