

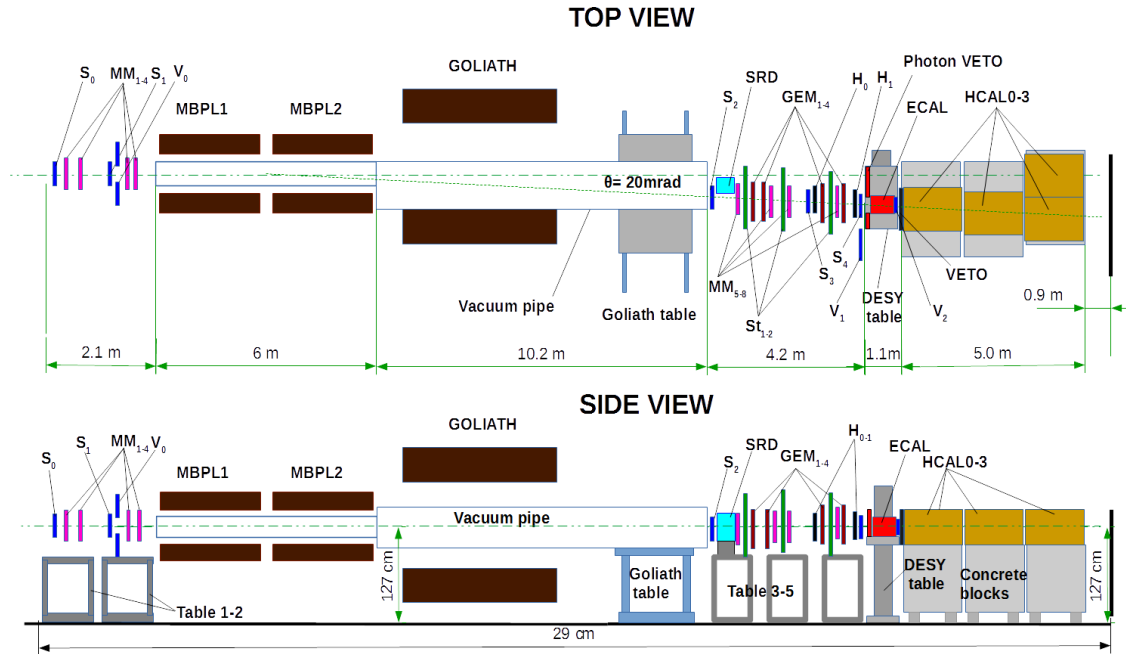
## Short logbook, 30August – 2 October 2017.

**30 August** start of run.

Installation from 9:00 30.08 up to 17:00 30.08.

**31 August.** Safety inspection at 15:30.

### NA64 setup for invisible mode.



**1 September:** Calibration, commissioning, tuning beam and detectors.

14:00. Switch to 0 degree production, high intensity electron beam. Beam tuning by Nicos.

**2 September:** 0:00; HCAL3 HV adjustment and calibration;

0-2-3 A=2445 HV=942	1-2-3 A=2470 HV=910	2-2-3 A=2380 HV=990
0-1-3 A=2501 HV=830	1-1-3 A=2423 HV=820	2-1-3 A=2540 HV=930
0-0-3 A=2528 HV=885	1-0-3 A=2501 HV=830	2-0-3 A=2400 HV=838

HCAL2 HV adjustment and calibration;

0-2-2 A=2480 HV=940	1-2-2 A=2559 HV=780	2-2-2 A=2546 HV=767
0-1-2 A=2433 HV=690	1-1-2 A=2521 HV=830	2-1-2 A=2570 HV=846
0-0-2 A=2421 HV=802	1-0-2 A=2568 HV=878	2-0-2 A=2459 HV=860

**3 September:**

Night shift – Ecal precalibration, HV tuning

HCAL1 HV adjustment and calibration;

0-2-1 A=2591 HV=	1-2-1 A=2450 HV=	2-2-1 A=2566 HV=
0-1-1 A=2467 HV=	1-1-1 A=2536 HV=	2-1-1 A=2558 HV=
0-0-1 A=2453 HV=	1-0-1 A=2520 HV=	2-0-1 A=2499 HV=

HV code saved.

**4 September:**

Ecal calibration.

Beam tuning, beam file H4A.NA64.004 high intensity from Nicos.

COLL: 1 -  $\pm 20$ ; 2 -  $\pm 40$ ; 3 -  $\pm 40$ ; 4 -  $\pm 40$ ; 5 -  $\pm 10$ ; 6 -  $\pm 35$ ; 7 -  $\pm 35$ ; 8 -  $\pm 5$ ; 9 -  $\pm 10$ ; 10 -  $\pm 10$ ;

$S_0 = 3.08 \times 10^6$ ,  $S_1 = 3.10 \times 10^6$ ,  $V_0 = 3.9 \times 10^5$

**5 September:**

HCAL0 HV adjustment and calibration;

0-2-0 A=2517 HV= 652	1-2-0 A=2506 HV=841	2-2-0 A=2495 HV=700
0-1-0 A=2494 HV=772	1-1-0 A=2502 HV=712	2-1-0 A=2484 HV=751
0-0-0 A=2483 HV=665	1-0-0 A=2510 HV=864	2-0-0 A=2500 HV=747

Scan HCAL0 central counter:

First scan : Vertical position is +167 (center of cell), Horizontal position changes from left edge -20mm to right edge +20mm with step 20mm.

Runs 2911-2923

Run #2924 - 36 spills in center of HCAL0

Second scan : Vertical position is +147 (20mm above center of cell), Horizontal position changes from left edge -20mm to right edge +20mm with step 20mm.

Runs 2925-2937

Third scan : Vertical position is +187 (20mm beyond center of cell), Horizontal position changes from right edge +20mm to left edge -20mm with step 20mm.

Runs 2938-2950

Switch ON MBPL magnets, I = -800A, deflection of beam on Ecal front plane is 390 mm.

Tuning deflected beam;

### **6 September:**

Ecal calibration, runs in elog. MD

### **7 September:**

Scan central 3x3 cells of Ecal, runs in elog. MD

Beam file H4A.NA64.017, tuning beam;

SRD calibration: MIP amplitude: SRD0 – 1050; SRD1 – 1070; SRD2 – 1040;

Run 3093, hadron 100GeV, Trig = S0+S1-V0+S2+S4 = 17.5x10<sup>3</sup>, 60 spill

Run 3094, electron 100GeV, Trig = S0+S1-V0+S2+S4 = 3x10<sup>6</sup>, 60 spill

### **8 September:**

First VETO calibration, results in elog. Nicos beam tuning:

In front of MBPL sigma X = 8mm; sigma Y = 8mm; V0 – 10%; S0 – 3x10<sup>6</sup>

### **9 September:**

Ecal recalibration, runs in elog; from 3119 – 3159

Runs 3162 – 3167 problems with MM and GEM read out.

		Total electrons =				x10 <sup>6</sup>			
Nruns	Spills	S01V,10 <sup>3</sup>	SV,10 <sup>3</sup>	Trig,10 <sup>3</sup>	SVbusy,10 <sup>3</sup>	SVbusy*Spills,10 <sup>6</sup>	Trig.reduction	Ntrig.,10 <sup>3</sup>	
3170	200	2700,0	1500,0	3,00	1330,0	266,0	500,0		
3173	200	2600,0	1460,0	2,60	1300,0	260,0	561,5		
3174	200	2820,0	1560,0	2,70	1350,0	270,0	577,8		
3175	200	2830,0	1570,0	2,80	1360,0	272,0	560,7		
3176	130	2760,0	1520,0	2,58	1320,0	171,6	589,1		
3177	200	2760,0	1520,0	2,58	1310,0	262,0	589,1		
3178	200	2280,0	1260,0	2,54	1100,0	220,0	496,1		
3179	31	2280,0	1260,0	2,54	1100,0	34,1	496,1		
3180	200	2500,0	1400,0	2,51	1280,0	256,0	557,8		
3181	200	2670,0	1520,0	2,70	1320,0	264,0	563,0		

**Total electrons → 2.3x10<sup>9</sup>, check all detectors;**

### **10 September:**

Latency for hodoscope ADC was increased on 50ns from run 3182.

15:30 run 3183, hadron, Trig = SV; V2 off;

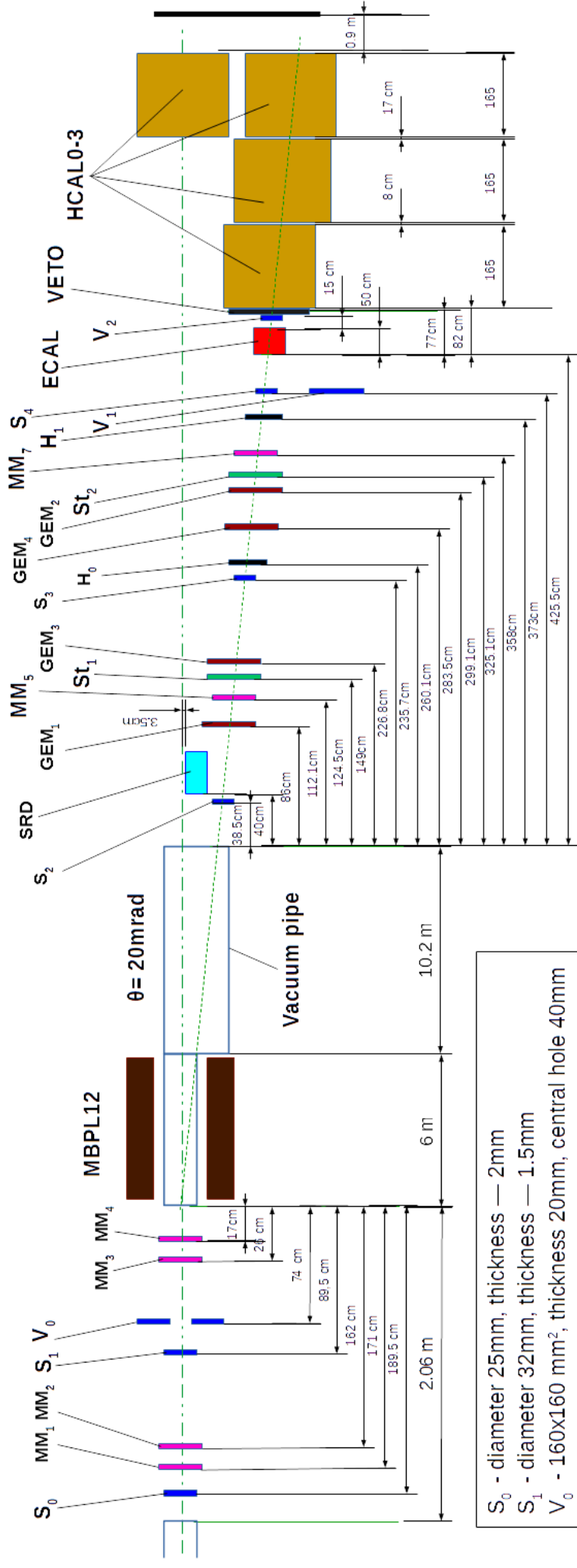
Calibration of VETO, V1, V2

VETO: MIPs V0-0 = 590; V1-0 = 501; V21-0=590; V3-0=637; V4-0=610; V5-0=566;

V1 = 633; V2 = 830;

V1 position, size -- 220x220 mm<sup>2</sup> thickness 10mm, center of V1 shift to Saleve on 400mm with respect to center of Ecal.

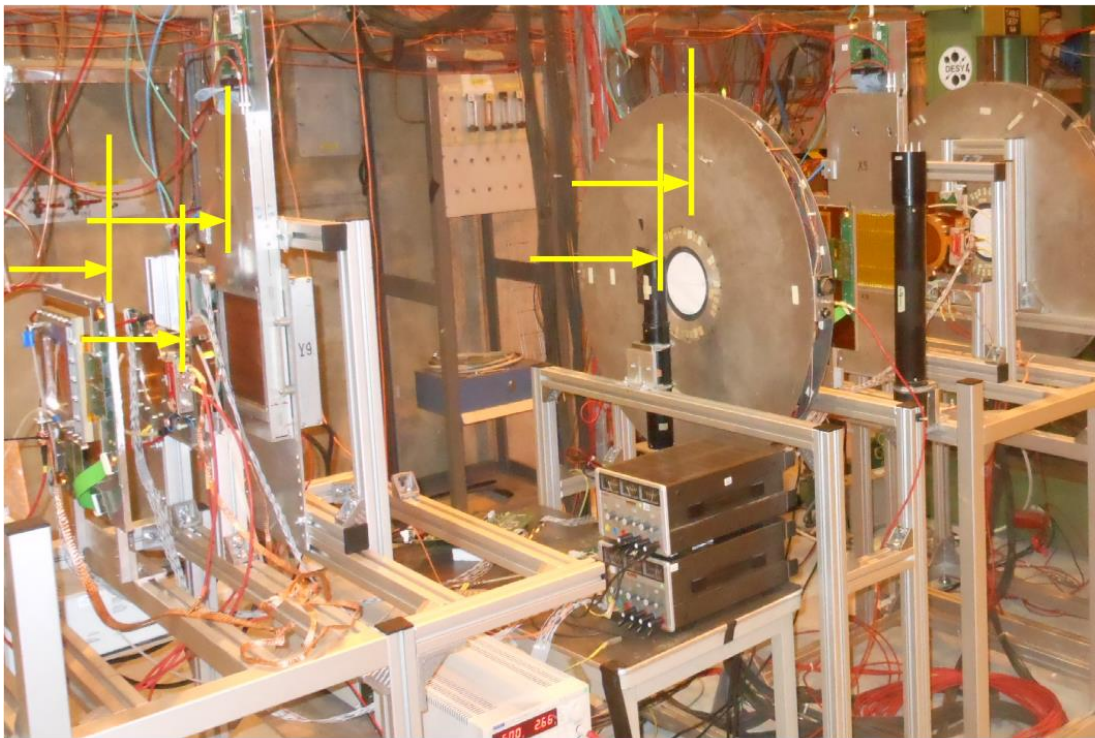
## TOP VIEW invisible mode



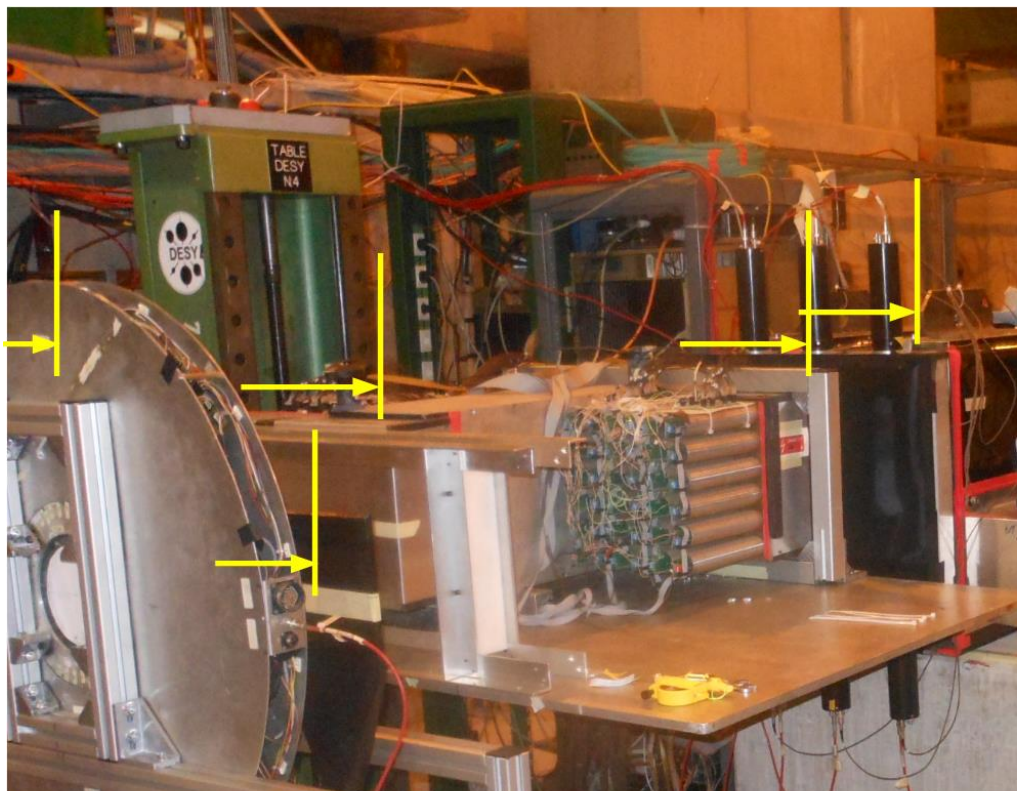
$S_0$  - diameter 25mm, thickness — 2mm  
 $S_1$  - diameter 32mm, thickness — 1.5mm  
 $V_0$  - 160x160 mm<sup>2</sup>, thickness 20mm, central hole 40mm diameter

$S_0$  - diameter 25mm, thickness — 2mm;  
 $S_2, S_3, S_4$  - diameter 32mm, thickness — 1.5mm;  
 $V_1$  - 220x220 mm<sup>2</sup>, thickness 10mm;  
 $V_2$  - 160x160 mm<sup>2</sup>, thickness 20mm;  
 Deviation from «0» line:  
 $S_2$  - 29.5 cm;  $S_3$  — 34.5cm;  $S_4$  — 37.7cm  
 SRD - 3.5cm, size — 21x8x30 cm<sup>3</sup>;  
 $V_1$  center — 80cm;  
 Ecal center — 39 cm;

GEM numbering after vacuum pipe — 1, 3, 4, 2
MM numbering before vacuum pipe — 1, 2, 3, 4
MM numbering after vacuum pipe — 5, 7
HCAL0-3 size 60x60x165 cm <sup>3</sup>
Deviation from «0» line:
HCAL0 — 40.5 cm;
HCAL1 — 44.5 cm;
HCAL2 — 60 cm;
HCAL3 — 0 cm;



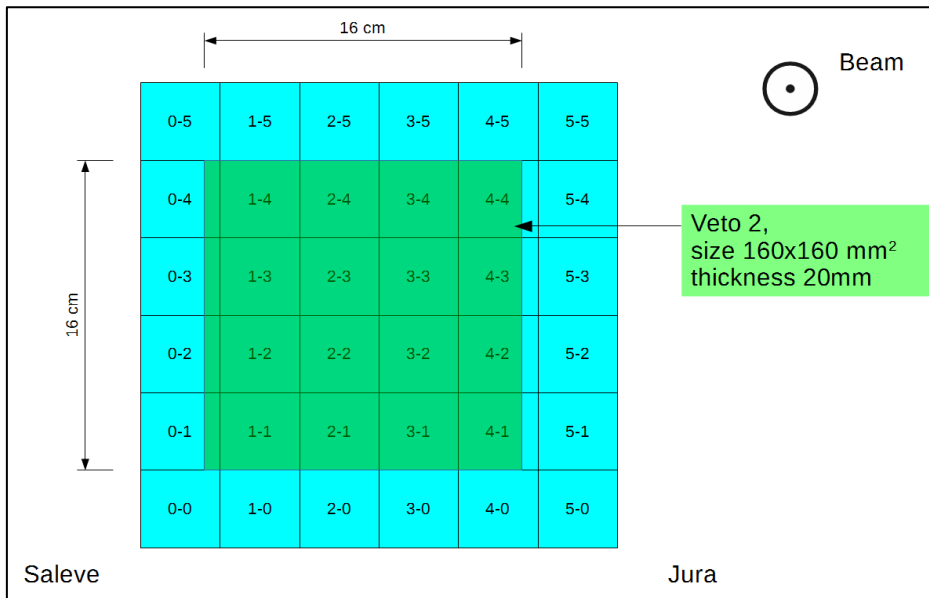
GEM position — support Al plate; MM — support plate; Straw — Al plate;  
Scintillator — center of scintillator; hodoscope — Al disc;



hodoscope — Al disc; V1 and S4 — center of scintillator; Ecal — first layer;  
Veto — center of scintillator; Hcal — first iron plate;

Veto 2 installed behind ECAL, position on fig.





S2 shaper output connected to 623-2-15, T2 counter name; valid from run 3190.

19:30 run 3191, 50GeV electron, Trig = SV; 100spill, S0 – 10\*6

20:20 run 3192, 50GeV hadron, Trig = SV; 171spill, S0 – 3\*10\*4

21:30 run 3193, 100GeV hadron, Nspill =102; Trig = SV; Ntrig = 11k

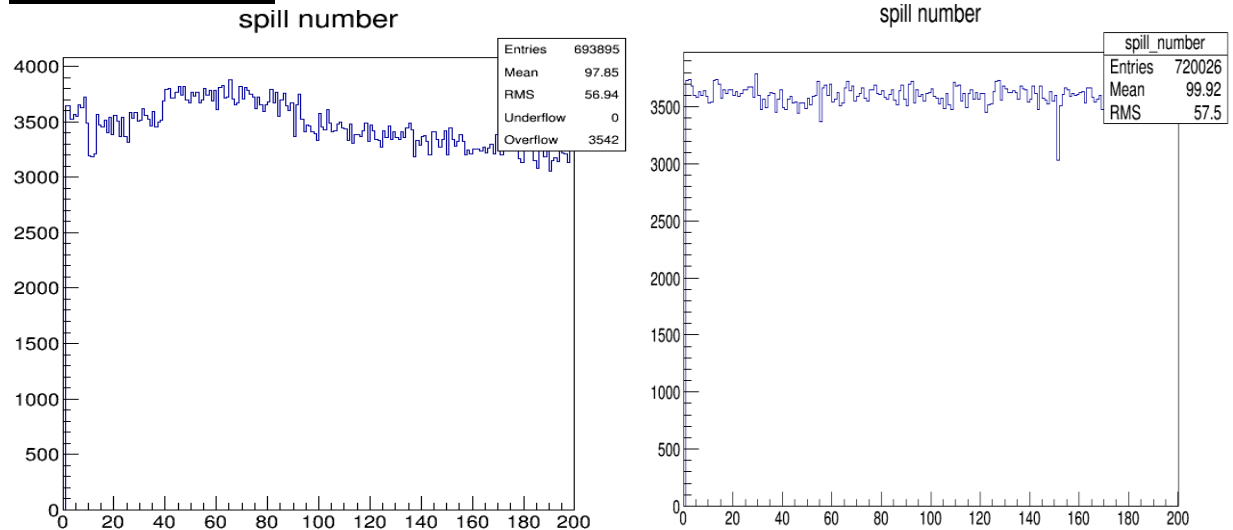
22:20 run 3194, 100GeV electron, Trig = SV; Ntrig = 25k; S0 – 3.7\*10\*6

22:50 run 3195, 100GeV electron, Trig = SVPsh; Ntrig = 25k

**SV = S0+S1+S2+S3+S4-V0; Trig = SV+Psh-Ecal;**

Nruns	Spills	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3196	200	3200,0	1750,0	4,20	1360,0	272,0	416,7	712,8	297	good

**11 September; 0:00**

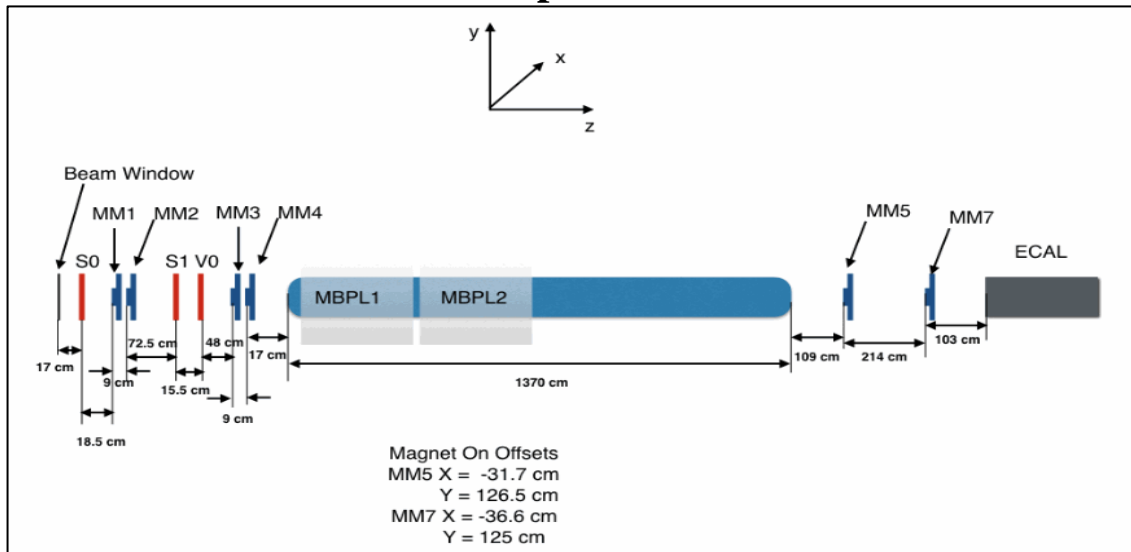


Unstable run 3198 and good run 3203.

		Total electrons		1475,2		x10*6					
Nruns	Spills	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6		
3197	200	3430,0	1790,0	4,19	1370,0	274,0	427,2	717,5	306,5	good	
3198	200	3090,0	1600,0	3,93	1250,0	250,0	407,1	693,9	282,5	unstable	
3199	200	3350,0	1740,0	4,19	1340,0	268,0	415,3	706,0	293,2	good	
3200	200	3480,0	1810,0	4,63	1370,0	274,0	390,9	714,5	279,3	unstable	
3201	200	3440,0	1800,0	4,32	1310,0	262,0	416,7	752,7	313,6	unstable	

**Total electrons  $\rightarrow 1.8 \times 10^9$**

**MM position:**



**11 September; 8:00**

Total electrons = <b>1367,2</b> <b><math>\times 10^6</math></b>										
Nruns	Spills	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spill s, 10*6	Trig.reduc tion	Ntrig., 10*3	Ntot., 10*6	
3202	200	3490,0	1910,0	4,62	1390,0	<b>278,0</b>	413,4	728,6	<b>301,2</b>	good
3203	200	3360,0	1770,0	4,22	1321,0	<b>264,2</b>	419,4	720,0	<b>302,0</b>	good
3204	200	3330,0	1760,0	4,22	1325,0	<b>265,0</b>	417,1	739,4	<b>308,4</b>	good
3206	200	2950,0	1820,0	4,18	1420,0	<b>284,0</b>	435,4	761,8	<b>331,7</b>	unstable
3207	82	3215,0	1920,0	4,51	1562,0	<b>128,1</b>	425,7	291,2	<b>124,0</b>	good

**Total electrons  $\rightarrow 1.4 \times 10^9$  ( **$3.2 \times 10^9$** )**

**11 September; 16:00**

Total electrons = <b>1401,4</b> <b><math>\times 10^6</math></b>										
Nruns	Spills	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spill s, 10*6	Trig.reduc tion	Ntrig., 10*3	Ntot., 10*6	
3209	200	2820,0	1760,0	4,48	1410,0	<b>282,0</b>	392,9	1020,5	<b>400,9</b>	unstable
3210	200	3380,0	2010,0	5,92	1510,0	<b>302,0</b>	339,5	955,2	<b>324,3</b>	good
3211	200	3330,0	2120,0	6,17	1530,0	<b>306,0</b>	343,6	1009,8	<b>347,0</b>	good
3212	200	3160,0	2000,0	6,16	1450,0	<b>290,0</b>	324,7	1013,9	<b>329,2</b>	good

**Total electrons  $\rightarrow 1.4 \times 10^9$  ( **$4.6 \times 10^9$** )**

**12 September; 0:00**

Total electron <b>2266,0</b> <b><math>\times 10^6</math></b>										
Nruns	Spills	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spill s, 10*6	Trig.reduc tion	Ntrig., 10*3	Ntot., 10*6	
3213	200	3090,0	1960,0	6,56	1400,0	<b>280,0</b>	298,8	1014,1	<b>303,0</b>	good
3214	200	3290,0	2020,0	6,39	1470,0	<b>294,0</b>	316,1	968,4	<b>306,1</b>	unstable
3215	200	3060,0	1940,0	6,72	1420,0	<b>284,0</b>	288,7	1037,2	<b>299,4</b>	good
3216	200	3190,0	2010,0	7,08	1490,0	<b>298,0</b>	283,9	1064,4	<b>302,2</b>	good
3217	81	3350,0	2150,0	7,16	1500,0	<b>121,5</b>	300,3	439,0	<b>131,8</b>	good
3218	200	3270,0	2060,0	6,95	1460,0	<b>292,0</b>	296,4	1032,0	<b>305,9</b>	unstable
3219	200	3330,0	2040,0	6,86	1480,0	<b>296,0</b>	297,4	1043,4	<b>310,3</b>	good
3220	200	2940,0	1940,0	6,11	1420,0	<b>284,0</b>	317,5	967,7	<b>307,3</b>	unstable

**Total electrons  $\rightarrow 2.3 \times 10^9$  ( **$6.9 \times 10^9$** )**

**12 September; 8:00**

				Total electrons		1087,2	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*S pills, 10*6	Trig.redu ction	Ntrig., 10*3	Ntot., 10*6	
3221	200	3700,0	3100,0	1950,0	6,74	1390,0	278,0	289,3	1069,6	309,5	good
3222	90	3335,0	2970,0	1865,0	6,32	1340,0	120,6	295,1	471,7	139,2	good
3223	200	3520,0	3210,0	1840,0	7,11	1365,0	273,0	258,8	939,8	243,2	unstable
3224	200	2930,0	2600,0	1630,0	5,21	1230,0	246,0	312,9	825,9	258,4	unstable
3227	74	2985,0	2755,0	1550,0	5,50	1140,0	84,4	281,8	486,0	137,0	unstable

**Total electrons → 1.1x10\*9(8.0x10\*9)**

### 12 September; 16:00

Run 3229 electron 100GeV, Trig = SV, S0 – 3\*10\*6, 50 spill

Run 3230 electron 100GeV, Trig = SVPsh, S0 – 3\*10\*6, 50 spill

				Total electrons		1390,7	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*S pills, 10*6	Trig.re duction	Ntrig., 10*3	Ntot., 10*6	
3231	200	3920,0	3350,0	2080,0	6,39	1480,0	296,0	325,5	882,6	287,3	unstable
3232	200	3700,0	3080,0	1940,0	5,43	1450,0	290,0	357,3	871,3	311,3	good
3233	200	4400,0	3580,0	2270,0	5,47	1630,0	326,0	415,0	919,9	381,8	good
3234	200	4540,0	3800,0	2400,0	6,08	1640,0	328,0	394,7	911,9	360,0	unstable
3235	30	4540,0	3800,0	2400,0	6,08	1640,0	49,2	394,7	127,8	50,4	good

**Total electrons → 1.4x10\*9(9.4x10\*9)**

### 13 September; 0:00

				Total electrons		1979,0	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*S pills, 10*6	Trig.red uction	Ntrig., 10*3	Ntot., 10*6	
3237	200	4600,0	3700,0	2300,0	5,00	1700,0	340,0	460,0	868,3	399,4	good
3238	200	4700,0	3700,0	2500,0	5,43	1800,0	360,0	460,4	873,4	402,1	good
3239	200	4580,0	3690,0	2320,0	5,47	1720,0	344,0	424,1	875,5	371,3	good
3240	200	4940,0	4010,0	2530,0	5,61	1740,0	348,0	451,0	875,7	394,9	good
3241	200	4990,0	4020,0	2530,0	5,55	1740,0	348,0	455,9	902,0	411,2	good

**Total electrons → 2.0x10\*9(11.4x10\*9)**

### 13 September; 8:00

				Total electrons		2094,9	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*S pills, 10*6	Trig.red uction	Ntrig., 10*3	Ntot., 10*6	
3243	200	4180,0	3460,0	2180,0	4,92	1580,0	316,0	443,1	816,0	361,6	good
3244	200	3890,0	3150,0	1980,0	4,57	1500,0	300,0	433,3	755,1	327,2	unstable
3245	200	3920,0	3250,0	2170,0	4,55	1550,0	310,0	476,9	700,1	333,9	good
3249	200	4510,0	3610,0	2300,0	5,44	1580,0	316,0	422,8	915,8	387,2	good
3250	200	4510,0	3610,0	2300,0	5,44	1580,0	316,0	422,8	915,8	387,2	good
3257	200	3850,0		1860,0	4,50	1480,0	296,0	413,3	720,7	297,9	unstable

Run 3251 bad run.

**Total electrons → 2.1x10\*9(13.5x10\*9)**

13 September; 11:50 calibration run 3246 trig=SV, 65 spill, SV = 3.3x10\*6

Calibration run 3247 trig=SVPsh, 49spill, SV = 3.3x10\*6

Run 3248 hadron 100GeV, Trig = SV, S0 – 3\*10\*4, 110 spill

No beam from 15:30;

Install 0 degree crystal, connected to 623-3-30, valid from 3257

### 14 September; 0:00

				Total electrons		2347,6	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3258	200	4300,0	3700,0	2000,0	5,00	1700,0	340,0	400,0	873,1	349,2	good
3259	200	4730,0	3780,0	2090,0	5,30	1730,0	346,0	394,3	854,6	337,0	good
3260	200	4520,0	3780,0	1990,0	5,10	1690,0	338,0	390,2	846,6	330,3	good
3261	200	4700,0	3700,0	2000,0	5,20	1620,0	324,0	384,6	887,8	341,5	good
3262	200	4600,0	3800,0	2100,0	5,30	1700,0	340,0	396,2	904,2	358,3	good
3263	200	4800,0	3900,0	2100,0	5,70	1760,0	352,0	368,4	827,2	304,8	unstable
3264	200	3800,0	3140,0	1770,0	4,50	1520,0	304,0	393,3	830,2	326,5	unstable

**Total electrons → 2.3x10\*9(15.8x10\*9)**

**14 September; 8:00**

				Total electrons		1168,5	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3265	200	4800,0	3870,0	2120,0	5,38	1740,0	348,0	394,1	582,3	229,5	good
3266	200	4200,0	3790,0	2100,0	5,47	1740,0	348,0	383,9	791,9	304,0	good
3267	200	4830,0	3980,0	2120,0	5,52	1740,0	348,0	384,1	881,3	338,5	unstable
3268	200	3760,0	3060,0	1720,0	4,34	1490,0	298,0	396,3	748,3	296,6	unstable

**Total electrons → 1.2x10\*9(17.0x10\*9)**

**14 September, 14:00 intensity on T2 55x10<sup>11</sup>; ZC (crystal, 25mm diameter remove from beam)**

				Total electrons		2594,1	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3271	200	4970,0	4310,0	2320,0	5,00	1890,0	378,0	378,0	881,7	333,3	unstable
3272	200	5890,0	4770,0	2970,0	4,98	2500,0	500,0	502,0	911,4	457,5	unstable
3273	200	5970,0	4750,0	3000,0	5,04	2480,0	496,0	492,1	907,3	446,4	good
3274	200	6020,0	4890,0	3020,0	5,21	2550,0	510,0	489,4	962,7	471,2	good
3275	200	5910,0	4830,0	3030,0	5,10	2570,0	514,0	503,9	910,9	459,0	good
3276	200	5680,0	4650,0	2890,0	5,12	2440,0	488,0	476,6	895,3	426,7	good

**SV = S0+S1+S2+S3+S4-V0; Trig = SV+Psh-Ecal;**

**Total electrons(high intensity) → 2.6x10\*9**

**15 September, 0:00;**



Total electrons : <b>4217,3 x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3277	199	5260,0	4270,0	2670,0	4,62	2280,0	453,7	493,5	831,2	410,2	unstable
3278	188	5970,0	4840,0	3030,0	5,14	2590,0	486,9	503,9	861,2	434,0	unstable
3279	190	5260,0	4240,0	2650,0	4,59	2270,0	431,3	494,6	879,0	434,7	good
3280	160	5880,0	4720,0	2960,0	4,95	2490,0	398,4	503,0	743,3	373,9	good
3281	165	5420,0	4390,0	2740,0	4,84	2320,0	382,8	479,3	757,3	363,0	good
3282	100	5810,0	4850,0	2980,0	5,31	2480,0	248,0	467,0	536,7	250,7	good
3283	194	5540,0	4190,0	2720,0	4,80	2260,0	438,4	470,8	721,3	339,6	unstable
3284	183	5090,0	4100,0	2530,0	4,97	2260,0	413,6	454,7	834,2	379,3	good
3285	195	5820,0	4630,0	2770,0	5,01	2470,0	481,7	493,0	937,7	462,3	good
3286	193	6000,0	4700,0	2960,0	5,05	2500,0	482,5	495,0	915,6	453,3	good

**Total electrons(high intensity) → 4.2x10\*9 (6.8x10\*9)**

**15 September 13:30.**

Calibration run 3287: 100GeV Trig. = SVPsh, 56spills, S1= 5.1x10\*6;SV=2.85x10\*6

Total electrons: <b>2712,3 x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3288	195	5810,0	4570,0	2880,0	4,95	2380,0	464,1	480,8	1001,8	481,7	good
3289	200	5920,0	4590,0	2450,0	4,90	2430,0	486,0	495,9	873,0	432,9	good
3290	171	5920,0	4590,0	2450,0	4,90	2430,0	415,5	495,9	916,8	454,7	good
3291	187	5000,0	4000,0		4,70	2000,0	374,0	425,5	913,0	388,5	good
3292	194	5920,0	4590,0	2450,0	4,90	2430,0	471,4	495,9	1030,0	510,8	good
3293	189	5900,0	4700,0	3000,0	5,60	2460,0	464,9	439,3	1010,0	443,7	good

**Total electrons(high intensity) → 2.7x10\*9 (9.5x10\*9)**

**16September; 0:00**

Total electrons <b>2550,6 x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3294	200	5440,0	4370,0	2790,0	5,35	2280,0	456,0	426,2	1001,3	426,7	good
3295	189	5400,0	4200,0	2600,0	5,23	2200,0	415,8	420,7	987,7	415,5	good
3296	141	5180,0	4160,0	2620,0	5,06	2170,0	306,0	428,9	790,4	339,0	good
3297	190	5800,0	4600,0	2900,0	5,30	2300,0	437,0	434,0	1022,3	443,6	good
3298	200	6030,0	4690,0	2960,0	5,50	2440,0	488,0	443,6	996,8	442,2	good
3299	200	6350,0	4880,0	3080,0	5,60	2460,0	492,0	439,3	1100,9	483,6	good

**Total electrons(high intensity) → 2.6x10\*9 (12.1x10\*9)**

**16 September; 8:00**

Total electrons = <b>2591,0 x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3300	200	5960,0	4630,0	2900,0	5,64	2370,0	474,0	420,2	1075,0	451,7	good
3301	200	6140,0	4720,0	2950,0	5,89	2420,0	484,0	410,9	1054,8	433,4	good
3302	200	5760,0	4550,0	2870,0	4,89	2320,0	464,0	474,4	936,4	444,3	unstable
3303	200	5600,0	4190,0	2640,0	5,45	2160,0	432,0	396,3	1072,0	424,9	unstable
3304	200	5770,0	4470,0	2830,0	5,87	2340,0	468,0	398,6	971,0	387,1	good
3305	200	6070,0	5080,0	3200,0	5,48	2650,0	530,0	483,6	929,9	449,7	unstable

**Total electrons(high intensity) → 2.6x10\*9 (14.7x10\*9)**

**16 September; 16:00**

				Total electrons		2077,8	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.red uction	Ntrig., 10*3	Ntot., 10*6	
3306	200	4850,0	4070,0	2560,0	5,52	2140,0	428,0	463,8	946,7	439,0	good
3307	200	5370,0	4470,0	2800,0	5,08	2340,0	468,0	460,6	963,7	443,9	good
3308	200	5850,0	4820,0	3040,0	5,51	2500,0	500,0	453,7	1043,0	473,2	good
3309	113	6320,0	4950,0	3210,0	5,78	2630,0	297,2	455,0	610,0	277,6	good
3310	200	5700,0	4700,0	2970,0	5,36	2450,0	490,0	457,1	971,4	444,0	unstable

**Total electrons(high intensity) → 2.1x10\*9 (16.8x10\*9)**

**17 September; 0:00**

				Total electrons =		3194,5	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*S pills, 10*6	Trig.red uction	Ntrig., 10*3	Ntot., 10*6	
3311	200	5370,0	4420,0	2780,0	4,90	2330,0	466,0	475,5	975,9	464,1	unstable
3312	200	5940,0	4870,0	3070,0	5,50	2530,0	506,0	460,0	1014,5	466,7	good
3313	200	5260,0	4220,0	2650,0	5,00	2240,0	448,0	448,0	900,0	403,2	unstable
3314	200	6090,0	5000,0	3150,0	5,50	2600,0	520,0	472,7	978,8	462,7	unstable
3315	200	5870,0	4690,0	2950,0	5,50	2460,0	492,0	447,3	971,8	434,7	good
3316	200	5990,0	4770,0	3010,0	5,30	2500,0	500,0	471,7	1074,4	506,8	good
3317	200	6230,0	5020,0	3200,0	5,50	2640,0	528,0	480,0	950,9	456,4	unstable

**Total electrons(high intensity) → 3.2x10\*9 (20.0x10\*9)**

**17 September; 8:00**

			Total electrons			2619,1	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3318	200	5450,0	4330,0	2750,0	5,11	2290,0	458,0	448,1	986,3	442,0	good
3319	200	5940,0	4720,0	2500,0	5,20	2410,0	482,0	463,5	1020,8	473,1	good
3324	200	7310,0	6050,0	3770,0	6,33	2960,0	592,0	467,6	1174,0	549,0	good
3325	200	7660,0	6140,0	3880,0	6,23	3070,0	614,0	492,8	1177,0	580,0	good
3326	200	7670,0	6190,0	3890,0	6,30	3070,0	614,0	487,3	1180,0	575,0	good

**Total electrons(high intensity) → 2.6x10\*9 (22.6x10\*9)**

Calibration run 3321, electron, trig = SVPsh; S0=6.1x10\*6; 50spill

Calibration run 3322, electron, trig = SV; S0=6.1x10\*6; 30spill

Calibration run 3323, hadron, trig = SV; S0=54x10\*3; 112 spill

**17 September; 16:00**

			Total electrons			3935,1	x10*6				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntrig., 10*3	Ntot., 10*6	
3327	200	7550,0	6130,0	3880,0	6,38	3080,0	616,0	482,8	1132,8	546,9	good
3328	200	7590,0	6190,0	3890,0	6,26	3050,0	610,0	487,2	1213,9	591,4	good
3329	197	7860,0	6340,0	3940,0	6,32	3100,0	610,7	490,5	1176,0	576,8	good
3330	200	7590,0	6220,0	3910,0	6,19	3040,0	608,0	491,1	1123,2	551,6	good
3331	200	6390,0	5170,0	3240,0	5,65	2610,0	522,0	461,9	1153,5	532,9	unstable
3332	200	7940,0	6280,0	3950,0	6,60	3360,0	672,0	509,1	1145,6	583,2	unstable
3333	200	8120,0	6000,0	3770,0	6,14	2950,0	590,0	480,5	1149,5	552,3	unstable

**Total electrons(high intensity) → 4.0x10\*9 (26.6x10\*9)**

**18 September; 0:00**

				Total electrons = <b>3440,7 x10<sup>6</sup></b>							
Nruns	Spills	S0,10 <sup>3</sup>	S01V,10 <sup>3</sup>	SV,10 <sup>3</sup>	Trig,10 <sup>3</sup>	SVbusy,10 <sup>3</sup>	SVbusy*Spills, 10 <sup>6</sup>	Trig.reduction	Ntrig., 10 <sup>3</sup>	Ntot., 10 <sup>6</sup>	
3334	200	7900,0	6230,0	3910,0	6,30	3080,0	616,0	488,9	1163,3	568,7	good
3335	200	7500,0	6080,0	3810,0	6,00	3030,0	606,0	505,0	1180,0	595,9	good
3336	200	7930,0	6200,0	3920,0	6,40	3110,0	622,0	485,9	1188,7	577,6	good
3337	200	7800,0	6220,0	3820,0	6,00	3040,0	608,0	506,7	1193,2	604,6	good
3338	167	7750,0	6170,0	3830,0	6,20	3000,0	501,0	483,9	933,4	451,6	goog
3339	200	7840,0	6240,0	3920,0	6,30	3060,0	612,0	485,7	1133,0	550,3	good
3340	31	7920,0	6260,0	3930,0	6,00	3080,0	95,5	513,3	179,0	91,9	good

**Total electrons(high intensity) → 3.5x10<sup>9</sup> (30.1x10<sup>9</sup>)**

**Check background, intensity 3.5x10<sup>6</sup> → 2.3x10<sup>9</sup>**

**Intensity 3.5x10<sup>6</sup> → 17.0x10<sup>9</sup>**

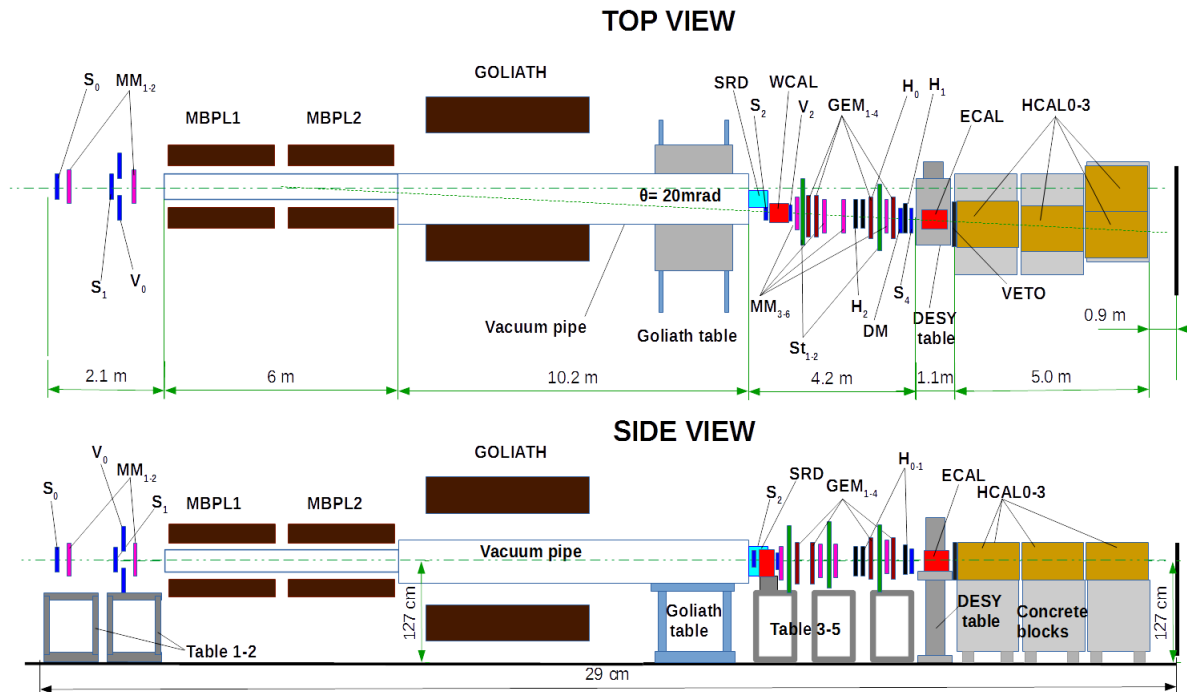
**Intensity 5.5÷7.5x10<sup>6</sup> → 30.1x10<sup>9</sup>**

**Total for invisible mode → 5.0x10<sup>10</sup>**

## Visible mode.

**21 September. Beam back afternoon.**

W em-calorimeter, Veto V2, H2 hodoscope were installed.



Calibration and tuning trigger.

**22 September. 0:00**

Test data taking with Trig. =  $S_0 + S_1 + S_2 - V_0 + W_{psh}(>350\text{MeV}) - W_{cal}(<80\text{GeV})$

Runs 3348-3354

**22 September. 8:00**

Calibration: 100GeV electrons in Wcal = 1600; Wpsh, MIP = 20; Wcat MIP = 32; muons in V2 = 700;

**22 September. 16:00**

20:20 Trig =  $S_0 + S_1 + S_2 - V_0 + W_{psh}(>350\text{MeV}) - \sum W_{cal} > 80\text{GeV}$ ,  $S_0 \sim 3.5 \times 10^6$

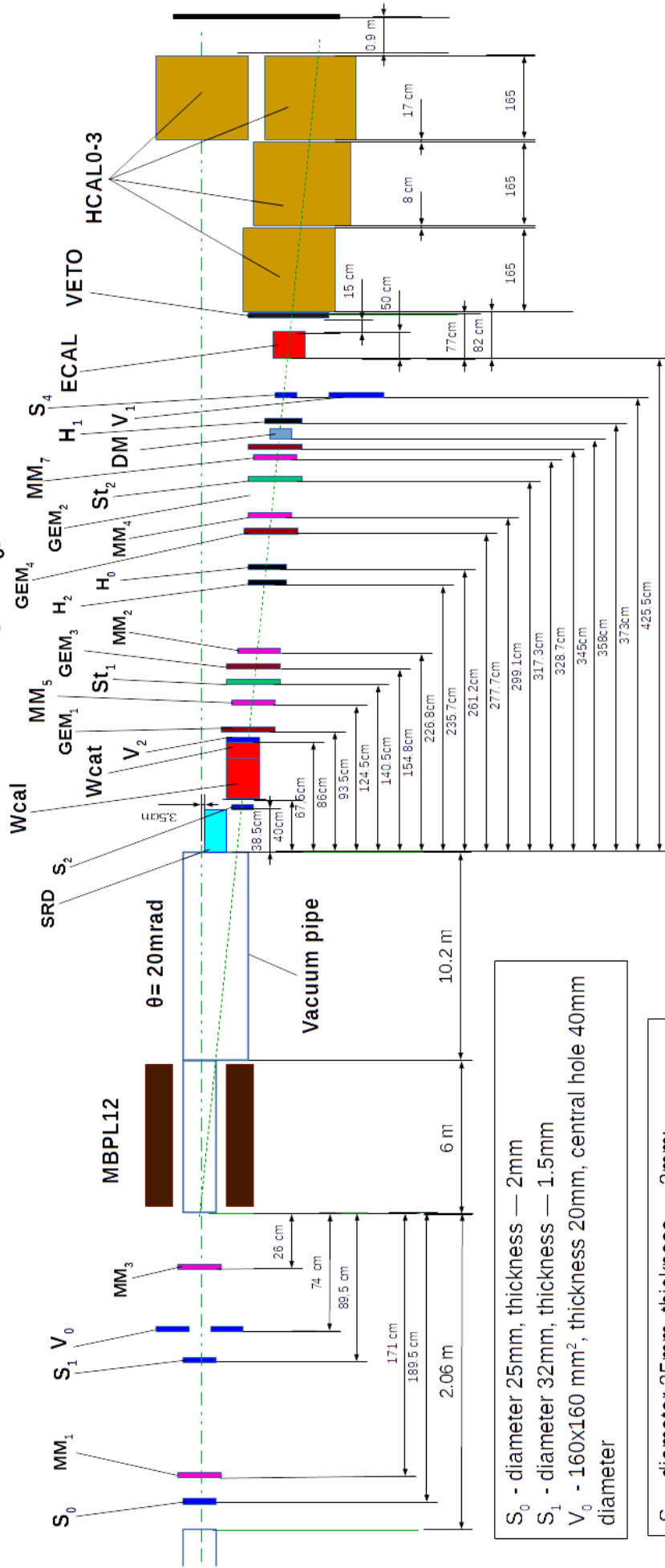
DM counter DM0, DM1 HV – 2200V

Start data taking.

			Total electrons = <b>1181,7 x10*6</b>								
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spill s, 10*6	Trig.reduc tion	Ntarg., 10*3	Ntot., 10*6	
3359	200	3800,0		2900,0	8,60	1700,0	340,0	190,0	1496,9	284,4	good
3360	200	3960,0		2950,0	8,60	1700,0	340,0	190,0	1559,0	296,2	good
3361	200	3240,0	2610,0	2140,0	8,60	1640,0	328,0	190,7	1594,2	304,0	good
3362	200	3060,0		2640,0	8,60	1600,0	320,0	190,0	1563,5	297,1	good

**Total electrons → 1.2x10\*9 (1.2x10\*9)**

# TOP VIEW visible mode (40X<sub>0</sub>)



S<sub>0</sub> - diameter 25mm, thickness — 2mm;  
 S<sub>1</sub> - diameter 32mm, thickness — 1.5mm;  
 V<sub>0</sub> - 160x160 mm<sup>2</sup>, thickness 20mm, central hole 40mm diameter

S<sub>0</sub> - diameter 25mm, thickness — 2mm;  
 S<sub>2</sub>, S<sub>4</sub> - diameter 32mm, thickness — 1.5mm;  
 V<sub>1</sub> - 220x220 mm<sup>2</sup>, thickness 10mm;  
 V<sub>2</sub> - 160x160 mm<sup>2</sup>, thickness 20mm;  
 Deviation from «0» line:  
 S<sub>2</sub> - 29.5 cm; S<sub>3</sub> — 34.5cm; S<sub>4</sub> — 37.7cm  
 SRD - 3.5cm, size — 21x8x30 cm<sup>3</sup>;  
 V<sub>1</sub> center — 80cm;  
 Ecal center — 39 cm;

Wcal size 12x12x20.5 cm<sup>3</sup> 30X<sub>0</sub>  
 Wcatcher size 12x12x7 cm<sup>3</sup> 10X<sub>0</sub>  
 Deviation from «0» line 30cm;

GEM numbering after vacuum pipe — 1, 3, 4, 2  
 MM numbering before vacuum pipe — 1, 3  
 MM numbering after vacuum pipe — 5, 4, 2, 7  
 HCAL0-3 size 60x60x165 cm<sup>3</sup>  
 Deviation from «0» line:  
 HCAL0 — 40.5 cm;  
 HCAL1 — 44.5 cm;  
 HCAL2 — 60 cm;  
 HCAL3 — 0 cm;



**23 September. 0:00**

Total electrons = <b>1869,6</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3363	200	2820,0	2360,0	1470,0	7,50	1470,0	294,0	196,0	1547,8	303,4	unstable
3364	200	3270,0	2610,0	2140,0	8,60	1640,0	328,0	190,7	1570,4	299,5	good
3365	200	3310,0	2660,0	2240,0	8,80	1650,0	330,0	187,5	1594,3	298,9	good
3366	200	3160,0	2510,0	2350,0	8,50	1590,0	318,0	187,1	1501,7	280,9	good
3367	200	3190,0	2510,0	2350,0	8,50	1640,0	328,0	192,9	1532,8	295,7	good
3368	200	3230,0	2540,0	2120,0	8,60	1580,0	316,0	183,7	1504,6	276,4	unstable
3369	83	3010,0	2390,0	1990,0	8,00	1480,0	122,8	185,0	620,1	114,7	unstable

**Total electrons → 1.9x10\*9 (3.1x10\*9)****23 September. 8:00**

Total electrons = <b>1055,7</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3370	200	3040,0	2430,0	2030,0	8,57	1510,0	302,0	176,2	1466,8	258,4	unstable
3371	200	3070,0	2450,0	2000,0	8,50	1520,0	304,0	178,8	1439,7	257,5	unstable
3372	200	3060,0	2430,0	2030,0	8,20	1520,0	304,0	185,4	1402,9	260,0	unstable
3373	200	3110,0	2480,0	2070,0	8,60	1540,0	308,0	179,1	1562,5	279,8	good

**Total electrons → 1.1x10\*9 (4.2x10\*9)**Run 3374 Trig= S<sub>012</sub>VWpsh S0 – 3\*10\*6; 43 spill, Awcal = 1670 Awpsh = 1460Run 3375 Trig = S<sub>012</sub>V, S0 – 3\*10\*6; 43spill; Awcal = 1640, Awpsh = 1475Run 3376 Trig = S<sub>012</sub>V, S0 – 3\*10\*6, MPBL OFF, 10 spill;Run 3377 Hadron, Trig = S<sub>012</sub>V, S0 – 3\*10\*4, MPBL OFF, 10 spill;Run 3378 Hadron, Trig = S<sub>012</sub>V, S0 – 3\*10\*4, MPBL ON, 100 spill;Run 3379 Hadron, Trig = S<sub>012</sub>VWpsh, S0 – 3\*10\*4, MPBL ON, 20 spill;**23 September. 16:00**

Total electrons = <b>1517,4</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3380	172	2100,0	1820,0	1540,0	6,90	1270,0	218,4	184,1	1077,6	198,3	unstable
3381	200	2100,0	1820,0	1540,0	6,90	1270,0	254,0	184,1	1329,3	244,7	unstable
3382	200	2440,0	2120,0	1700,0	8,00	1310,0	262,0	191,0	1405,8	268,5	unstable
3383	200	2980,0	2540,0	2130,0	8,75	1590,0	318,0	181,7	1542,7	280,3	good
3384	200	3280,0	2800,0	2300,0	9,10	1690,0	338,0	185,7	1547,7	287,4	good
3385	164	2950,0	2400,0	2000,0	8,70	1500,0	246,0	172,4	1228,0	211,7	good
3386	20	2950,0	2400,0	2000,0	8,70	1500,0	30,0	172,4	153,4	26,4	unstable

**Total electrons → 1.5x10\*9 (5.7x10\*9)****24 September. 0:00**

Total electrons = <b>2295,8</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3387	200	3220,0	2630,0	2180,0	8,75	1600,0	320,0	182,9	1544,7	282,5	good
3388	200	3240,0	2710,0	2250,0	9,20	1650,0	330,0	179,3	1583,1	283,9	good
3389	200	3450,0	2810,0	2300,0	9,50	1690,0	338,0	177,9	1597,3	284,2	good
3390	200	3259,0	2490,0	2050,0	8,60	1530,0	306,0	177,9	1555,3	276,7	unstable
3391	200	3380,0	2840,0	2350,0	9,40	1700,0	340,0	180,9	1627,3	294,3	good
3392	200	3410,0	2880,0		9,40	1730,0	346,0	184,0	1666,9	306,8	good
3393	200	3530,0	2970,0	2440,0	9,60	1760,0	352,0	183,3	1646,0	301,8	unstable
3394	200	2950,0	2460,0	2040,0	9,00	1520,0	304,0	168,9	1573,2	265,7	good

**Total electrons → 2.3x10<sup>9</sup> (8.0x10<sup>9</sup>)**

**24 September. 8:00**

**11:00 50GeV beam:**

Run 3397 50GeV electron, S0 = 1.6\*10<sup>6</sup>; I= -300A; Trig = SV(S0+S1+S2-V0), 35spill

Run 3398 80GeV electron, S0 = 1.5\*10<sup>6</sup>; I= -560A; Trig = SV, 22spill

Run 3399 100GeV hadron, S0 = 1.6\*10<sup>6</sup>; I= -800A; Trig = SV+S4, 100spill

Run 3400 100GeV electron, S0 = 3.0\*10<sup>6</sup>; Trig = SV, 31spill

Run 3401 100GeV electron, S0 = 3.0\*10<sup>6</sup>; Trig = SV+Wpsh, 34spill

Run 3402 100GeV hadron, S0 = 60.0\*10<sup>3</sup>; Trig = SV, 60spill

Total electrons = <b>968,5</b> x10 <sup>6</sup>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3395	200	3020,0	2500,0	2090,0	9,10	1530,0	306,0	168,1	1590,0	267,3	good
3396	200	2930,0	2510,0	2090,0	9,20	1550,0	310,0	168,5	1528,0	257,4	good
3403	91	3220,0	2730,0	2220,0	8,40	1640,0	149,2	195,2	683,0	133,3	good
3404	200	3620,0	3110,0	2520,0	9,20	1900,0	380,0	206,5	1503,0	310,4	unstable

**Total electrons → 1.0x10<sup>9</sup> (9.0x10<sup>9</sup>)**

**24 September. 16:00**

Total electrons = <b>1321,1</b> x10 <sup>6</sup>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3405	200	3060,0	2600,0	2040,0	8,10	1600,0	320,0	197,5	1487,3	293,8	good
3406	200	3000,0	2600,0	2100,0	8,20	1500,0	300,0	182,9	1503,6	275,0	good
3407	200	3000,0	2600,0	2070,0	8,30	1600,0	320,0	192,8	1486,6	286,6	good
3408	123	2900,0	2400,0	2000,0	8,30	1500,0	184,5	200,0	897,2	179,4	good
3409	200	2900,0	2600,0	2000,0	8,30	1600,0	320,0	192,8	1484,9	286,2	good

**Total electrons → 1.3x10<sup>9</sup> (10.3x10<sup>9</sup>)**

**25 September. 0:00**

Total electrons = <b>2390,9</b> x10 <sup>6</sup>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3410	200	3220,0	2630,0	2180,0	8,75	1600,0	320,0	182,9	1494,1	273,2	good
3411	200	3060,0	2600,0	2100,0	8,60	1600,0	320,0	186,0	1524,2	283,6	good
3412	200	3210,0	2680,0	2170,0	8,50	1620,0	324,0	190,6	1523,8	290,4	unstable
3413	200	3390,0	2870,0	2360,0	9,30	1730,0	346,0	186,0	1668,3	310,3	good
3414	200	3780,0	3130,0	2540,0	9,70	1850,0	370,0	190,7	1713,8	326,9	good
3415	200	3850,0	3150,0	2550,0	9,50	1840,0	368,0	193,7	1687,2	326,8	good
3416	200	3700,0	3110,0	2430,0	9,40	1820,0	364,0	193,6	1683,0	325,9	good

**Total electrons → 2.4x10<sup>9</sup> (12.7x10<sup>9</sup>)**

**25 September. 8:00**

Total electrons = <b>2177,8</b> x10 <sup>6</sup>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3418	200	3760,0	3090,0	2530,0	9,30	1830,0	366,0	196,8	1699,0	334,3	good
3419	21	3770,0	3110,0	2570,0	9,70	1830,0	38,4	188,7	170,4	32,1	good
3420	200	3970,0	3200,0	2580,0	9,60	1870,0	374,0	194,8	1716,0	334,3	unstable
3421	200	3720,0	3090,0		9,40	1780,0	356,0	189,4	1619,6	306,7	good
3422	200	3380,0	2800,0		9,10	1670,0	334,0	183,5	1613,4	296,1	good
3423	176	3390,0	2790,0	2290,0	9,10	1660,0	292,2	182,4	1424,3	259,8	good
3424	148	3340,0	2770,0	2250,0	9,10	1670,0	247,2	183,5	1190,5	218,5	good
3425	200	3300,0	2700,0	2220,0	8,90	1650,0	330,0	185,4	1586,0	294,0	good
3426	74	3270,0	2760,0	2240,0	9,00	1590,0	117,7	176,7	577,0	101,9	good

**Total electrons → 2.2x10<sup>9</sup> (14.9x10<sup>9</sup>)**

**25 September. 16:00**

Total electrons = <b>976,0</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3427	23	2700,0	2300,0	1850,0	8,40	1400,0	32,2	166,7	193,0	32,2	good
3428	32	2950,0	2000,0	1800,0	8,40	1400,0	44,8	166,7	237,0	39,5	good
3429	139	2700,0	2400,0	1900,0	8,30	1500,0	208,5	180,7	1043,0	188,5	unstable
3430	65	3300,0	2800,0	2300,0	8,80	1700,0	110,5	193,2	497,0	96,0	unstable
3431	200	3300,0	2800,0	2300,0	9,00	1700,0	340,0	188,9	1610,0	304,1	good
3432	200	3600,0	3030,0	2300,0	9,40	1800,0	360,0	191,5	1648,5	315,7	good

**Total electrons → 1.0x10\*9 (15.9x10\*9)****26 September. 0:00**

Total electrons = <b>2685,8</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3433	200	3520,0	2980,0	2440,0	9,60	1760,0	352,0	183,3	1656,0	303,6	good
3434	200	3520,0	2930,0	2390,0	9,40	1730,0	346,0	184,0	1681,0	309,4	good
3435	200	3720,0	3090,0	2200,0	9,10	1580,0	316,0	173,6	1605,0	278,7	good
3436	200	3330,0	2810,0	2230,0	9,10	1650,0	330,0	181,3	1622,5	294,2	good
3437	195	3400,0	2850,0	2310,0	9,30	1680,0	327,6	180,6	1595,9	288,3	good
3438	198	3480,0	2860,0	2330,0	9,20	1690,0	334,6	183,7	1633,6	300,1	good
3439	200	3560,0	2890,0	2370,0	9,25	1700,0	340,0	183,8	1661,0	305,3	good
3440	198	3500,0	2930,0	2370,0	9,45	1730,0	342,5	183,1	1670,4	305,8	good
3441	200	3540,0	2950,0	2370,0	9,50	1690,0	338,0	177,9	1689,5	300,6	good

**Total electrons → 2.7x10\*9 (18.6x10\*9)****26 September. 8:00**

Total electrons = <b>1621,4</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3442	200	3500,0	2900,0	2390,0	9,60	1750,0	350,0	182,3	1699,2	309,8	good
3443	200	3650,0	3000,0	2400,0	9,50	1720,0	344,0	181,1	1704,2	308,5	good
3444	200	3600,0	3000,0	2400,0	9,70	1740,0	348,0	179,4	1709,3	306,6	good
3445	198	3600,0	3000,0	2400,0	9,50	1700,0	336,6	178,9	1603,0	286,9	unstable
3446	37	3200,0			9,20	1500,0	55,5	163,0	265,9	43,4	good
3447	40	3450,0	2900,0	2300,0	8,00	1700,0	68,0	212,5	265,9	56,5	unstable
3448	200	3450,0	2900,0	2300,0	8,00	1700,0	340,0	212,5	1584,6	309,8	good

**Total electrons → 1.6x10\*9 (20.2x10\*9)****26 September. 16:00**

Total electrons = <b>2721,1</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3449	191	4200,0	3500,0	2700,0	10,00	1900,0	362,9	192,0	1637,8	314,5	unstable
3450	200	3600,0	3000,0	2400,0	9,90	1700,0	340,0	171,7	1711,7	293,9	good
3451	188	3600,0	3000,0	2400,0	9,80	1700,0	319,6	173,5	1624,7	281,8	unstable
3452	196	3600,0	3000,0	2400,0	9,70	1700,0	333,2	175,3	1667,4	292,2	unstable
3453	176	4500,0	3700,0	3000,0	10,00	2100,0	369,6	210,0	1493,2	313,6	unstable
3454	194	3400,0	2860,0	2330,0	9,60	1700,0	329,8	177,1	1642,8	290,9	unstable
3455	200	3400,0	2800,0	2300,0	9,60	1600,0	320,0	166,7	1668,5	278,1	good
3456	200	3500,0	2930,0	2300,0	10,00	1730,0	346,0	173,0	1704,0	294,8	good

**Total electrons → 2.7x10\*9 (22.9x10\*9)****27 September. 0:00**

Total electrons = <b>1274,5</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3457	200	3230,0	2770,0	2250,0	9,40	1590,0	318,0	169,1	1653,3	279,7	good
3458	200	3280,0	2750,0	2260,0	10,10	1610,0	322,0	159,4	1651,5	263,3	good
3459	175	3050,0	2530,0	2030,0	9,30	1510,0	264,3	162,4	1485,4	241,2	unstable
3460	200	2260,0	1910,0	1530,0	8,70	1160,0	232,0	133,3	1579,4	210,6	unstable
3461	194	2250,0	1960,0	1560,0	8,80	1180,0	228,9	134,1	1333,1	178,8	unstable
3462	92	2610,0	2210,0	1780,0	9,70	1300,0	119,6	134,0	754,0	101,1	unstable

**Total electrons → 1.3x10\*9 (24.2x10\*9)**

**27 September. 8:00**

MD until 18:00.

**Change geometry on 30X0.**

Increase HV on W 0-1 on 10 unit, now 590.

**27 September. 16:00**

Run 3465, hadron, Trig = SV, 50 spill

Run 3466 electron, Trig = SV, 5\*10\*6, 55 spill

Run3468 stopped, DAQ problem.

**28 September. 0:00**

Total electrons = <b>2418,0</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3467	200	3750,0	3170,0	2630,0	9,10	1890,0	378,0	207,7	1525,0	316,7	good
3469	200	3750,0	3170,0	2630,0	9,10	1890,0	378,0	207,7	1643,0	341,2	good
3470	200	3950,0	3270,0	2670,0	9,50	1950,0	390,0	205,3	1723,9	353,9	good
3471	200	4130,0	3460,0	2810,0	9,60	1980,0	396,0	206,3	1778,6	366,8	good
3472	200	3770,0	3160,0	2600,0	9,10	1880,0	376,0	206,6	1679,0	346,9	good
3473	200	3800,0	3160,0	2610,0	9,10	1910,0	382,0	209,9	1711,8	359,3	good
3474	190	3870,0	3090,0	2640,0	9,50	1910,0	362,9	201,1	1657,2	333,2	unstable

**Total electrons → 2.4x10\*9 (2.4x10\*9)**

**28 September. 8:00**

Total electrons = <b>2065,3</b> <b>x10*6</b>											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3475	200	3560,0	2800,0	2300,0	8,30	1700,0	340,0	204,8	1530,6	313,5	unstable
3476	200	3200,0	2700,0	2300,0	8,50	1600,0	320,0	201,0	1494,4	300,4	unstable
3477	189	3400,0	2800,0	2500,0	8,70	1700,0	321,3	195,4	1593,0	311,3	unstable
3478	185	3500,0	3000,0	2500,0	9,00	1800,0	333,0	200,0	1783,0	356,6	unstable
3479	196	4200,0	3700,0	2400,0	10,20	2000,0	392,0	196,1	1897,0	372,0	unstable
3480	193	4400,0	3700,0	3100,0	10,30	2200,0	424,6	213,6	1927,0	411,6	unstable

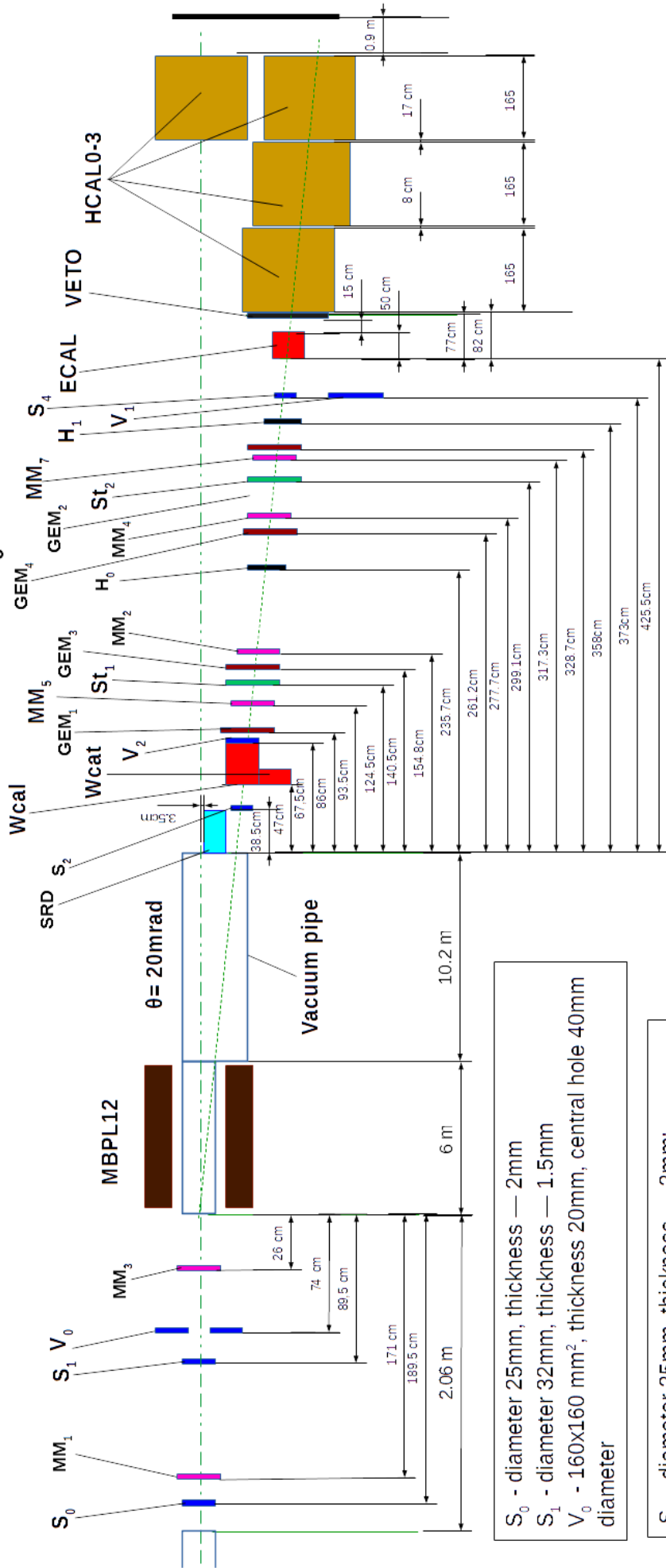
**Total electrons → 2.1x10\*9 (4.5x10\*9)**

Run 3481 electron, Trig = SVWpsh, S0 – 4.5\*10\*6, 50 spill

Run 3482 electron, Trig = SV, S0 – 4.5\*10\*6, 37 spill

Run 3483 hadron, Trig = SV, S0 – 3.8\*10\*4, 105 spill

## TOP VIEW visible mode (30X<sub>0</sub>)



$S_0$  - diameter 25mm, thickness — 2mm;  
 $S_1$  - diameter 32mm, thickness — 1.5mm;  
 $V_0$  - 160x160 mm<sup>2</sup>, thickness 20mm, central hole 40mm diameter

$S_0$  - diameter 25mm, thickness — 2mm;  
 $S_2, S_4$  - diameter 32mm, thickness — 1.5mm;  
 $V_1$  - 220x220 mm<sup>2</sup>, thickness 10mm;  
 $V_2$  - 160x160 mm<sup>2</sup>, thickness 20mm;  
 Deviation from «0» line:  
 $S_2$  - 29.5 cm;  $S_3$  — 34.5cm;  $S_4$  — 37.7cm  
 SRD - 3.5cm, size — 21x8x30 cm<sup>3</sup>;  
 $V_1$  center — 80cm;  
 Ecac center — 39 cm;

Wcal size 12x12x20.5 cm<sup>3</sup> 30X<sub>0</sub>  
 Deviation from «0» 30cm;  
 Wcat size 12x12x7 cm<sup>3</sup> 10X<sub>0</sub>  
 Deviation from «0» line 45cm;

GEM numbering after vacuum pipe — 1, 3, 4, 2  
 MM numbering before vacuum pipe — 1, 3  
 MM numbering after vacuum pipe — 5, 4, 2, 7

HCAL0-3 size 60x60x165 cm<sup>3</sup>  
 Deviation from «0» line:  
 HCAL0 — 40.5 cm;  
 HCAL1 — 44.5 cm;  
 HCAL2 — 60 cm;  
 HCAL3 — 0 cm;



**28 September. 16:00**

Total electrons = <b>2407,3</b> $\times 10^6$											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3485	200	4200,0	3800,0	2940,0	10,10	2240,0	448,0	221,8	1927,0	427,4	good
3486	200	4400,0	3700,0	3200,0	11,10	2100,0	420,0	209,0	1873,0	391,5	unstable
3487	188	4400,0	3800,0	3100,0	10,60	2100,0	394,8	207,0	1854,0	383,8	unstable
3488	200	4500,0	3700,0	3000,0	10,70	2100,0	420,0	196,3	1992,0	391,0	good
3489	200	4600,0	3800,0	3200,0	11,00	2100,0	420,0	197,0	2034,0	400,7	good
3490	200	4800,0	3900,0	3200,0	11,00	2200,0	440,0	200,0	2065,0	413,0	good

**Total electrons  $\rightarrow 2.4 \times 10^9$  ( $6.9 \times 10^9$ )**

**29 September. 0:00**

Total electrons = <b>2794,2</b> $\times 10^6$											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3491	200	4660,0	3870,0	3160,0	10,70	2100,0	420,0	196,3	2032,0	398,8	good
3492	200	4780,0	3870,0	3190,0	10,90	2200,0	440,0	201,8	2016,0	406,9	unstable
3493	200	4770,0	3860,0	3190,0	10,90	2180,0	436,0	200,0	2047,0	409,4	good
3494	200	4780,0	3910,0		11,10	2170,0	434,0	195,5	2040,0	398,8	unstable
3495	200	4160,0	3430,0	2800,0	9,90	2000,0	400,0	202,0	1939,0	391,7	unstable
3496	200	4860,0	4020,0	3260,0	11,20	2180,0	436,0	194,6	2077,0	404,3	good
3497	186	4970,0	4030,0	3340,0	11,50	2230,0	414,8	193,9	1982,0	384,3	unstable

**Total electrons  $\rightarrow 2.8 \times 10^9$  ( $9.7 \times 10^9$ )**

**29 September. 8:00**

Total electrons = <b>1401,0</b> $\times 10^6$											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3498	165	4040,0	3400,0		9,80	1980,0	326,7	202,0	1636,0	330,5	unstable
3499	143	4100,0			10,80	2000,0	286,0	185,2	1342,0	248,5	unstable
3500	200	2940,0			7,30	1500,0	300,0	205,5	1353,0	278,0	good
3501	190	3200,0			8,10	1600,0	304,0	197,5	1329,0	262,5	good
3502	200	3100,0			8,00	1600,0	320,0	200,0	1407,0	281,4	good

**Total electrons  $\rightarrow 1.4 \times 10^9$  ( $11.1 \times 10^9$ )**

**29 September. 16:00**

**Include Wcatcher in trigger. Muon in Wcatcher Amu = 16 or 10MeV per MSADC count**

Total electrons = <b>1990,4</b> $\times 10^6$											
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3504	183	2780,0	2470,0	1900,0	3,60	1940,0	355,0	538,9	664,0	357,8	unstable
3505	200	4170,0	3480,0	2870,0	4,50	2520,0	504,0	560,0	745,0	417,2	good
3506	200	3930,0	3290,0	2700,0	4,50	2320,0	464,0	515,6	781,0	402,6	good
3507	200	4100,0	3400,0	2800,0	4,60	2400,0	480,0	521,7	787,0	410,6	good
3508	200	3900,0	3300,0	2700,0	4,45	2300,0	460,0	516,9	778,0	402,1	good

**Total electrons  $\rightarrow 2.0 \times 10^9$  ( $13.1 \times 10^9$ )**

**30 September. 0:00**

			Total electrons = 2528,6 x10*6								
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spill s, 10*6	Trig.reduc tion	Ntarg., 10*3	Ntot., 10*6	
3509	200	4500,0	3700,0	3000,0	4,85	2600,0	520,0	536,1	779,0	417,6	unstable
3510	200	4200,0	3500,0	2900,0	4,80	2500,0	500,0	532,0	807,0	429,3	unstable
3511	200	4200,0	3500,0	2900,0	4,50	2500,0	500,0	555,6	729,0	405,0	good
3512	200	4500,0	3800,0	3000,0	5,00	2600,0	520,0	520,0	772,0	401,4	unstable
3513	200	4200,0	3400,0	2800,0	4,50	2400,0	480,0	533,3	710,0	378,7	good
3514	200	4600,0	3800,0	3100,0	4,00	2600,0	520,0	650,0	764,0	496,6	good

**Total electrons → 2.5x10\*9 (15.6x10\*9)**

**30 September. 8:00**

Run 3518 100GeV electron, trig = SVWpsh-Wcatcher, S0 – 4.2\*10\*6, 32spill

Run 3519 100GeV electron, trig = SV-Wcat, S0 – 4.3\*10\*6, 20spill

Run 3520 100GeV hadron, trig = SV-Wcat, S0 – 5\*10\*4, 50spill

Run 3521 100GeV electron, trig = SV, S0 – 4.0\*10\*6, 20spill

Run 3522 80GeV electron, trig = SV, S0 – 2.6\*10\*6, 30spill, I = -560A

Run 3523 50GeV electron, trig = SV, S0 – 4.0\*10\*6, 30spill, I = -300A

Run 3524 30GeV electron, trig = SV, S0 – 4.8\*10\*6, 30spill, I = -186A

Test high energy beam intensity:

**200GeV electron all collimators open; S0 = 5\*10\*5, V0 = 1.5\*10\*5**

**150GeV electron, all collimators open, Coll2 +- 10, Coll3 +-10, Coll8 +-10**

**S0 = 2.6\*10\*6, V0 = 5\*10\*4, near 50x10\*11 on T2 target.**

				Total electrons =		3064,2		x10*6					
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spill s, 10*6	Trig.reduc tion	Ntarg., 10*3	Ntot., 10*6			
3515	200	4600,0	3790,0	3000,0	4,60	2670,0	534,0	580,4	772,0	448,1	good		
3516	200	4450,0	3860,0	3000,0	4,55	2610,0	522,0	573,6	742,0	425,6	good		
3517	200	4200,0	3500,0	2800,0	4,35	2500,0	500,0	574,7	752,0	432,2	good		
3525	200	5210,0	4470,0	3430,0	4,50	2900,0	580,0	644,4	875,0	563,9	good		
3526	200	5480,0	4640,0	3620,0	5,00	3080,0	616,0	616,0	961,0	592,0	good		
3527	200	5610,0	4830,0	3740,0	5,30	3130,0	626,0	590,6	1020,0	602,4	unstable		

**Total electrons → 3.1x10\*9 (18.7x10\*9)**

**30 September. 16:00**

			Total electrons = <b>3897,4</b>				<b>x10*6</b>				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spill s, 10*6	Trig.reduc tion	Ntarg., 10*3	Ntot., 10*6	
3528	200	4950,0	4230,0	3300,0	4,45	2880,0	576,0	647,2	861,0	557,2	unstable
3529	200	5100,0	4600,0	3600,0	4,60	2900,0	580,0	630,4	840,0	529,6	unstable
3530	200	5500,0	4600,0	3400,0	4,40	2900,0	580,0	659,1	939,0	618,9	unstable
3531	200	4700,0	4300,0	3300,0	4,00	2800,0	560,0	700,0	850,0	595,0	unstable
3532	200	5100,0	3800,0	2900,0	4,50	2500,0	500,0	555,6	866,0	481,1	unstable
3533	200	5200,0	4300,0	3100,0	4,80	2900,0	580,0	604,2	933,0	563,7	unstable
3534	200	5100,0	4400,0	3400,0	5,35	2800,0	560,0	596,0	926,0	551,9	good

**Total electrons → 3.9x10\*9 (22.6x10\*9)**

**1 October. 0:00**

				Total electrons = <b>3654,8</b>			<b>x10*6</b>				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3435	200	5430,0	4460,0	3500,0	6,45	2830,0	566,0	477,0	1054,0	502,8	unstable
3536	200	5450,0	4490,0	3530,0	6,00	2840,0	568,0	473,3	1150,0	544,3	good
3537	200	5490,0	4550,0	3570,0	6,60	2770,0	554,0	462,0	1185,0	547,5	unstable
3538	200	5460,0	4650,0	3600,0	7,30	2870,0	574,0	431,0	1247,0	537,5	unstable
3539	200	5100,0	4260,0	3350,0	6,45	2780,0	556,0	431,0	1083,0	466,8	unstable
3540	200	5190,0	4280,0	3360,0	6,40	2750,0	550,0	429,7	1100,0	472,7	good
3541	200	5280,0	4400,0	3400,0	6,50	2750,0	550,0	423,1	1068,0	451,8	unstable
3543	65	4930,0	4080,0	3140,0	6,15	2670,0	173,6	434,1	303,0	131,5	good

**Total electrons → 3.7x10\*9 (26.3x10\*9)**

**1 October. 8:00**

Run 3547 hadron 100 GeV, trig = SVWpsh-Wecal-Wcat; 47 spill;

Run 3548 hadron 100 GeV, trig = SVWpsh-Wecal-Wcat; 20 spill;

				Total electrons = <b>1817,9</b>			<b>x10*6</b>				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3544	200	4940,0	4080,0	3200,0	5,10	2730,0	546,0	535,3	884,0	473,2	good
3545	200	5100,0	4200,0	3200,0	5,10	2800,0	560,0	549,0	833,0	457,3	unstable
3546	60	5000,0	4300,0	3200,0	4,70	2820,0	169,2	600,0	844,0	506,4	good
3549	20	5460,0	4650,0	3600,0	4,70	2800,0	56,0	595,7	84,0	50,0	good
3550	200	4700,0	3800,0	2800,0	5,70	2300,0	460,0	403,5	820,0	330,9	unstable

**Total electrons → 1.8x10\*9 (28.1x10\*9)**

**1 October. 16:00**

				Total electrons = <b>1999,3</b>			<b>x10*6</b>				
Nruns	Spills	S0,10*3	S01V,10*3	SV,10*3	Trig,10*3	SVbusy,10*3	SVbusy*Spills, 10*6	Trig.reduction	Ntarg., 10*3	Ntot., 10*6	
3551	200	5200,0	4400,0	3200,0	4,60	2800,0	560,0	608,7	889,0	541,1	unstable
3552	200	4800,0	4000,0	3000,0	5,60	2500,0	500,0	446,4	991,0	442,4	unstable
3554	200	5100,0	4300,0	3200,0	6,50	2600,0	520,0	400,0	1215,0	486,0	unstable
3555	103	5400,0	4500,0	3200,0	6,60	2600,0	267,8	393,9	552,0	217,5	unstable
3556	27	5500,0	4500,0	3300,0	5,90	2700,0	72,9	457,6	117,0	53,5	unstable
3557	25	5400,0	4400,0	3200,0	4,30	2800,0	70,0	651,2	109,0	71,0	good
3558	25	5100,0	4200,0	3100,0	4,40	2600,0	65,0	590,9	106,0	62,6	good
3559	25	4900,0	4100,0	3000,0	4,30	2600,0	65,0	604,7	101,0	61,1	good
3560	25	4900,0	4100,0	3000,0	4,30	2600,0	65,0	604,7	106,0	64,1	good

**Total electrons → 2.0x10\*9 (30.1x10\*9)**

Hadron beam 100GeV, Trig = S012-V0+Wpsh-Wecal-Wcat

Run 3561 S0 =4.6\*10\*4, trig. To TCS = 2700; 50spill

Runs 3568 – 3572 near 1000 spill; total trig = 3\*10\*6

**Total electrons with 40X<sub>0</sub> → 24.2x10<sup>9</sup>**

**Total electrons with 30X<sub>0</sub> → 30.1x10<sup>9</sup>**

**Total electrons for visible mode → 5.5x10<sup>10</sup>**